From Problem to Policy: Applying the Essential Use Concept to PFAS 'Class Approach' and *Canada's Environmental Protection Act*, 1999

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I. INTRODUCTION

Chemical regulation in Canada is changing. In June 2023, Bill S-5, "*Strengthening Environmental Protection for a Healthier Canada Act*"[1] enshrined "the right to a healthy environment" within the *Canadian Environmental Protection Act*, 1999[2] (CEPA). While this addition to the legislative preamble might, at first glance, seem like an incremental change, and although it is viewed by some as just a few aspirational words, the amendments to CEPA have been accompanied by significant changes to the assessment of certain chemicals. The most notable change is the move to assess per-and polyfluorinated alkyl substances (PFAS) as a group or

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1 Environment and Climate Change Canada, "Implementing the Modernized Canadian Environmental Protection Act, 1999", (last modified 27 January 2026) online: <www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act-registry/implementing-modernized-cepa.html>.

2 *Canadian Environmental Protection Act*, SC 1999, c 33 [CEPA].

"class" of chemicals rather than one substance at a time, as has been the practice for previous chemical assessment and regulation.[3]
This regulatory administrative change has been in direct response to the evolving international and domestic science including subsequent scientific recommendations on the appropriate management of PFAS that includes the introduction of the "essential use concept" as a risk management protocol.

Science is the foundation of environmental regulatory decision making under Canada's key environmental protection legislation, the CEPA.[4] Within the multidisciplinary domain of regulatory science, scientific research is relied upon to structure environmental legislation and policy instruments.[5] Regulatory science is the co-production of regulatory knowledge and research-based science with the aim of informing science-based administrative arrangements used to support environmental and health regulatory decision-making processes.[6] Within CEPA's chemical management regulatory regime, scientific research examines the human health and environmental impacts of toxic chemical substances and products that are used within the marketplace.[7] In response to the emerging science on PFAS[8] and in pursuit of the protection of environmental and human health, the scientific community has proposed two frameworks for

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3 Order Adding a Toxic Substance to Part 2 of Schedule 1 to the Canadian Environmental Protection Act, 1999, Regulatory Impact Analysis Statement, (2025) C Gaz I, 510 [C Gaz I 510];. RIAS concluded with a regulatory action under section 90(1) of the CEPA where "the Ministers are recommending that the Governor in Council make an order to add the class of PFAS, excluding fluoropolymers, to Part 2 of Schedule 1 to the Act."

4 *CEPA, supra* note 2. CEPA's Legislative Intent: An Act respecting pollution prevention and the protection of the environment and human health in order to contribute to sustainable development; Declaration: It is hereby declared that the protection of the environment is essential to the well-being of Canadians and that the primary purpose of this Act is to contribute to sustainable development through pollution prevention.

5 Jaye Ellis, "Governing through Controversy: The Challenge of New Toxicological Methodologies" (2022) 37:3 Cdn J of Law & Society 413;Jonathon W Moore et al, "Towards linking Environmental law and Science" (April 9, 2018) .3:1 FACETS.

6 Albert C Lin, "President Trump's War on Regulatory Science" (2019) 43:2 Harv Envtl LRev 247 at 252 -254.

7 Dayna N Scott, "Confronting Chronic Pollution: A Socio-Legal Analysis of Risk and Precaution" (2008) 46:2 Osgoode Hall LJ 293.

8 E. Panieri et al, "Review Article: PFAS Molecules: A Major Concern for Human Health and the Environment" (2022) 44:10 Toxics.

the assessment and regulation of PFAS: (1) a class-based approach that assesses all PFAS molecules at once rather than one substance at a time, and (2) the novel "essential use concept" that aims to facilitate the restriction of PFAS to ensure these chemicals are only used in applications where their use is essential to human health and safety or when they are critical for the functioning of society and there are no viable safer alternatives.

Under CEPA, the protection of the environment and human health are the primary legislative objectives. PFAS are well-documented in the scientific literature,[9] and these substances are acknowledged by the Canadian government as being harmful to human health and the environment.[10] Despite the science, only four types of long-chain PFAS are recorded under CEPA's list[11] of toxic substances in Schedule 1.[12] While the federal government has taken a number of actions to manage the risks presented by these four PFAS,[13] it is well-known that over 4700 CAS-registered PFAS exist in the marketplace.[14] Given the widespread and

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9 Rebecca A Dickman & Diana S Aga, "A Review of Recent Studies on Toxicity, Sequestration and Degradation of Per-and Polyfluoroalkyl Substances (PFAS)" (2022) 436 J of Hazardous Materials 129120; José L Domingo & Martí Nadal, "Human exposure to Per- and Polyfluoroalkyl Substances (PFAS) through Drinking Water: A Review of the Recent Scientific Literature" (2019) 177 Envtl. Research, 108648.

10 Environment and Climate Change Canada &Health Canada, "Draft State of Per-and Polyfluoroalkyl Substances (PFAS) Report" (Ottawa: ECCC & HC, May 2023) online: <https://www.canada.ca/en/environment-climate-change/services/evaluating-existing-substances/draft-state-per-polyfluoroalkyl-substances-report.html > [Draft PFAS Report 2023].

11 Prior to the June 2023 amendments, Schedule 1 was entitled 'list of toxic substances in Schedule 1" and as result of the June 2023 amendments Schedule 1 no longer includes a title. For purposes of this paper, "the list of toxic substances" will be used to reference Schedule 1, which includes Part 1 and Part 2.

12 *CEPA, supra* note 2, schedule 1, part 2, items 112-115.

13 Environment and Climate Change Canada, "Chemicals Management Risk Management Actions Table" (Gatineau: ECCC, last modified May 2023), online (excel):<www.canada.ca/en/environment-climate-change/services/management-toxic-substances/management-actions-table.html#year_1>; Also see: Environment and Climate Change Canada, "PFAS (per- and polyfluoroalkyl substances)", (Gatineau: ECCC, 2025), online (pdf): <publications.gc.ca/collections/collection_2025/eccc/En84-334-2025-eng.pdf>.

14 OCED,*Reconciling Terminology of the Universe of Per-and Polyfluoroalkyl Substances: Recommendations and Practical Guidance*, OECD Environment, Health and Safety Publications, Series on Risk Management, No 61,ENV/CBC/MONO(2021)25 (Paris: OECD, 2021) at 7.

prevalent use of PFAS in health, commercial and industrial processes and products, regulators have acknowledged that Canadians are routinely exposed to PFAS in their everyday lives.[15] Research on PFAS conducted by Environment and Climate Change Canada (ECCC) and Health Canada (HC) has concluded that Canadians are being exposed to PFAS through drinking water, dermal contact, and food.[16]

On March 5, 2025, in line with the international and domestic scientific communities' response to the harmful impacts of PFAS, the federal government signalled the implementation of a risk management technique based on a class approach with the publication of a final risk management report entitled: "Risk Management Approach for Per- and polyfluoroalkyl Substances (PFAS), Excluding Fluoropolymers (March, 2025) (i.e., PFAS risk management policy).[17] The report outlines a three-part phased risk management decision-making model that categorizes and prioritizes PFAS according to product type (e.g., firefighting foam) and business sector (e.g., mining, petroleum and transport) and where an onus is placed on business sectors to notify (CEPA, section 70) and to provide toxic substance (e.g., PFAS) related information (CEPA, section 71(1)).[18] In essence, the three-part phased approach creates a partnership model with the business community and places a priority on prohibiting PFAS in use of such products as fire-fighting foam and consideration of other products based on the potential that feasible PFAS alternatives may exist. This staged

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15 See *Draft PFAS Report*, *supra* note 10at 1-4 & 16-20.

16 Canada, Health Canada, *Per- and polyfluoroalkyl substances (PFAS) in Canadians*, (Ottawa: HC, last modified 12 July 2024) , online: <www.canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/environmental-contaminants/human-biomonitoring-resources/per-polyfluoroalkyl-substances-canadians.html > [*PFAS in Canadians*].

17 Canada, Environment and Climate Change Canada & Health Canada, *Risk Management Approach for Per- and polyfluoroalkyl substances (PFAS), excluding fluoropolymers*, (Gatineau: ECCC & HC, last modified 5 March 2025) online: < Risk%20management%20approach%20for%20per-%20and%20polyfluoroalkyl%20substances.pdf > at 1, 4-8 [Risk Management Approach for PFAS].

18 *Ibid* at 9;Also see Canada, Environment and Climate Change Canada, *Guidance Manual - For responding to the: Notice with respect to certain per- and polyfluoroalkyl substances (PFAS)* (Gatineau: ECCC, last modified 29 July 2024) online: <https://www.canada.ca/en/environment-climate-change/services/evaluating-existing-substances/pfas-s71-guidance-manual.html>.

approach requires the balancing of costs and benefits and socio-economic aspects.[19]

However, at the federal level, there is a lack of understanding about the quantity of PFAS that are used in various sectors. To date, the government has collected information regarding the quantity and type of PFAS through the use of sections 70 and 71(1) of CEPA, which enables the gathering of data from users as well as additional information as outlined in the regulations and reporting mechanisms.[20] On March 8, 2025, the government issued the "PFAS-Regulatory Impact Analysis Statement" to support the regulatory order to add a class of PFAS, excluding fluropolymers, to Part 2 of Schedule 1 of CEPA.[21] While this class-based

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19 *Risk Management Approach for PFAS, supra* note 17 at 9.

20 *C Gaz I 510, supra* note 3; Also see: see: the New Substances Notification Regulations (Chemicals and Polymers) and under the Cosmetic Regulations of the Food and Drugs Act, and voluntary submissions received by the Department of Health related to food packaging materials.; Note Canada, Environment and Climate Change Canada, *Proposed Addition of Certain Per- and Polyfluoroalkyl Substances (PFAS) to the National Pollutant Release Inventory* (consultation document), (Gatineau: ECCC, September 2024) online: <www.canada.ca/content/dam/eccc/documents/pdf/npri-/consultations/PFAS%20Consultation%20Document_Sept%2025%202024.pdf >. at ii.131 PFAS to be added to NPRI in 2025.

21 *C Gaz I 510, supra* note 3. The Regulatory Impact Analysis statement concluded with a regulatory action under section 90(1) of the CEPA where "the Ministers are recommending that the Governor in Council make an order to add the class of PFAS, excluding fluoropolymers, to Part 2 of Schedule 1 to the Act." The objective of the proposed Order Adding a Toxic Substance to Part 2 of Schedule 1 to the Canadian Environmental Protection Act, 1999 (the proposed Order) is to enable the Ministers to propose risk management instruments for toxic substances under the Act that prioritize pollution prevention actions, which may include prohibitions, when managing potential environmental and human health risks associated with those substances..... Toxic substances that pose the highest concern are recommended for addition to Part 1 of Schedule 1 to the Act. These substances would be prioritized for total, partial, or conditional prohibition. Other toxic substances are recommended for addition to Part 2 of Schedule 1 to the Act and are prioritized for pollution prevention actions, which may include total, partial or conditional prohibition. Until regulations specifying criteria for the classification of substances that pose the highest risk or that are carcinogenic, mutagenic, or toxic to reproduction are developed, toxic substances that are determined to be persistent and bioaccumulative as per the criteria under the Persistence and Bioaccumulation Regulations are recommended for addition to Part 1 of Schedule 1 to the Act. Should additional criteria be specified in regulation, some substances initially considered for addition to Part 2 of Schedule 1 to the Act may instead be considered for addition to Part 1 of Schedule 1 to the Act. PFAS, excluding fluoropolymers, were determined to be persistent, but the bioaccumulation potential of

regulatory initiative is in line with recommendations by the majority of the scientific community, a similar proposal in the European Union (EU) was met with strong opposition and concerns from the industry about the legality of this approach within the existing regulatory frameworks, as reported by Bergkamp.[22] One of the main criticisms of a class-based PFAS regulation raised by Bergkamp was that there is a lack of data (including toxicity data, human exposure, and bioaccumulation potential) for the vast majority of PFAS molecules, and that a ban should not be based on such assumed risk. Bergkamp argued that such a blanket ban of all PFAS could lead to a reduction in environmental and human health because PFAS are considered as a necessary application, and a ban could lead to the use of more harmful chemical alternatives.

Given the uncertainty of the quantity and type of PFAS uses in Canada including the lack of available data on hazard exposure including the amount of individual PFAS substances that prohibit representative individual testing, this article contends that the government's recent introduction of the three-part PFAS risk-management policy could be strengthened through the concept of essentiality. Specifically, the implementation of Cousins et al.'s "essential use"[23] framework within the government's risk management stage of Chemical Management Plan[24] offers an opportunity to enhance the risk management approach to be in line with the international scientific community's proposed management of PFAS and to uphold CEPA's aim of protecting human and environmental health. In the literature, the essential use framework is offered as a time- and cost-efficient risk management regulatory approach, where the "weeding out"[25] or grouping of PFAS products and processes is broken down into

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PFAS cannot be reasonably determined according to the criteria in the Persistence and Bioaccumulation Regulations. The measure being proposed by the Ministers is recommending that the class of PFAS, excluding fluoropolymers, be added to Part 2 of Schedule 1 to the Act.

22 Lucas Bergkamp, "The False Promise of the 'Toxic-Free' Society: The Case of the Proposed PFAS Restriction" (2023) 6:2 Int'l Chem Regulatory L Rev 38.

23 Ian T Cousins et al, "The Concept of Essential Use for Determining When Uses of PFAS Can be Phased Out" (Nov. 2019) 21:11 Envtl Sci Proc Impacts 1803.

24 Canada, Health Canada, *Chemicals Management Plan*, (Ottawa: HC, last modified 21 March 2022) online: <www.canada.ca/en/health-canada/services/chemical-substances/chemicals-management-plan.html>.

25 *R v Hydro-Quebec*, 1997 CanLII 318 (SCC), [1997] 3 SCR 213 at para 142 [*Hydro-Quebec*].

three categories occurs: (1) essential, (2) non-essential and (3) an alternative chemical substance that can be used as a PFAS functional replacement.

In Canada, the introduction of the PFAS chemical "class approach" signals a regulatory shift away from the traditional risk assessment of discrete, individual PFAS and towards a "class-based strateg[y]"[26] to manage PFAS risks. A class approach redirects attention to the idea of the essentiality of PFAS products and processes in society, and their use in economic-based PFAS commercial applications creating innovation opportunities in business sectors while protecting the environment and human health.[27] In support of the international environmental regulatory science, it is argued in this article that the concept of essentiality supports the government's class approach under the risk management phase of the Chemical Management Plan. The implementation of the essentiality concept could bolster the government's three-part phased PFAS risk management policy (March 5, 2025) and encourages business sectors to be active partners in protecting both human health and the environment. The concept, in principle, also upholds the purpose of CEPA including the values[28] advanced in the recently modernized legislative (June 2023) preamble. At the same time, the approach addresses the legitimate concern that a blanket ban of all PFAS could result in the restriction of chemicals that are, in fact, essential for human health, safety, and the functioning of society.

In this article, we adopt an interdisciplinary science-law method[29] to introduce Cousins' et.al., "essential use framework" as risk management technique to support the PFAS class approach recently introduced by the federal government. In doing so we ask two key questions: How, and in what ways, could Cousins et al.'s essential use framework be used in PFAS risk assessment and management processes, as well as in the ECCC and HC's class approach? How could CEPA's Part 5: Controlling Toxic

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26 Carol F Kwiatkowski et al, "Scientific Basis for Managing PFAS as a Chemical Class" (2020) 7 Envtl. Sci Tech Letters 532 at 537.

27 *Ibid.*

28 *CEPA, upra*, note 2. See the Preamble – pollution prevention, precautionary Principle; precaution, minimizing risks of exposure to toxic substances, substitution of substance with alternatives, a risk-based approach to the assessment and management of chemical substances, right to healthy environment, consideration of vulnerable populations, to name a few.

29 *Moore et al, supra* note 5.

Substances support the introduction of the essential use method? We present this discussion in the following 10 sections. In section 2, the PFAS science and human health impacts are briefly reviewed, followed by Canada's adoption of a class approach to manage PFAS in section 3. We then summarize Canada's PFAS risk management policy in section 4 before moving on to the meaning of essentiality in international law in section 5. In section 6, we outline Cousins et al.'s essentiality framework, and in section 7, we more fully discuss the meaning of essentiality in Canadian jurisprudence. The legislative oversight of PFAS under the *Canadian Environmental Protection Act, 1999* (CEPA) is set out in section 8, and in section 9, we review the 2023 amendments to the CEPA as they relate to the implementation of PFAS and how they are supported by the jurisprudence. In section 10, we propose recommendations for the implementation of the essential use concept through CEPA. Finally, section 11 provides a conclusion.

II. PFAS: THE "FOREVER CHEMICAL" – WHAT DOES THE SCIENCE TELL US ABOUT THE HEALTH AND ENVIRONMENTAL HARMS?

The Organisation for Economic Co-operation and Development (OECD) defines PFAS "as fluorinated substances that contain at least one fully methyl or methylene carbon atom (without any H/Cl/Br/I atom attached to it), i.e., with a few noted exceptions, any chemical with at least a perfluorinated methyl group (–CF3) or a perfluorinated methylene group (–CF2–) is a PFAS."[30] This definition has been adapted by the federal government for application to CEPA. Colloquially, PFAS are known as a "forever chemicals" because of the extreme stability of the C-F bond that forms the core of all PFAS molecules. The C-F bond is the strongest covalent bond in organic chemistry, as such, all PFAS are extremely persistent. As a class of compounds, PFAS are thermally and chemically highly stable, water and grease repellent and act as surfactants. As such, PFAS substances are used in several hundred different and very diverse applications, ranging

30 *OECD, supra* note 14.

from being applied as a surface treatment agent on outdoor clothing to food packaging.[31]

The high environmental stability of these synthetic chemical substances, wide range of applications, and detection across the globe indicate that PFAS are ubiquitous environmental contaminants.[32] Their mobility via air and water has enabled PFAS substances to reach practically every part of the planet.[33] Scientists, regulators, and the general public are concerned about the potential environmental and human health harms and dangers that could be caused by PFAS – because of the extreme persistence of these compounds in the environment and especially, because of their characteristic of mobility in water, which renders any potential harm irreversible.[34] Many of the small molecule PFAS (in contrast to the long-chain or polymeric forms) are highly mobile in water, resulting in their persistence in the water cycle, which has led to the EU regulatory designation of vPvM (very persistent and very mobile), based on the European REACH assessment criteria.[35]

A variety of different PFAS molecules are employed in a range of commercial, medical and public safety uses demonstrating the unique chemical characteristics of these substances and the wide application in the marketplace that together contribute to the ubiquitous nature of PFAS.[36] These PFAS varieties include differences in carbon chain length (i.e., long-chain and short-chain PFAS), as well as differences in functional groups (e.g., sulfonic acids, carboxylic acids, and telomere alcohols).[37] The varieties

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31 Juliane Glüge et al, "An overview of the uses of per- and polyfluoroalkyl substances (PFASS)" (2020), 12, Envtl Sci Pro Impacts 2345.

32 IanT Cousins et al, "Outside the Safe Operating Space of a New Planetary Boundary for Per-and Polyfluoroalkyl Substances (PFASS)" (2022) 56:16 Envtl Sci Tech 11172; Marina G Evich et al., "Per-and Polyfluoroalkyl Substances in the Environment" (2022) 375:6580 Sci 6580.

33 *Cousins et al, supra* note 32 at 11173 & 11175 & 11176; *Evich et al, supra* note 32 at 8.

34 Cousins et al, supra note 32.

35 Hans Peter H Arp et al, "The Global Threat from the Irreversible Accumulation of Trifluoroacetic Acid (TFA)." (2024) 12:58 Envtl Sci Tech 19925.

36 *Juliane Glüge et al., supra* note 31; See generally *Risk Management Approach for PFAS , supra* note 17 at 14.

37 *Glüge et al, at 2346.*; Robert C Buck et al, "Identification and Classification of Commercially Relevant Per- and Poly-fluoroalkyl substances (PFAS)" (2021) 17:5 Envtl Pol'y & Reg 1045.

in chemical structures mean that not all PFAS behave the same way when emitted into the environment. While all PFAS are persistent or can form a persistent PFAS, long-chain PFAS tend to adsorb onto solids or lipids leading to potential bioaccumulation, while short-chain PFAS are water-soluble and tend to remain in a dissolved phase.[38] Due to environmental and human health concerns regarding long-chain PFAS (particularly with a carbon length of 8), commercial use of relevant PFAS have been shifting towards shorter-chain PFAS, increasing the potential risk for water-based contamination.[39] Short-chain PFAS compounds and fluorotelomer-related compounds have been identified as making up almost 50% of the current commercially relevant PFAS.[40]

PFAS emissions into the environment range from direct discharge into the environment through, for example, the application of firefighting foams to the diffuse release from products containing PFAS (such as cosmetics, cookware, textiles, plastic, etc.,), meaning that these substances can be released during any stage of the product's life cycle and are difficult to manage through waste management protocols. The public health concern of PFAS (e.g., as drinking water contaminant) is underscored by the widespread contamination of groundwater and drinking water supplies in numerous jurisdictions, worldwide. Such contamination has been reported in the US 18-80 million people experiencing drinking water with high levels of PFOA and PFOS), in Europe 17,000 sites with PFAS contamination have been reported and in China nearly 100 million people with high levels of PFAS in drinking water (>20 ng/L for 5 PFAS), and among many other countries.[41] In Canada, PFAS contamination in groundwater and drinking

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38 *Cousins et al, supra* note 32; Also see *Evich et al, supra* note 32;Mathhias Kotthoff & Mark Bücking, "Four Chemical Trends Will Shape the Next Decade's Directions in Perfluoroalkyl and Polyfluoroalkyl Substances Research" (2018) 6:103 Front Chem.

39 Kunfeng Zhang et al, "Short-chain PFAS Dominance and Their Environmental Transport Dynamic in Urban Water Systems: Insights from Multimedia Transport Analysis and Human Exposure Risk" (2025) 202 Envrtl Intl 109602; Tasha Stoiber et a., "PFAS in Drinking Water: An Emergent Water Quality Threat" (2020) 1, Water Solutions 40.

40 *Buck et al, supra* note 37.

41 IanCousins, "PFAS Contamination in Europe Far More Widespread than Previously Reported" (Feb. 23, 2023) online (Stockholm University News): < https://www.su.se/english/divisions/department-of-environmental-science/news/articles/2023-02-28-pfas-contamination-in-europe-far-more-widespread-than-previously-reported>; Dina Ackerman Grunfeld et al, "Underestimated burden of

water is not regularly monitored. However, Health Canada has been conducting PFAS sampling of water sources since 2013 in 29 sampling sites across all provinces, except PEI and Alberta. PFAS substances were detected in water sources. Some of the reported documented findings include:

> In a study that included 5 tap water samples from Niagara-on-the-Lake, Ontario, PFOA and PFOS were found at concentrations of 2.1 ng/L and 3.3 ng/L (arithmetic means). PFBA, PFPeA, PFHxA, PFHpA, PFNA, PFDA, PFUnA, PFHxS and PFEtS were also detected in the samples. The limits of quantification ranged from 0.004 to 1.6 ng/L (Mak et al., 2009).
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> At 7 sites in Quebec, source and treated water samples were collected monthly between April 2007 and March 2008. PFOA was detected in 75% of treated water samples (MDL of 0.3 to 0.6 ng/L), with a median value of 2.5 ng/L and a maximum value of 73.0 ng/L. PFOS was detected in 52% of treated samples (MDL of 0.3 to 0.6 ng/L), with a median value of 1.0 ng/L and a maximum value of 12.0 ng/L. PFNA and PFUnA were also detected in some samples (Berryman et al., 2012).[42]

In the media, PFAS contamination hotspots have been reported across the country where concentrations are generally expected to be relatively low.[43] This widespread environmental presence of PFAS in drinking water sources has led to pervasive human exposure, with studies consistently detecting the presence of these chemicals in the blood of virtually every person in North America.[44]

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per- and polyfluoroalkyl substances in global surface waters and groundwaters." (2024) 17 Nature Geoscience 340; Liquan Liu et al, "Per- and polyfluoroalkyl substances (PFASs) in Chinese drinking water: risk assessment and geographical distribution." (2021) 33:6 EnvtlSci Eur.

42 Canada, Health Canada, *Objective for Canadian Drinking Water Quality. Per-and Polyfluoroalkyl Substances* , Doc 240357 (Ottawa: HC, 9 August 2024) at 4-8 online: <www.canada.ca/content/dam/hc-sc/documents/services/publications/healthy-living/objective-drinking-water-quality-per-polyfluoroalkyl-substances/objective-for-canadian-drinking-water-quality-en-final.pdf>.

43 Andrew McManus & CBC News, "Invisible, toxic and slow to break down — forever chemicals are contaminating our food and water. Here's what we know about forever chemical hotspots in Canada." (15 May 2025), online (Digital Map): <newsinteractives.cbc.ca/features/2025/pfas-canada-map/>.

44 Antonia M Calafat et al, "Polyfluoroalkyl Chemicals in the U.S. Population: Data from the National Health and Nutrition Examination Survey (NHANES) 2003-2004 and

The Centers for Disease Control and Prevention (CDC) has documented exposures and PFAS serum levels suggesting PFAS can remain in the human body for years.[45] However, with the introduction of PFAS ban the CDC has reported reduced PFAS serum levels subsequent to phasing out of PFAS.[46] Extensive epidemiological and toxicological research has linked PFAS exposure to a wide range of adverse health effects in humans, as well as animals, even at low concentrations.[47] The wide array of documented health effects that can impact multiple organ systems and biological processes (immune, reproductive, developmental, metabolic, endocrine, hepatic, renal, and carcinogenic pathways[48]) suggests that PFAS not only target specific organs toxicants but also disrupt the body's biological systems. The multisystem toxicity of PFAS, coupled with their long half-lives in the human body, implies that even low-level chronic exposure can lead to significant cumulative health risks over a lifetime.[49] Furthermore, the varying toxicities and bioaccumulation potentials between long-chain and short-chain PFAS add layers of complexity to risk assessment processes, underscoring the challenge of understanding the full spectrum of health impacts that can result from exposure to complex PFAS mixtures.

III. CANADA'S CLASS APPROACH TO PFAS

As with most chemicals, the regulation of PFAS in Canada largely followed a compound-by-compound approach, which means that individual

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Comparisons with NHANES 1999-2000." (2007) 115:11 Envtl Health Persp 1596 at 1596 & 1600; Cousins, supra note 41; *PFAS in Canadians* , *supra* note 16.

45 United States, Agency for Toxic Substances and Disease Regisgtry, *Toxicological Profile for Perfluoroalkyls* (Atlanta: United States Department of Health and Human Services, Agency for Toxic Substances and Disease Registry of the Centers for Disease Control and Prevention, May 2021), online: <www.atsdr.cdc.gov/toxprofiles/tp200.pdf >. Generally, See the Potential for Human Exposure Section.

46 *Ibid.*

47 Suzanne E Fenton et al, "Per- and Polyfluoroalkyl Substance Toxicity and Human Health Review: Current State of Knowledge and Strategies for Informing Future Research" (2021) 40:3 Envtln Toxicology & Chemistry Chem 606..

48 United States, Environmental Protection Agency, *Our Current Understanding of the Human Health and Environmental Risks of PFAS* (Washington, DC: last modified 10 February 2026) online: <www.epa.gov/PFAS/our-current-understanding-human-health-and-environmental-risks-PFAS>.

49 *Fenton et al, supra* note 47.

molecules were generally regulated one by one together with their precursors.[50] In April 2021, Canada announced its intent to introduce a "class approach" as a PFAS regulatory risk management technique. In May 2023 and in July 2024, the ECCC and HC reaffirmed the government's commitment to a class approach.[51] The government's rationale recognized the need to manage the extensive use of PFAS within the marketplace, and, as set out in CEPA, to protect the environment and human health, in part, through PFAS-focused research and monitoring with an attempt to avoid "regrettable substitution" (i.e., replacing one PFAS with another less-well characterized but equally problematic PFAS or other chemical).[52] Finally, in March 20025, the Ministers of ECCC and HC proposed the PFAS risk management policy in support of the final companion document (i.e., Final - The State of PFAS Report (March 8, 2025)), and the assessment of PFAS as a class.

Scientific researchers supported this class approach as an efficient risk management technique.[53] International scientists were the first to raise the alarm about PFAS, and collectively advancing a class approach as a regulatory technique to manage PFAS risks.[54] Canada's "traditional substance-by-substance [chemical] assessment and management approach [is] impractical" and out-of-date from a cost and temporal perspective considering that PFAS are well known to be harmful and can quickly

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50 Canada, Health Canada, *Risk Assessment of Chemicals Substances*, (Ottawa: HC last modified 5 March 2025), online: <www.canada.ca/en/health-canada/services/chemical-substances/canada-approach-chemicals/risk-assessment.html>.

51 Canada, Health Canada,*Per-and Polyfluoroalkyl Substances (PFAS)*, (Ottawa: HC, 26 September 2025), online: <www.canada.ca/en/health-canada/services/chemical-substances/other-chemical-substances-interest/per-polyfluoroalkyl-substances.html#a2>. The website outlines the timeline of the PFAS publications and regulatory Gazette notices (e.g., Notice of Intent) dated from April 24, 2021 to March 8, 2025.

52 *Draft PFAS Report 2023, supra* note 10 at 8.

53 *Kwiatkowski et al, supra* note 26; Ian T Cousins et al, "Strategies for Grouping Per-and Polyfluoroalkyl Substances to Protect Human and Environmental Health" (2020) 22:7 Envtl Sci ProcImpacts 1444.

54 *Kwiatkowski, et al, supra* note 53;, Amélie Ritscher et al, "Zurich Statement on Future Actions on Per – and Polyfluoroalkyl Substances (PFAS)" (2018) 126:8 Envtl. Health Persp 084502.

transform in aquatic ecosystems into different types of toxic PFAS.[55] In response to the PFAS science, numerous international jurisdictions such as United States, Australia, New Zealand, and the European Union undertook examining the application of a PFAS class approach as a regulatory risk management method. In some countries, like in the United States, laws and policies were drafted to limit the use of PFAS, however, generally, many countries still lack laws to manage and risk PFAS use.[56]

In turning to a class approach, Canada's federal government has demonstrated a significant shift in its approach to PFAS risk management that has moved away from its traditional single compound regulatory approach to a proactive approach in line with recent PFAS science. The policy rationale supporting this regulatory change suggests the acceptance of the ubiquitous nature of PFAS and the adoption of a "precautionary" [57] stance, where the well-documented harms of PFAS substances to the environment and human health combined with available test data, support the grouping of PFAS as a class. Furthermore, the cumulative, temporal and synergistic interaction of PFASs with one another and other chemicals in the environment is considered. In the March 2025 Report, the ECCC and HC stated:

> ...the class of per- and polyfluoroalkyl substances (PFAS), excluding fluoropolymers, is concluded to meet the criteria under paragraphs 64(a) and (c) of the Canadian Environmental Protection Act, 1999 (CEPA) as these substances are entering or may enter the environment in a quantity or concentration or under conditions that have or may have immediate or long-term harmful effects on the environment or its biological diversity; and constitute or may constitute a danger in Canada to human life or health.[58]

An important argument for the class-based regulation of PFAS is the sheer number of compounds that make a traditional risk assessment of an

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55 Notice of Intent to address the broad class of per-and polyfluoroalkyl substances, (2021) C Gaz 1, 1703.

56 Mahammad Ibrahim et al, " Per-and Polyfluoroalkyl Substances and Global Water Resources: An In-Depth Review of Existing Regulatory Frameworks Worldwide" (2025) 22 Intl J of Envtl Sci & Tech 8259; Nicole M Brennan et al, "Trends in the Regulation of Per-and Polyfluoroalkyl Substances: A Scoping Review" (2021) 18 Intl J Envtl. Research Pub Health, 10900.

57 Rahul Aggarwal, "Connecting the Dots: Integrating the 'Essential-Use' Concept in the Chemical Management Framework of A Product System" (2025) 9 Sustainable Futures 100744 at 2.

58 *Risk Management Approach for PFAS* , *supra* note 17 at 5.

individual chemical approach too resource-intensive or even impossible to complete.[59] A large amount of data would be needed to conduct comprehensive human or environmental risk assessments – or even screening level risk assessment on the vast number of individual PFAS that currently exist in the marketplace. Conducting individual assessments of large number of PFAS using a large data set brings into question the efficacy of the regulatory program and its ability to achieve the CEPA's legislative, objective, which is a program aimed at protecting human and environmental health from toxic chemicals like PFAS.

Even though it has been argued that the current commercially relevant PFAS only number in the hundreds rather than thousands,[60] there has been a common trend within commercial sectors of replacing restricted chemicals with similar PFAS-based hazardous molecules that are registered for use but that have not previously been in use.[61] This means that all registered PFAS would have to be risk assessed simultaneously in order to avoid a regrettable substitution of a restricted PFAS with another PFAS molecule that was not previously in use (or that has no record of being used commercially).[62] The federal government recognized this "regrettable use" substitution of a PFAS, in response, introduced the "class approach."[63]

Concerns have also been raised whether a ban on PFAS is the appropriate regulatory response when considering health-and-safety related products. Some types of PFAS-based products include molecules that

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59 *Ibid* at 8."3.2 Proposed risk management objective: Proposed risk management objectives set quantitative or qualitative targets to be achieved by the implementation of risk management regulations, instruments and/or tools for a given substance or substances. In this case, the proposed risk management objective for the class of PFAS, excluding fluoropolymers as defined in the State of PFAS Report, is to, over time, achieve the lowest levels of environmental and human exposure that are technically feasible, taking into consideration socio-economic factors."

60 *Buck et al, supra* note 37.

61 *Ritscher et al, supra* note 54.

62 Simona A Bălan et al, "Regulating PFAS as a Chemical Class Under the California Safer Consumer Products Program" (2012), 129:2 Envtl Health Persp, 025001at 1.

63 *Risk Management Approach for PFAS, supra* note 17 at 4 "Addressing PFAS as a class will help to protect the environment and human health by, among other things, reducing the chance of regrettable substitution (replacing one PFAS with another less-well characterized and equally problematic PFAS), incentivizing improved research and monitoring programs, and reducing future environmental and human exposure to PFAS."

currently satisfy irreplaceable functions. Within the scientific community, the essential use concept is an accepted approach to support the class approach and to avoid regrettable substitution of one PFAS with another PFAS, while retaining the essential functions and benefits these chemicals provide to society. Importantly, under the essential use concept, regulatory restrictions would be applied to specific uses of PFAS in the market place but essential use products/processes would be allowed. Importantly, the adoption of regrettable substitution perspective may facilitate a movement towards greener chemistry-based processes and safer alternative products while providing exceptions for the use of PFAS in products that are essential (e.g., certain medical products) and where no alternative green product exist;[64] this would reinforce a partnership industry model and innovation in support of green chemical substances.

IV. CANADA'S PFAS RISK MANAGEMENT POLICY (MARCH 2025)

The federal government's three-part phased risk management approach targets and prioritizes particular uses of PFAS (i.e., PFAS used within products according to the availability of feasible alternative PFAS being in place). The first phase targets PFAS used in firefighting foam. The foam products containing PFASs (i.e., PFOS AFFF, C8 AFFF and C6AFFF) have been assessed and should be added to CEPA's list of toxic substances in a phased time-scheduled approach.[65] The second phase includes, for example, food packaging (e.g., pizza boxes, microwave popcorn bags) and cosmetics where it is acknowledged that these industries are moving away from these PFAS products as alternative food packaging and cosmetic PFAS-free substances exist.[66] The third phase addresses products and PFAS controlled by other regulatory instruments and where feasible alternatives do not exist in the marketplace.[67] Within each phase, exemptions can be established. Taken together, Canada's targeting of specific uses of PFAS within product

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64 *Cousins et al, supra* note 23.

65 *Risk Management Approach for PFAS*, *supra* note 17 at 15-17.

66 *Ibid* at 17 to 18. Under section 4.2.2 PFAS Uses Proposed for Phase 2 prohibition.

67 *Ibid* at 19. For example, spray-foam insulation and refrigeration, for which there may not be feasible alternatives, these uses will be considered in the third phase of proposed risk management actions.

sectors differs from the EU's REACH program's recent restriction of a PFAS (i.e., the use of undecafluorohexanoic acid (PFHxA) and PFHxA-related substances), which are used in consumer textiles, food packaging, cosmetics, consumer mixtures, and fire-fighting foams. Under the policy, it appears that PFAS can be continued to be used in semi-conductors, batteries and fuel cells for green hydrogen).[68]

A key objective of Canada's PFAS risk management policy is the protection of the environment and human health.[69] This objective is bounded by the feasibility of implementing PFAS alternatives and the consideration of socio-economic factors.[70] Under the policy, the protection of the environment and human health is envisioned as being achieved by reducing the release of PFAS into the environment to limit exposure and by introducing risk management protocols that take into account socio-economic factors. Even without a specific definition of these factors, the policy does offer a broad discussion that takes into account a number of socio-economic issues, such as the need for transparency for consumers and commercial sectors through the labelling of products and substances; the costs associated with PFAS monitoring and removal technologies within municipal wastewater treatment plants; and the recognition that alternative PFAS may be available for certain commercial sectors (e.g., food packaging, fire-fighting foam) but not necessarily for other areas. It also recognizes that safety and cost concerns may limit the introduction of alternatives in specific commercial sectors as the transition of phasing out specific PFAS may be impacted by competition and trade factors. In effect, the consideration of the social-economic factors requires a proportionality analysis requiring the balancing of potentially competing costs and benefits of PFAS. The consideration of socio-economic factors is further

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68 European Commissioner, "Commission Restricts Use of a Sub-Group of PFAS Chemicals to Protect Human Health and the Environment" (18 September 2024), online (Press Release): <ec.europa.eu/commission/presscorner/detail/en/ip_24_4763>.

69 *Risk Management Approach for PFAS* , *supra* note 17 at Section 3.2 Proposed risk management objective . In this case, the proposed risk management objective for the class of PFAS, excluding fluoropolymers as defined in the State of PFAS Report, is to, over time, achieve the lowest levels of environmental and human exposure that are technically feasible, taking into consideration socio-economic factors.

70 *Ibid* at 21.

complicated by the regulatory requirements set out in Canada's Treasury Board and Cabinet Directives.[71]

Under the risk management policy, it is recommended that the PFAS class be added to Part 2 of Schedule 1 of CEPA.[72] By placing the PFAS class in Part 2, the government is signalling that PFAS as a class is not considered a high-risk chemical substance because only those substances considered to be of highest concern are added to Part 1 of Schedule 1 in CEPA.[73] The government's priority for a Part 2 substance is pollution prevention, which may also include "a prohibition if warranted, or a non-regulatory measure."[74] As noted by legal commentators in the field, placing a PFAS class in Part 2 allows for the continued use, import, manufacture, and release of PFAS, and confers upon the government the legislative authority to prescribe risk management measures (e.g., regulations, guidelines and codes of practice).[75]

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71 Treasury Board of Canada Secretariat, Cabinet Directive on Regulation, Policy on Regulatory Development (Ottawa: Government of Canada, 2018).

72 *Risk Management Approach for PFAS, supra*note 17 at 6- 7.

73 *CEPA, supra* note 2 at *s.*77(2)(c) & 77(3)(a)(b)(c) with a focus on (c). Under subsection 77(3), a substance must be recommended for addition to Part 1 of Schedule 1 to the Act when the substance is determined to be toxic and the Ministers are satisfied that:

(a) the substance may have a long-term harmful effect on the environment and

(i) is inherently toxic to human beings or non-human organisms, as determined by laboratory or other studies,

(ii) is persistent and bioaccumulative in accordance with the regulations,

(iii) is present in the environment primarily as a result of human activity, and

(iv) is not a naturally occurring radionuclide or a naturally occurring inorganic substance.

(b) the substance may constitute a danger in Canada to human life or health and is, in accordance with the regulations, carcinogenic, mutagenic or toxic for reproduction; or

(c) the substance is, in accordance with the regulations, a substance that poses the highest risk

74 *Risk Management Approach for PFAS, surpa*note 17 at 6-7.

75 Talia Gordner et al, "Canada's Final PFAS Report is Here" (11 March 2025) online (McMillan Blog): <mcmillan.ca/insights/canadas-final-PFAS-report-is-here/ >; Richard J King et al, "Some Things Last Forever: Government of Canada Proposed Regulatory Measures for PFAS" (29 April 2025) online (Osler Blog): <www.osler.com/en/insights/updates/some-things-last-forever-government-of-canada-proposes-regulatory-measures-for-PFAS/#_ftn2>.

In the federal government's Regulatory Impact Analysis Statement (RIAS), a further twofold explanation is offered that references existing regulations and raises a regulatory gap. In the RIAS, it is noted that (1) PFAS (i.e., under the *Persistence and Bioaccumulation Regulation, SOR/2000-107*) are deemed to be persistent but do not fall under the regulation's bioaccumulation parameter, and (2) a regulatory gap exists regarding the lack of a regulation relating to the properties of "carcinogenic, mutagenic, or toxic to reproduction" as set out in s.67(1)(a) of CEPA.[76] The inapplicability of the bioaccumulation parameter combined with the regulatory gap means the government cannot yet classify PFAS under any of these foregoing regulatory requirements, which raises the question: How can the federal government fulfill its legislative commitment to implement the precautionary principle for a chemical designated as toxic, like PFAS, that is to be carried out through a class approach?[77]

The case of PFAS also highlights a key oversight in Canada's chemical regulatory regime with regard to water soluble and mobile substances as well as the characterization of a hazard. As currently drafted CEPA does not recognize mobility in water as a hazard criterion meaning that toxic chemicals that are water soluble and mobile in water (PMT), such as, water-soluble short-chain PFAS remain largely unregulated.[78] Under CEPA, the focus on bioaccumulation (i.e., as a necessary provision for "hazard") limits CEPA's ability to address the potential environmental and human health risk from persistent and (i.e., not removed by water treatment), but not bioaccumulative. Such PMT substances, including many PFAS, have been recognized by the EU REACH legislation to pose an equivalent risk to the characteristics of persistent, bioaccumulative, and toxic (PBT) substances. A key distinction is the difference between PMT substances, which tend to be drinking water contaminants, and PBT substances, which are frequently found in sediment, soil, and food.

Taken together, the government's PFAS risk management three-phase policy is market-driven, and raises the concern whether the policy is tailored

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76 *C Gaz I 510*, *supra* note 3.

77 *CEPA*, *supra* note 2, Preamble "Whereas the Government of Canada is committed to implementing the precautionary principle that, where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."

78 Thorsten Reemstma et al, "Mind the Gap: Persistent and Mobile Organic Compounds – Water Contaminants That Slip Through" (2016) 50:16 Envtl Sci & Tech 10308.

to meet the needs of industry rather than protecting human health and the environment. Through CEPA and the policy's partnership model, industry is incentivized to develop green chemistry PFAS alternatives, which suggests an innovation-oriented strategy. The risk management policy, however, does not offer a normative theory that guides how to structure the PFAS categorization, restrictions, or replacement for existing and future PFAS chemical substances and products. This oversight creates an ambiguity that could be resolved by applying the essentiality concept where PFAS products and substances are organized into essential and non-essential categories. The objectives of an essentiality framework could be designed to align with CEPA's legislative aim and an applicable preamble statement to give consideration to products that are necessary for health, safety, or the critical for the functioning of society where viable alternatives do not yet exist; and to determine if the product or substance is not deemed a danger to the environment or human health.

V. ESSENTIALITY – ITS DEVELOPMENT IN INTERNATIONAL LAW

The Montreal Protocol on Substances that Deplete the Ozone Layer (Montreal Protocol, 1989) is commonly recognized as the international treaty that introduced the essential use concept. The scope of the concept is foundational to the current global call from scientists for its use in regulating PFAS.[79] The Protocol was initiated in response to the global scientific community's concern over how the widespread use of ozone-depleting chemical substances (e.g., chlorofluorocarbons [CFCs] and other halogenated organic compounds) was affecting the Earth's ozone layer.[80]

However, this idea of essentiality as a regulatory construct to manage chemical substances did not originate with the introduction of the Montreal Protocol. Essentiality was first introduced in 1978 in the United States by the Carter administration, under the *Toxic Substances Control Act*. Through the legislation, a ban on "non-essential" aerosol sprays was introduced, and the ban was also taken up globally by other countries, including Canada.[81]

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79 Montreal Protocol on Substances that Deplete the Ozone Layer, 16 September 1987, 1522 UNTS 29 (entered into force 1 January 1989).

80 Jean-Philippe Montfort, "The Concept of Essential Use to Regulate Chemicals: Legal Considerations" (2021) 4:1 Intl Chemical Reg & L Rev 9.

81 Kathleen Garnett & Geert Van Calster, "The Concept of Essential Use: A Novel

During this time period, both the US courts and Congress signalled support of a precautionary and "zero tolerance" regulatory approach for the management of chemical substances that could be viewed as upholding the concept of essentiality. Today, the zero-tolerance approach has shifted to the acceptance of a risk management model where "a threshold dosage approach" is applied.[82]

Shortly after the introduction of the Montreal Protocol, the Essential Use Decision IV/25 was adopted (1992) by the United Nations Environment Programme. The Essential Use Decision IV/25 sets out the following criteria and procedure in assessing an essential use for the purposes of control measures under Article 2 of the Montreal Protocol: that a use of a controlled substance should qualify as "essential" only if:

1. it is necessary for the health, safety or is critical for the functioning of society (encompassing cultural and intellectual aspects); and
2. there are no available technically and economically feasible alternatives or substitutes that are acceptable from the standpoint of environment and health ...[83]

The framing of essentially through Decision IV/25 has applied a social-economic-environmental lens directed at societal aspects of health and safety that include consideration of cultural and intellectual factors, and where innovation through the introduction of technically feasible alternatives has been advanced.[84] However, a definitive scientific definition of essential use was overlooked.[85] As a multifaceted concept, the scope of essentiality has been instrumental in the categorization of chemical substances and has informed the adoption of this concept in subsequent soft and hard law instruments, for example, in the EU's Chemical Strategy for Sustainability.[86]

Approach to Regulating Chemicals in the European Union" (2021) 10:1 Transnat'l Envtl L 159 at 163.

82 *Ibid* at 164.

83 UNEP, "Decision IV/25 of the Fourth Meeting: Essential Uses", online: <ozone.unep.org/treaties/montreal-protocol/meetings/fourth-meeting-parties/decisions/decision-iv25-essential-uses>.

84 Heidi M Guenther, "The Essential Use of Chemical Substances in the United States and the European Union" (2022) 5:1 IRCL 3 at 12.

85 *ibid.*

86 An example of soft law i.e., European Commissioner, Chemical Strategy for Sustainability: Towards a Toxic Free Environment (14 October 2020) online:

The two-part essentiality concept has been found to be one of the principal administrative concepts applied under the Montreal Protocol, and it is now viewed by some legal scholars as a "derogation regulatory tool" in support of "essential use exemptions."[87] A derogation regulatory tool is defined as administrative actions under the Montreal Protocol that are primarily directed at assessing and identifying exemptions of ozone-depleting substances.[88]

In 2015, building on the idea of essentiality set out in the Montreal Protocol, the global scientific community through the "Madrid Statement on Poly-and Perfluoroalkyl Substances" reinvigorated the concept of "essential use" for PFAS as a regulatory approach to manage the risks associated with PFAS.[89] The scientific communities' adoption of the Montreal Protocol's essential use concept and the grouping of PFAS into categories was introduced with the intent to restrict the production and use of the substances. The Madrid Statement called for a multilevel stakeholder governance approach and assigned obligations to a number of parties: governments were to enact legislation limiting PFAS to essential uses; product manufacturers were to stop the use of non-essential PFAS; and consumers and retailers were to avoid PFAS-based products.

In 2017, through the "Zurich Statement on Future Actions on Poly-and Perfluoroalkyl Substances," a group of international scientists and regulators created an action plan to continue the call for restricting non-essential PFAS, and pointed to emerging research concerning the high persistence of PFAS that was finding additional health and environmental harms.[90] In calling for a science-regulatory response to this evolving research, the group highlighted additional gaps that needed to be addressed. To date, the science and policy response has primarily been directed at two particular types of PFAS (i.e., PFOA and PFOS). Under the Zurich Statement, the group invited the global community to respond with a more robust research and regulatory approach to capture the missing science relating to other

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<environment.ec.europa.eu/strategy/chemicals-strategy_en>.

87 *Garnett & Van Calster, supra* note 81 at 170-173; Stephen J DeCanio & Catherine S Norman, "Economics of 'Essential Use Exemptions' for Metered Dose Inhalers Under the Montreal Protocol" (2007) 85 J. Envtl Mgmt 1.

88 Garnett & Van Calster, supra note 81.

89 Arlene Blum et al, "The Madrid Statement on Poly- and Perfluoroalkyl Substances (PFAS)". (2015) 123:5 Envtl Health Persp., A107-11.

90 *Ritscher et al, supra* note 54.

types of harmful PFAS compounds. While not explicitly defining the meaning of essentiality, the group did identify "essential use" as a new approach to manage and assess the risks of PFAS. Together, the group endorsed the class approach to regulate PFAS and called for further research and regulatory actions in order to (1) understand the long-term health effects and the high or very high persistence characteristic of PFAS; (2) emphasize the need for monitoring in environmental media and human tissue; (3) phase out non-essential uses of PFAS; and, (4) encourage the development of safe alternatives, to name some actions.[91]

VI. The Essentiality Framework as Understood in the Scientific Community

Both in Canada and across the globe, regulators in the chemical management field have moved towards the adoption of a class approach to manage the human health and environmental risks of PFAS. In upholding a precautionary approach to manage these risks, applying the essential use framework further shifts the regulatory risk management model towards the consideration of the essentiality of the use of PFAS in a product or in a chemical process and away from the traditional approach of assessing the risk of individual chemicals irrespective of their essentiality in a product. An essentiality assessment of the end use of the PFAS product and the PFAS-infused manufacturing process is conducted with the aim of eliminating non-essential uses of PFAS to reduce exposure and advancing the use of sustainable green chemical alternatives.

Within the international scientific community, Cousins is a leading scientist who, along with his colleagues, is advancing the essential use concept to manage and assess PFAS. As a signatory to the Madrid Statement, Cousins and his colleagues consider the PFAS essential use criteria as cumulative — i.e., a substance needs to be essential to the health and safety or the functioning of society AND have no viable alternative.[92] The use of a PFAS product or process when no alternative exists isn't enough to be considered as "essential" if the use is not deemed to be critically important to the health and safety or the functioning of society.

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91 *Ibid.*

92 *Cousins et al, supra* note 23.

In line with the Montreal Protocol's essential use decision criteria, Cousins et al. have categorized PFAS into three groups: (1) non-essential uses, which are not vital for health and safety or the functioning of society and are primarily market-driven (e.g., dental floss, water-repellent surfer shorts, ski waxes, make-up); (2) substitutable uses, which are important but have available alternatives (e.g., certain water-resistant textiles); and (3) essential uses, which are necessary for health or safety but do not yet have established alternatives (e.g., certain medical devices, occupational protective clothing).

The argument for the application of the essential use concept to the use of PFAS is found in the scientific consensus that PFAS are highly persistent and therefore have the potential to induce harmful or irreversible impacts.[93] Cousins et al. have further argued for a "P-sufficient approach" that would prioritize "persistence" as a hazard assessment criterion and trigger an essential use assessment for highly persistent chemicals rather than focussing on toxicological effects.[94]

Cousins et al. and additional scientific scholars have argued that high persistence of a compound that is continuously released into the environment will lead to widespread environmental exposure with increasing cumulative concentrations.[95] The concern being raised is that the resulting increasing exposure would be technically challenging, energy intensive, and costly to reverse once the adverse effects were identified. To ensure potential environmental and human health impacts remain reversible, a preventive approach is needed to ensure that a highly persistent synthetic organic substance is not used or, at least, is reduced in use.

The essential use framework is viewed as a more protective approach that could reduce health care costs, remediation costs, loss of biodiversity, and other costs associated with the degradation of environmental quality and provided ecosystem services. The costs associated with inaction on PFAS emissions are substantial. A 2019 study by the Nordic Council of Ministers estimated the annual-related costs associated with PFAS exposure across Europe to be €52 to 84 billion.[96] The high persistence and water-

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93 Ian T Cousins et al, "Why is High Persistence Alone a Major Cause of Concern?" (2019) 21 Envtl Sci Pro Impacts 781.

94 *Ibid.*

95 *Cousins et al, supra* note 93.

96 Gretta Goldenman et al,*The Cost of Inaction: A Socio-economic Analysis of Environmental and Health Impacts Linked to Exposure to PFAS Report* (Copenhagen: Nordic Council of

solubility of PFAS (especially short-chain PFAS) also renders remediation and cleaning of contaminated water difficult and expensive. For example, Orange County California has reported estimated infrastructure costs of at least $1 billion to lower the PFAS concentrations in its drinking water to meet the state's recommended levels.[97] Reducing PFAS emissions through the application of the essential use framework could substantially reduce environmental and human exposure and thereby reduce these costs.

Under Canada's Chemical Management Plan**,** the introduction of a class-based approach to risk assessment and the three-part phased model complements Cousins et al.'s essential use framework. The essential use concept is premised upon the essentiality of using PFAS in a product, despite the fact that all PFAS are being assessed as hazardous from a class-based perspective. The idea of essentiality ensures that PFAS are only used when absolutely necessary (current and future PFAS), but it also ensures that essential PFAS are not banned in those products and processes deemed to be essential. Canada's three-part phased model is congruent with this approach insofar that the proposed phase 1 and 2 applications uses with viable alternatives (e.g., fire-fighting foam free of PFAS) or are non-essential uses (e.g., cosmetics) and would therefore be restricted under the essential use framework. In phase 3, essential use could be applied to all PFAS applications in order to establish which applications to retain and which ones to restrict.

Yet, a debate exists on the meaning of essentiality under the essential use concept.[98] It has been suggested that the "essential use concept" directs attention to the end use of the product and the vulnerability of the end user.[99] Aggarwal and others argue that the phrase "use" points to the "function" of the "chemical within the product system, including chemicals during the manufacturing processes, regardless of the presence in the final

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Ministers, 2019) online: <norden.diva-portal.org/smash/record.jsf?pid=diva2%3A1295959&dswid=6315>.

97 Alissa Cordner et al, "The True Costs of PFAS and the Benefits of Acting Now" (2021) 55 Envtl. Sci Tech 9630.

98 Lorenzo Secundo et al, "Current Approaches in the Classification of PFAS: An Overview" (2025) 20:9 Chem Asian J.

99 Kathryn M Rodgers et al, "How Well Do Products Labels Indicate Presence of PFAS in Consumer Items Used by Children and Adolescents" (2022) 56 Envtl Sci Tech 6294; *Juliane Glüge et al, supra* note 31.

product."[100] In essence, the debate creates a conundrum for regulators and businesses: Does the essential use concept refer to (1) the essentiality of the product, (2) the function of the chemical in the product, or (3) the importance of the PFAS function to the user's quality of life?

In response to the debate, scientific scholars and regulators begun to define essential use by identifying those uses that are critical and those with safer chemical alternatives, while also recognizing the need for exemptions. For example, exemptions for uses supporting a country's economy (finance), national security ('military operations'), and critical infrastructure (energy infrastructure).[101] In 2024, to encourage the introduction of the concept into EU legislation, the EU Commission published a communication document to encourage the introduction of the concept into EU legislation that set out the criteria[102] and principles[103] of the essential use concept. The EU communication also supports the EU's adoption of the essential use concept in a few strategic EU policies relating to chemical management.[104] However, the concept has not been specifically defined nor received into EU legislation to date, which means the concept is aspirational and without legal effect.

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100 Aggarwal, supra note 57; Simona A Bălan et al , "Optimizing Chemical Management in the United States and Canada through the Essential Use Approach" (2023) 57 Envtl Sci Tech 1568 at 1569 & 1571.

101 *Guenther, supra* note 84 at 9-10.

102 European Union Commissioner, "Communication From the Commission: Guiding Criteria and Principles for the Essential Use Concept in EU Legislation Dealing with Chemicals" (2024) Official Journal of the European Union, 2894 at 3, online: <eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:C_202402894> . 2.1 Criteria for essential use – A use of a most harmful substance is essential for society if the following criteria is met: 1) the use is necessary for health or safety or is critical for the functioning of society, and 2) there are no acceptable alternatives.

103 *Ibid.*

104 *Ibid* at 2. In 2019, the Council adopted the Conclusions "*Towards a Sustainable Chemicals Policy Strategy of the Union*" in which it calls on the Commission to develop an action plan to eliminate all non-essential uses of PFAS In 2021, the Council adopted the conclusions "*Sustainable Chemicals Strategy of the Union: Time to Deliver*" in which it stresses that the concept of 'essential uses' is a key element in the implementation of the Chemicals Strategy for Sustainability that will receive priority attention in order to make it operational without undue delay. In 2020, the European Parliament adopted a Resolution on the Chemicals Strategy for Sustainability in which, amongst others, it calls on the Commission to define the concept of and criteria for the 'essential use' of hazardous chemicals, to provide a harmonised approach for regulatory measures on non-essential uses.

As a guidance document, the EU communication document offers a range of applicable terms and principles, which define the scope of the concept within the EU. The terms include "most harmful substances," "necessary for health or safety," "critical for the functioning of society," "acceptable alternatives," "use of a substance,", "technical function of a substance (in the use)", "final product" and "service". One key principle[105] relates to the protection of human health and the environment through the phasing out of the most harmful chemical substances that are deemed to be non-essential while also providing time for developing substitutions for essential substances that may be considered a chemical hazard.[106]

Canada could be guided by this debate and by the precedent set by the EU communication. In doing so, Canadian regulators could implement the essential use concept through Canada's Chemical Management Plan while upholding the legislative intent of CEPA (i.e., to protect the environment and human health from pollution by controlling toxic substances – Part 5). It is important that the risk management process establishes a definition of essential use tied to this legislative intent and CEPA provisions (Part 5) while also taking into account the values and environmental principles set out in CEPA's preamble (e.g., polluter pay principle, precautionary principle, cumulative effects, protecting vulnerable populations, right to a healthy life).

VII. The Meaning of the Concept of Essentiality in Canadian Courts

In line with the schema of Cousins et al.'s PFAS essential use framework, essentiality as interpreted in Canadian courts is also tied to the protection of the health and safety of members of society, highlighting the acceptance of essentiality in the jurisprudence. Generally, the concept of essentiality is characterized by two classes: essential and non-essential. The Supreme Court of Canada (SCC) has examined the concept of essentiality in environmental, patent, and labour law, where essentiality is used to

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105 *Ibid* at 5 2.3. See Appendix for the meaning of the terms, and the principles of the essential use concept: The aim of the concept is to increase the protection of health and environment by accelerating the phase-out of the uses of the most harmful substance that are non-essential and, where they are essential, to provide time for their substitution.

106 *Ibid* at 1. See: 1.1 Aim of the essential use concept.

categorize chemical substances in the environment, the elements of an invention, and designate workers in a strike situation. While essentiality is explored in these three different legal domains, the SCC has upheld essentiality as a classification method to delineate essential uses and services. In labour law, the SCC expands essentiality by also addressing procedural aspects. The Court endorsed a collaborative negotiation procedure to develop an essential service agreement for workers and considered essentiality as a classification process tied to the definition of essential service in international law.[107]

Bringing together labour law's protective stance of protecting human health and safety illuminates the link to the foundational concepts of environmental law where protection of human health and the environment are defining features, as set out in CEPA. Taken together, these three areas of law point to a jurisprudential landscape that is supportive of a collaborative administrative process where essentiality is distinguished into the two categories of essential and non-essential, and where harms to humans and the environment as well as procedural justice aspects (e.g., dispute resolution mechanism and independent review process) in the multiparty stakeholder driven decision-making process are upheld as relevant to the concept of essential use. The leading cases of essentiality in environmental, patent, and labour law are discussed next.

Essentiality in Three Distinct Areas of Law: In the environmental law jurisprudence, the SCC's holding in the *Spraytech* decision examines essentiality as it relates to a pesticide by-law at the municipal level in the Town of Hudson, Quebec.[108] In this case, the Court considered the by-law's focus on the non-essential use of pesticides and the rationale underlying the by-law. The Town of Hudson relied upon its by-law's powers as a preventive action and as a regulatory means to endorse the precautionary principle by

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107 *Saskatchewan Federation of Labour v. Saskatchewan*,2015 SCC 4, at para 84 [*Sask*]. The majority relying on C.J Dickson in an earlier decision, stated: The Freedom of Association Committee of the I.L.O. .... have consistently defined an essential service as a service "whose interruption would endanger the life, personal safety or health of the whole or part of the population".

108 *114957 Canada Ltée (Spraytech, Société d'arrosage)* v. *Hudson (Town)* 2001 SCC 40 [*Spraytech*].

limiting the use of non-essential pesticides within the territory of the town.[109]

In *Spraytech*, both the majority and the minority decisions distinguish between essential and non-essential uses of pesticides, as defined by the municipal by-law. In support of protecting human health, the scope of essentiality is grounded in both the categorization of business activities, and when and how a pesticide product can be used. Writing for the majority, Justice L'Heureux-Dubé views the pesticide by-law as targeted and limited to specific "locations and situations for pesticide use"[110] and "aiming to improve the health of the Town's inhabitants."[111] As reviewed by the SCC, the language in the Town of Hudson's By-law 270 permits the use of pesticides in farming, to control animals and plants that are a danger to human health. Hence, in effect, the by-law provides for a few exemptions.

Justice Lebel, writing for the dissent, expresses a similar distinction of essentiality based on activities and aesthetic use of pesticides when considering the discriminatory legal effects of the by-law. In Lebel's words,

> On its face, the by-law involves a general prohibition and then authorizes some specific uses..... When it is read as a whole, its overall effect is to prohibit purely aesthetic use of pesticides while allowing other uses, mainly for business or agricultural purposes. It does not appear as a purely prohibitory legal instrument. .... Although the by-law discriminates, I agree with L'Heureux-Dubé J. that this kind of regulation implies a necessary component of discrimination. There can be no regulation on such a topic without some form of discrimination in the sense that the by-law must determine where, when and how a particular product may be used. The regulation needed to identify the various distinctions between different situations. Otherwise, no regulation would have been possible.[112]

In patent law, distinguishing and classifying essential from non-essential elements is a key aspect of structuring essentiality categories in a claims construction. In the SCC's *Free World Trust* decision, the Court applied a purposive construction test to determine the essential elements of a patent.[113] Similar to the Cousins et al.'s framework, the Court

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109 *Ibid* at para 31.

110 *Ibid* at para 24.

111 *Ibid* at para 29.

112 I*bid* at para 55.

113 *Free World Trust v Électro Santé Inc*, 2000 SCC 66 [*Free World Trust*]; *Whirlpool Corp v*

distinguishes between essential and non-essential uses.[114] To delineate the elements unique to an invention, the Court, relying on the *Minerals Separation North America Corporation* v *Noranda Mines*[115] decision, recognizes that a patent claim is analogous to "fences" where a field (or a boundary) is established to understand what the inventor considered to be the "essential elements of his invention."[116] In order to determine the elements of a claims invention that are deemed essential, a bifurcated approach is adopted that leads to a two-part test of categorizing the elements of the patent as essential ("where substitution of another element or omission takes the device outside the monopoly") or non-essential ("where substitution or omission is not necessarily fatal to an allegation of infringement").[117]

Essentiality, as a bifurcated concept, is also examined in labour law where essentiality characterizes the status of a worker and designates those workers that are prohibited from striking, as an essential service. Under the Charter (i.e., section 2(d), Freedom of Association), the SCC in *Saskatchewan Federation of Labour* v *Saskatchewan*[118] upheld the distinction of an essential service through the designation of workers as essential or non-essential. In obiter, the court recognizes the scope of essential service workers who are prohibited from striking, including firefighters, police officers, and hospital workers, to name a few.[119]

Significantly, Justice Abella writing for the majority offers an important insight into the process and procedural justice aspects of relying upon the concept of essentiality as a construct to delineate essential workers. In holding Saskatchewan's *Public Service Essential Services Act* (PSESA), as unconstitutional[120], the Court takes judicial notice of the International Labour Organization's (ILO) definition of essential within the context of right to strike and decision-making. The ILO's definition guides the decision-making criterion when rationalizing and contextualizing the essential service designation by consideration of the impacts to life, health,

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Camco Inc, 2000 SCC 67.

114 *Free World Trust, supra* note 113at paras 14, 15 & 20-23 & 31 & 55 & 59.

115 [1947] Ex CR 306 at para 14.

116 *Free World, supra note 113*. at paras 15 & 20-23 & 31 & 55 at 20-23.

117 *Ibid* at para 55.

118 *Sask, supra* note 107.

119 *Sask, supra* note 107 at para 95.

120 *Ibid* at para 103.

safety, or the environment.[121] Effectively, the essentiality concept is transformed into a legal administrative decision-making technique to be adopted to ground the classification process (essential or non-essential) with the aim of protecting the public and the environment in a strike situation.

In the analysis of PSESA, the Court denounces the unilateral nature of designating workers as essential "without an independent review process, and the absence of an adequate, impartial and effective alternative mechanism for resolving collective bargaining impasses."[122] In coming to this conclusion, the Court takes notice that PSESA's legislation creates a collaborative partnership model that places the negotiating power in the employer's domain. The legislation requires the development of a service agreement between the employer and the union concerning the classification of employees (i.e., number and names of employees) as essential during a strike situation, a classification that the employer can unilaterally decide. In the Court's view, this unilateral decision-making in a collaborative process of developing an agreement, and in addition to the lack of an "impartial and effective" dispute resolution mechanism, leads the Court to hold the legislation as unconstitutional. [123]

VIII. IN THE CANADIAN COURTS LEGISLATIVE INTERPRETATION OF THE *CANADIAN ENVIRONMENTAL PROTECTION ACT, 1999* AND TOXIC SUBSTANCES

In 1988, the introduction of the *Canadian Environmental Protection Act* (CEPA) signalled the federal government's role in "protect[ing] the well-being of Canada" in support of CEPA's preamble and the values of "sustainable development and pollution prevention" of toxic substances within the marketplace.[124] Since 1988, the SCC has examined a limited number of cases under the operational section of CEPA (Part 5: Controlling

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[121] *Ibid* at para 92. Judicial notice of the ILO's Committee on Freedom of Association [definition of] essential services as those needed to prevent a "clear and imminent threat to the life, personal safety or health of the whole or part of the population" (Freedom of Association, at para. 581). The definition of "essential services" under the PSESA requires basic judgments to be made about when life, health, safety, or environmental concerns, among others, justify essential services designation."

[122] *Ibid* at para 96.

[123] *Ibid* at para 92.

[124] Hydro, supra note 25 at para 99. Also, see CEPA's aim.

Toxic Substances). Three of the leading SCC cases[125] examining Part 5 characterize CEPA as complex legislation and, specifically, affirmed the purpose of Part 5 as being directed at preventing and controlling the use of toxic substances within the Canadian marketplace. In *R. v. Hydro-Québec* (1997), Justice LaForest set the tone for the line of jurisprudence that followed by characterizing Part 5 as controlling those substances that are "dangerous to the environment", and identification of substances that could a risk either to the environment or to human life and health."[126]

In the subsequent legal decisions, courts have agreed with Justice LaForest's interpretation of CEPA's complex legislative structure, its purpose, and the key provision (now section 64) that was viewed as assisting in the administrative task of sorting those chemicals that could be deemed toxic. In *Hydro-Québec*, section 11 (now section 64) is viewed as a legislative mechanism to assist in categorizing chemical substances – i.e., weeding out toxic substances. In Justice LaForest's view, section 11 (now section 64) is not a definition of toxicity. Rather, this legislative provision is an administrative mechanism to determine which substance or substances could be added to CEPA's List of Toxic Substances (then, now – no title in Schedule 1). This administrative phase requires establishing whether the substance could be a "harmful effect on the environment or biological diversity" (section 11, now section 64(a)) or be a "danger to the environment on which life depends" (section 64(b)) or be a "danger" to "human life or health" (section 64(c)). In effect, section 11 (now section 64) acts as the threshold in classifying a substance as toxic or non-toxic.

While the legislation was amended in 2023, the wording of the three parameters of section 11 (now section 64(a)(b)(c)) primarily remained unchanged (i.e., now, the current provision (a) includes the term "biological diversity" and subsection (b) the term human to modify life has been deleted) demonstrating that parliamentarians continue to uphold Justice LaForest's interpretation section 64. In LaForest's view, section 64 is not a definition of toxicity but is an administrative means to begin the classification of chemicals as toxic or non-toxic based on whether or not the chemical substance results in a harmful effect upon the environment, biological diversity, life, human life or health.

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[125] , *Ibid*; *Goodyear Canada Inc., v Canada (Environment),* 2017 FCA 149 [*Goodyear*]; *Canada (Attorney General) v Responsible Plastic Use Coalition,* 2026 FCA 17 [*FCA Responsible Plastic*].

[126] *Hydro-Quebec, supra* note 25 at paras101 & 138.

Together, these three leading legal decisions acknowledge and affirm an administrative categorization process. This process begins with the section 64 threshold classification, a "statutory" scientific assessment and potential addition to the list of toxic substances in Schedule 1. In Goodyear, Justice Rennie distinguished the statutory scientific screening assessment from the risk management process. This distinction highlights the purpose of statutory scientific screening assessment – i.e., to determine whether the substance is harmful. However, with the 2023 amendments to CEPA, questions can be raised consider whether this distinction continues to hold.

In *Responsible Plastic,* Rennie JA upheld both *Goodyear* and *Hydro-Québec* decisions and specifically examined the lower court's interpretation of the terms: "substance" and "class of substance" in context of the "plastic manufactured items." In CEPA, these terms are set out in section 3(1) (i.e., the definition section) and the lower court held these terms applied to the entire Act, including Part 5.[127] In reviewing the lower court's decision, the FCA held the singular term "substance" is inclusive of the "plural description of an item" (i.e., plastic manufactured items) by applying statutory interpretation rules, a review of the French version of legislation, and consideration of the textual, contextual and purposive meaning of subsection 3(1).[128] These three decisions are presented next.

The Three Leading Cases: *R. v. Hydro-Québec* is the first case where the SCC examined the federal government's jurisdiction to regulate toxic substances (i.e., PCBs) under Part 11 (now Part 5) of the Act. The Court affirmed the constitutionality of the federal legislation and federal government's jurisdiction to regulate toxic substances, under its criminal law powers (i.e., section 91(27) of the *Constitution Act, 1867*).

In *Hydro-Québec*, Justice LaForest, writing for the majority, provided an extensive analysis of CEPA. Justice LaForest reviewed the history, key preamble provisions, and operational legislative structure of CEPA. In reviewing the legislation's preamble, Justice LaForest identified specific statements that centred the legislation in environmental protection, a theme rooted in Canada's 1970s environmental legislative era. Managing toxic polluting substances were identified as a duty under Canada's "international obligations in respect of the environment"[129] and as

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127 *Responsible Plastic Use Coalition v. Canada (Environment and Climate Change),* 2023 FC 1511 at para 80.

128 *FCA Responsible Plastic, supra* note 125 at paras. [54]-[63]

129 ibid at para 127.

expressed by the precautionary principle. Justice LaForest took judicial notice of the mobility character of chemical substances and recognized their ubiquitous nature, suggesting that toxic substances should be understood as being transported (i.e., "mobile"[130]) within the environment. This statement demonstrates the Court's understanding of the ecological context in which the transboundary and long-range transport of toxic substances can occur.

Overall, the Court described Part 11 (now Part 5: Controlling Toxic Substances) as setting out a regulatory regime to control toxic substances by first "identification of .. substances that could pose a risk to either to the environment or to human life and life", the listing of these substances and enactment of control measures, like "regulations".[131] Under s.11 (now s. 64) the assessment of substances deemed "harmful to the health and environment"[132] are identified and classified as toxic because "some assessment or test" has determined that when "a substance enters the environment [it] is sufficient to make it toxic.[133]" In Justice LaForest's words: "It is precisely what one would expect of an environmental statute – a procedure to weed out from the vast number of substances potentially harmful to the environment or human life those only that pose a significant risk(s) of that type of harm."[134]

It is noteworthy that Justice LaForest depicted the legislation as outlining a balanced approach to controlling toxic substances within the marketplace. The Court emphasized that the effect of the legislation did not restrict "the use, importation or manufacturer of all chemical products but rather it should affect only those substances that are dangerous to the environment."[135] This balanced regulatory approach takes into account the classification of dangerous chemical substances that are harmful to environment or human life.

In explaining the bureaucratic toxic substances classification system as defined by the legislation, the Court distinguished three steps in the regulatory administrative process: (1) identification of substances (i.e., an "assessment") that could pose a risk either to the environment or to human

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130 ibid at para 158.

131 *ibid* at para 101.

132 *ibid* at para 136.

133 i*bid* at para102.

134 *Ibid* at para 147.

135 *Ibid* at para 138.

life and health; (2) a statutory procedure for adding the substance to the list of toxic substances in Schedule 1 and (3) development of regulations related to the terms and conditions required for a listed toxic substance to be released into the environment.[136] In the threshold step, first the chemical substances are classified into risk categories (e.g., risk of harm to either the environment or human health). Second, only those dangerous toxic substances that are deemed to pose a risk of harm to the environment or human health would be subject to a statutory science-based assessment triggering the administrative approval processes (i.e., approval by the Federal-Provincial Advisory Committee, the Ministers recommendation to Governor in Council (GIC), and GIC[137]), which could lead to the substance being added to the legislated List of Toxic Substances. Third, a regulatory control instrument, such as a regulation under CEPA, could be enacted.

In determining the "nature of toxicity"[138] of a substance, section 11 (now section 64, under Part 5) was identified as a key provision in CEPA that serves to initiate the first step of the foregoing three-part administrative process. Justice LaForest noted that section 11 (now section 64) should not be considered a "definition."[139] Instead, section 11 (now section 64) should be considered as a mechanism that could be used to structure the administrative process of "weeding out"[140] substances in the threshold step; the scope of section 11 should be limited to Part 5 of CEPA; and it should not be considered a definition for the entire legislation[141] since a section of definitions is provided (section 3) that is applied to the entire legislation. In Justice LaForest's view, section 11 (and its three elements) acts as an administrative "drafting tool"[142] in determining toxicity in support of those substances that could be "tested or assessed"[143] and then, potentially, be added to the list of toxic substances in Schedule 1 of CEPA. This discussion of testing of substances for toxicity supports Justice LaForest's explanation

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136 *Ibid* at paras 101-104.

137 *Ibid* at paras 104-106 & 142-143.

138 *Ibid* at para 141.

139 *Ibid*.

140 *Ibid*. Generally See: paras 141-144& 147.

141 *Ibid* at para 141.

142 *Ibid* at para 142.

143 *Ibid* at para 141.

of the threshold step in the administrative three-part weeding out task – i.e., substance identification via a classification system.

The provision (section 11, now 64) sets out three parameters in support of a statutorily required scientific assessment or test for toxicity. The three factors should be read together with the "ordinary meaning"[144] of the term toxic. In the Court's view,

> "a substance is toxic if it is entering or may enter the environment in a quantity or concentration or under conditions that result in the detrimental effects on the environment, human life and human health".. and "when released into the environment in certain quantity, concentration or condition become toxic,"[145].

In the determination of toxicity, a scientific assessment is completed to determine the "quantity or concentration or conditions under which a substance enters the environment" and whether "a substance can give rise to real or possible harmful effects or dangers spelled out" by the three factors outlined in section 11 (now section 64(a)(b)(c).[146]

In *Goodyear*, Rennie J.A., writing for the majority of the Federal Court of Appeal, reviewed the legislative requirements and processes of when and how a board of review is convened under CEPA. In filing the claim, Goodyear objected to the Minister's decision not to convene a board of review to reconsider the order to add the substance BENPAT to CEPA's List of Toxic Substances. The Court of Appeal dismissed the appeal citing that Goodyear, the largest user of BENPAT in Canada, had been afforded procedural fairness under the Act's legislative processes (e.g., the screening assessment process).[147]

In obiter, Justice Rennie commented on the legislative structure of CEPA, affirming the Act's mandate "to prevent and control the use of toxic substances, which includes those substances with a harmful effect on the environment or which constitute a danger to human life or health."[148] In placing this mandate in context, Justice Rennie acknowledged that CEPA's "statutory mechanisms are complex [in] establishing procedures for

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144 *Ibid* at para 142.

145 *Ibid* at para 141.

146 *Ibid* at para 102.

147 *Goodyear, supra* note 124.

148 *Ibid* at para 7.

scientific review and public consultation."[149] The GIC's addition of a substance to list of toxic substances in Schedule 1 was viewed as a signal that the "substance is toxic," and any of the listed substances "may be controlled or completely prohibited" as long as section 64 (then section 11) is satisfied (i.e., "if it is entering or may enter the environment or its biological diversity, or that constitute or may constitute a danger to human life or environment on which life depends"[150]).

CEPA's screening assessment was deemed to be a distinct legislative process from the administration's (i.e., ECCC and HC) risk assessment. In the Court of Appeal's the s. 74 screening assessment is a "statutorily mandated scientific evaluation of a chemical substance to determine if [the substance] is toxic or capable of becoming toxic,"[151] and it is conducted "prior to adding a substance to the List if Toxic Substances."[152] If a substance is listed, it indicates that the substance is "categorized as persistent or bioaccumulative and inherently toxic."[153] The screening assessment (then, section 74) is used to determine if the "substance is toxic within section 64 of the Act."[154] Next is the publication in the *Gazette* of the "the proposed measure they [the Ministers] intend to take with respect to the substance and a summary of the scientific bases for the measure proposed."[155] The GIC, upon recommendation from the Ministers, and satisfied that s.64 has been met may issue an order to add the substance to the List of Toxic Substances.[156]

In controlling toxic substances, Justice Rennie distinguished the administrative tasks of the screening assessment from the risk management process. In the analysis, Justice Rennie concluded that the aim of the "statutory process" underlining the screening assessment is directed at "determining whether a substance is a danger. [In contrast,] the risk management process is directed at the management of the danger."[157] The

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149 *Ibid.*

150 *Ibid* at para 8.

151 *Ibid* at para 41.

152 *Ibid* at para 9.

153 *Ibid.*

154 *Ibid* at para 10.

155 *Ibid* at para 10.

156 *Ibid* at para 8 &11 &14 &19.

157 *Ibid* at para 43.

Court of Appeal understood that the two processes were conducted in "parallel" where the "non-statutory risk assessment" is independent yet "intersect[s]" with the statutory section 74 screening assessment.[158]

In line with the final step of the legislative three-part administrative task test set out earlier by Justice LaForest, Justice Rennie discussed the scope of the third administrative task (i.e., establishing a management or control mechanism via regulation). Specifically, under section 91, the Minister must publish either a "proposed regulation or another instrument" outlining "preventive or control actions" for managing the substance.[159] Justice Rennie viewed these "preventive or control actions to manage the risk posed by the substance [as] a separate and distinct function from the assessment of whether the substance is toxic as [characterized] by section 64" and its three elements.[160]

On January 30 2026, the Federal Court of Appeal again examined Part 5 (then Part 11) of CEPA.[161] Justice Rennie writing for the majority allowed the appeal and dismissed the application for judicial review. Giving consideration to a number of issues, the court answered in the affirmative that the GIC's decision that "plastic manufactured items" (PMI) "are a substance" within the "meaning" of CEPA "(s. 3(1)(f) was reasonable."[162] The court also found that there was sufficient evidence for the Governor in Council (GIC) to be satisfied that these PMI caused or have the potential to cause harm within the meaning of section 64.

In considering the overall legislative structure of Part 5: Controlling Toxic Substances, Justice Rennie affirmed the "primary purpose of CEPA, 1999 is to prevent pollution via a regulatory framework."[163] Justice Rennie characterized the question posed by s, 64 as: "whether the [substance] has the potential to cause harm to the environment."[164]

In Rennie's view, as enabling legislation, s.s. 64, 68, 90(1), 93 are brought together and initiate a "two stage approach" (via s.s.90(1) and 93) that results in the issuance of an order – i.e., an order being issued by the

158 *Ibid* at para 15.

159 *Ibid* at para at 41.

160 *Ibid* at para 42.

161 FCA *Responsible Plastic, supra* note 125.

162 *Ibid* at para 54

163 *Ibid* at para 64.

164 *Ibid* at para 78.

GIC under s. 90 of CEPA.[165] This order has the effect of listing a substance on the Toxic Substance List because the GIC is satisfied that the substance meets the criteria in s.64.

The next legislative action, under s. 93, requires the Ministers (Health and Environment and Climate Change) to "consider how to control the substance" via "regulatory or non-regulatory responses"[166] (e.g., "codes of practice, pollution prevention plans, guidelines"[167]). In effect, the GIC's decision to list a substance on Schedule 1 of CEPA, is distinct and triggers the regulation of the substance via regulatory and non-regulatory control measures.

The GIC's decision to list a substance as toxic is informed by an administrative "risk triage" that comprises of science assessment, regulatory impact assessment statement (RIAS), background document, and public consultation is completed.[168] This regulatory risk triage is conducted prior to the issuing of the order and relies upon regulatory and non-regulatory assessments. Justice Rennie described the RIAS and scientific assessment functions as "determin[ing] the quantity of a [substance] with the potential to enter the environment and the conditions under which they may enter the environment; quantity and conditions being legislative triggers in s. 64."[169] Together these two documents "describe the nature of the environmental harm posed by" a [substance]. [170]

Justice Rennie distinguished toxicity from harm. "Toxicity is not the test; it is the consequence of a finding of harm or prospective harm under s. 64."[171] Toxicity is a consequence of the GIC being "satisfied" that a substance may cause harm within the meaning" of s. 64. "Harm is a science-based finding" and toxic is the label given to a harmful or potentially harmful substance."[172] In other words, harm is contextualized by the three elements of s. 64 (generally, (a) harmful effect on the environment or its biological diversity (b) the environment which life depends (c) to human life or health). And, Section 68 empowers the research (i.e., the collection,

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[165] *Ibid* at paras 12 & 68.

[166] *Ibid* at para 79.

[167] *Ibid* at para 68.

[168] *Ibid* at para 13.

[169] *Ibid* at para 128.

[170] *Ibid* at para 136.

[171] *Ibid.*

[172] *Ibid* at para 100.

generation and completion of the studies) examining risk: i.e., "the features or effects associated with a substance".[173] Together the assessments inform the scientific research used to inform the risks of harm under s. 64.

Taken together, the three foregoing court decisions should continue to inform the intent of the 2023 amendments to CEPA. It is anticipated that this line of jurisprudence will ground Canada's chemical management regulatory decision-making in science-based processes and could support the class approach to managing PFAS and the idea of essentiality. The wording of CEPA's section 64 of Part 5 has generally remained intact and suggests this provision should continue to function as a threshold step where a weeding out process occurs, and should now be substantively and procedurally guided by CEPA's expanded preamble and the recently added legislative concepts, such as "right to a healthy environment."[174]

IX. THE IMPACT OF THE SCC CASES ON THE RECENTLY AMENDED CEPA, 1999

In June 2023, CEPA was amended with changes made to the preamble and to numerous sections of the Act, including Part 5: Controlling Toxic Substances, i.e., the operational aspects of controlling toxic substances. The amendments to the preamble have shifted the legislation away from a traditional perspective of environmental protection taken up by Justice LaForest in *Hydro-Québec*. Parliamentarians now aspire to take up a broader social-economic-ecological context in assessing and managing toxic substances, i.e., an approach that is aligned to contemporary environmental protection concerns and the recognition of the commercial use of chemical substances in products.[175] Greener chemistry chemical substitutes that are

[173] *Ibid* at para 140.

[174] *CEPA*, *supra* note 2. The re-enacted preamble articulates both contemporary substantive and procedural rights. The legislation recognizes Indigenous rights, and where in decision-making processes Indigenous knowledge should be aligned with a scientific understanding of toxic chemicals. A significant change is the "right to a healthy environment" for all Canadians including the consideration of "vulnerable populations" where "minimizing the risks" of "exposure to toxic substances" and "cumulative effects of toxic substances" can now be taken into account by the explicit direction to rely upon processes such as a "risk-based approach to the assessment and management of chemical substances."

[175] FCA Responsible Plastic, *supra* note 125 at para 107 & 108.

"safer for the environment or human health, when they are economically and technically viable" are now being promoted by the expanded preamble.

The risk-based approach operationalized in Part 5 continues to set out the scope of toxicity and harm under section 64. It has been over two decades since Justice LaForest reviewed the legislative language in section 64 (then section 11) and the wording of the section remains unchanged when reviewed in the three decisions. Given that parliamentarians continue to uphold the historical wording of section 64, it is reasonable to expect that the aforementioned line of jurisprudence examining section 64 (then section 11) will be upheld under the amended CEPA. Section 64 should continue to be viewed as a threshold step in assessing whether a substance (or class of substances) has an impact on the environment or is harmful to the environment on which life depends or is a danger to human life or health. The assessment under the threshold step upholds Justice LaForest's analysis in *Hydro-Québec* of the administrative process, and leads to the next step, which triggers the GIC and ministerial obligations regarding an order and notification in the *Gazette* including implementation of control measures.

The management of assessing a substance under the operational structure of Part 5 is carried out through a planning model.[176] The introduction of the risk management planning model in section 73(1) resulted in the elimination of section 74, the former screening assessment provision, as discussed in *Goodyear*. Both the Ministers of ECCC and HC are required to develop and publish a plan, within two years, that identifies those substances to be given priority in determining "whether they are toxic or capable of becoming toxic."[177]

The amended CEPA codified existing administrative practices (e.g., risk assessment) applied within a chemical management planning model. Under section 73(1)(b), the plan should also set out the "activities or initiatives" that the Ministers will complete in "assessing, controlling…managing the risks" that the chemical substance, under review, "presents to the environment or human health."[178] In effect, both the screening assessment (section 73(1)(a)) and the risk management processes (section 73(1)(b)) are now statutorily mandated unlike the distinction noted in the *Goodyear*

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176 *CEPA, supra* note 2 at s. 73.1(a) (b) (c)

177 *Ibid* at ss 73(1) & 73(1)(a).

178 *Ibid* at s73(2)(b).

decision.[179] In *Goodyear*, Justice Rennie characterized the risk management processes as a "non-statutory risk-assessment." Under the newly introduced section 73(1) planning mode, it appears that the distinction between assessing a substance to determine if the substance is a danger to the environment or human health (section 64) and that the risk management directed at the management and control of the danger will continue to be upheld, as expressed by Justice Rennie in *Goodyear*. However, both of these assessments are now statutory mandated assessments, and will be key administrative tasks in "develop[ing]" a plan to assess substances that will be administrated and coordinated by the Ministers of ECCC and HC.[180] In practice, the March 2025 risk management PFAS policy document is an example of a plan to assess substances.

Under section 73(2)(a), a participatory consultation approach is advanced, which is in line with the regulatory movement towards a participatory governance mode where industry can participate. This participatory, multistakeholder process is at the discretion of the Ministers, and allows for a broad range of stakeholders to be consulted (i.e., government, Aboriginal peoples, industry, labour, and municipal representation, including civil society members interested in environment "quality" or "preserv[ing] and improv[ing] public health"), and may include consultation with the National Advisory Committee, charged with "enabling national action on matters affecting the environment" under section 6(1). This consultation approach further reinforces a partnership model with commercial sectors that possess the PFAS information on their products and the function of PFAS substances within products and processes.

When read together, the legislation in support of section 73(2) and specifically, section 73(2)(b), which places an obligation on the Ministers of ECCC and HC to consider a class approach when "developing" and "implementing the plan."[181] Specifically, the government's adoption of a class approach to assessing chemicals is upheld by section 73(2)(b). This provision recognizes that for some chemicals it is more efficient and effective to assess both hazard and risk as a group. This efficiency rationale is in line with the arguments from Cousins et al.'s research and from the

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179 *Goodyear*, *supra* note 124 at para 15.

180 *CEPA*, *supra* note 2 at s. 73(1).

181 *Ibid* at s 73(2).

science community that large chemical classes (e.g., PFAS) share chemical properties (i.e., high-persistence) and, in combination with evidence for toxicity from a range of molecules within that class, calls for a more efficient assessment of chemicals that can be achieved via the grouping of substances.

Transparency and disclosure to the public are upheld under the CEPA amendments. Under section 73(2)(c), the mandatory language of "shall" regarding information relating to the "research, investigations and evaluation" conducted under section 68(a) signals the government's obligation to provide this information to the public via the plan. Taken together, section 73 and section 68 support the public's right to know the chemical composition of substances or products and their impacts, including the consideration of alternative chemicals, as promoted in Cousin et al.'s PFAS framework.

Under section 68, the research, investigation, and evaluation are prescribed tasks that have generally remained unchanged, except for the inclusion of "sustainable alternatives to the substance or product" and alternative green chemical substitutes,[182] including health-end point factors that consider "cumulative effects" (section 68(a) (iii.1)) and "vulnerable population or environment" (section 68(a) (iii.2)). Under section 68(v),[183] end-point health factors considered in an ecosystem risk assessment have been expanded through the new added factors of "carcinogenic, mutagenic or neurotoxic effects." A new consideration of reproductive and endocrine disruptive chemical substances under section 68(vi.1) takes into account the science pointing to disruptive substances.[184]

Finally, the enactment of regulations by the GIC, upon recommendation by the Ministers, to manage and control toxic substances is provided for under section 67(1). Under section 67(1)(a), the scope of the regulations has been expanded beyond the existing Persistence and Bioaccumulation Regulations, SPR/2000-1070, and can be enacted to address the chemical health end-point features of "carcinogenicity, mutagenicity and reproductive toxicity," with the practical effect being the development of protective measures for human health and the

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182 *Ibid* ats 68(a)(xii) (i.e., "the existence, development and use of safer or more sustainable substances or products").

183 *Ibid* at s 68(a)(v) (i.e., "the ability of the substance to cause delayed or latent effects over the lifetime of the organism including carcinogenic, mutagenic or neurotoxic effects").

184 *Ibid*at s68 (a) (vi.1)(i.e., "the ability of the substance to disrupt the reproductive system or endocrine system of an organism").

environment. Section 67 (1) (b) provides for regulations for substances, and groups of substances, like PFAS, thus, supporting the government's class approach to grouping PFAS into categories such as essential and non-essential.

X. MOVING FORWARD: THE REGULATORY IMPLEMENTATION OF THE PFAS ESSENTIAL USE FRAMEWORK UNDER CEPA

Theoretically, the concept of essentiality upholds the idea of ordering PFAS substances and uses into the categories of essential and non-essential, and complements a PFAS class approach. Introduction of the concept into a PFAS risk management protocol supports Cousin et al.'s PFAS framework, and upholds not only the aim of CEPA to protect human and environmental health but also the values of protecting health, safety, and the critical functioning of society as set out in the jurisprudence. In the jurisprudence, these foregoing values are legal norms that structure environmental and labour law. Adopting a normative perspective based on these legal norms allows for the implementation of essentiality under a risk categorization process that is grounded in CEPA's legislative intent. The three areas of law briefly reviewed earlier endorse an essential and non-essential use classification approach for pesticide use, elements of an invention, and to determine which workers should be identified as essential in a strike situation; in each case, consideration of health and safety and their impacts upon society are taken into account.

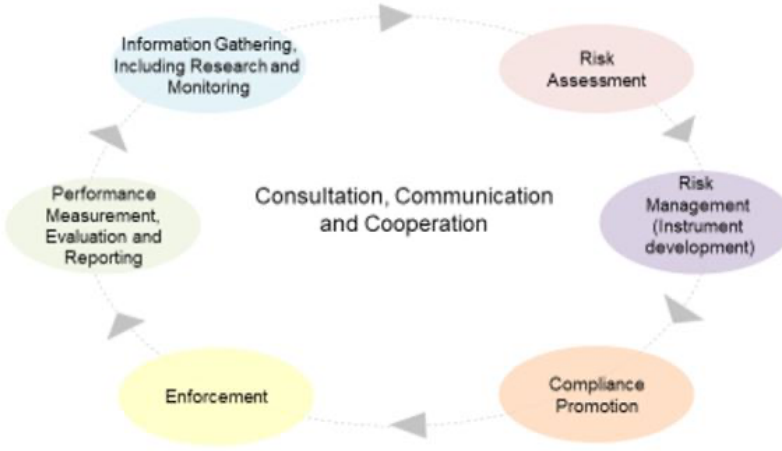
In reviewing CEPA's Part 5, courts have recognized the complexity of the legislation and the numerous administrative tasks that began with the threshold assessment inquiry of whether the substance meets the criteria set out in section 64(a), (b) or (c). To reiterate, Justice Rennie in the *Responsible Plastics* decision characterized a substance as toxic if the GIC is satisfied that the [PFAS] substance may cause harm within the meaning of s. 64 (i.e.,"if it enters or may enter the environment in a quantity or concentration or under conditions that" may have (a) "an immediate or long-term harmful effect on the environment or its biological diversity; or might be (b) "a danger to the environment on which life depends; or might be a (c) "danger to human life or health.") Completion of this s. 64 threshold inquiry is supported by scientific-risk-based administrative process tasks, which may include a scientific assessment, risk assessment, and ecological assessments according to processes designed by the Ministers of ECCC and HC.

Once these processes are completed, the GIC, after considering a recommendation from the Ministers of ECCC and HC, may add the different classes of PFAS substance or product (non-essential) to the toxic substance list. The Ministers' recommendation is based on the consideration of the assessments and the application of a "weight of evidence and precautionary approach" (section 76.1(1)). The enactment of the Order can lead to the enactment regulations (section 93(1)).

In practice, upon completion of a section 64 threshold assessment and giving consideration to Canada's Chemical Management Plan process, a chemical management life cycle approach is carried out that includes a risk assessment.[185] Figure 1 depicts the six interconnected components of the chemical management cycle implemented by government officials: (1) information gathering, including research and monitoring; (2) risk assessment; (3) risk management (instrument development); (4) compliance promotion; (5) enforcement; and (6) performance measurement, evaluation, and reporting.

Figure 1: The Chemical Management Cycle

[185] Canada, Health Canada, "Risk Management of Chemical Substances", (Ottawa: HC, last modified 18 July 2025) online: <www.canada.ca/en/health-canada/services/chemical-substances/canada-approach-chemicals/risk-management.html#s2>. See Figure 1- Canada's Chemical Management Cycle. The figure depicts Canada's chemicals management cycle under s. 64. The cycle is "made up of several-integrated components: a hub of information exchange through consultation, communication and cooperation in the middle that relates to the other 6 components. These 6 interconnected components linked in the circle are: 1. information gathering, including research and monitoring 2. risk assessment 3. risk management (instrument development) 4. compliance promotion 5. Enforcement 5. performance measurement, evaluation and reporting.



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Within this chemical management cycle, the adoption of the class approach for PFAS by ECCC and HC could fall within the risk assessment and risk management components where Cousins et al.'s essential use framework as a risk regulatory instrument could be implemented as a complementary regulatory technique to the existing assessment framework. Based on the essential use framework, PFAS would be assessed based on their use in specific applications or application categories (e.g., in food-contact materials or in cosmetics), and the use of PFAS in these applications could be categorized as essential use, non-essential use, and substitutable use. Based on this classification, PFAS use could then be restricted in non-essential applications, which, in essence, would support the partnership model. Under the partnership model, industry would be required to provide additional justification documents to introduce the use of alternatives for substitutable use, or be required to provide authorization of an essential use under a regulatory definition.

The regulatory decision to authorize or restrict substitutable uses could be derived from existing frameworks for chemical regulation and authorization such as the EU Commission's guidance document, "Guiding Criteria and Principles for the Essential Use Concept in EU Legislation

Dealing with Chemicals." Consideration could also be given to the EU's Harmonised Mandatory Control System (HCMS) under the Oslo and Paris Convention (OSPAR). Under the HCMS, chemicals can be placed under a "substitution warning" that requires any use to be authorized, based on a justification that the prospective user provides.[186] Moreover, the prospective user must demonstrate that they are actively working on finding or implementing a replacement. Similar provisions could be implemented under CEPA, with the essential use risk instrument either named directly (i.e., incorporated by reference) in the legislation,[187] introduced as a regulation, or implemented as a guideline.

Advancing the essential use framework as a regulatory risk instrument aligns with the reasoning underlying the federal government's directives on policy development and, in particular, the public interest factors to be considered.[188] In the policy directive, it is recognized that Canada's regulatory system must advance the "public's interest" in such matters as "health," "safety," and "quality of the environment." These public interest areas are congruent with the values underpinning essentiality as defined by the Cousins et al.'s framework, and the jurisprudence reviewed in this article. The policy directives also reinforce the principle of evidence-based decision-making.[189] In this case, the evidence is the PFAS regulatory science which takes into account the impacts upon human health, the environment and biodiversity.

As a drafting tool, Cousins et al.'s framework serves to efficiently categorize the use and risks associated with PFAS. In such a framework, not all PFAS substances or PFAS-based products would be prohibited in support a balanced regulatory approach; and it would allow for PFAS exemptions to be implemented. This line of thinking supports Justice LaForest's analysis

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186 R. Sühring et al, "The Past, Present and Future of the Regulation of Offshore Chemicals in the North Sea – A United Kingdom Perspective" (2020) 77:3 Int'l Council for Exploration of the Sea Journal of Marine Science, 1157.

187 Canada "Policy on Regulatory Development" online, Treasury Board of Canada Secretariat:<www.canada.ca/en/government/system/laws/developing-improving-federal-regulations/requirements-developing-managing-reviewing-regulations/guidelines-tools/policy-regulatory-development.html.>

188 *ibid.*

189 *ibid* See: "Regulatory decision-making is evidence-based: Proposals and decisions are based on evidence, robust analysis of costs and benefits, and the assessment of risk, while being open to public scrutiny."

in *Hydro-Québec* where, under CEPA, substances should be "weeded out," and it upholds the SCC's balanced regulatory approach to classification of dangerous substance. To reiterate, the SCC emphasized that the effect of the legislation did not restrict "the use, importation or manufacturer of **all** chemical products but rather it should affect only those substances that are dangerous to the environment [emphasis provided]."[190]

Under the amended CEPA of June 2023, it is reasonable to expect that the line of jurisprudence in Part 5 as presented earlier would continue to be relevant and would be endorsed by courts in subsequent cases. As a regulatory method to applied during Canada's chemical risk management stage, Cousins et al.'s PFAS essential use framework complements and structures the government's current class approach. In consideration of the three categories of essentiality, in the spirit of the precautionary principle (e.g., the right to a healthy environment) in CEPA's preamble, including section 76(1)(1), and given that an industry partnership could be reinforced, the following recommendations are introduced to strengthen the existing PFAS policy:

> 1. The essential use framework should be implemented as a risk management tool complementary to the class-based assessment and the government's three-part phased approach.
> 2. The concept of essentiality and class should be defined.[191] PFAS products and chemical applications should be categorized in phase three as essential, non-essential, and substitutable, with provisions to restrict non-essential uses while authorizing essential uses.
> 3. For substitutable uses, a framework similar to the EU Commission's guidance document could be considered. As well, consideration should be given to the substitution warnings under the OSPAR HCMS to support CEPA's Watch List (section 71(1)). Regulatory agencies should consider ways to incentivize targeted research (section 68) into viable alternatives and to promote an efficient transition towards existing alternatives.
> 4. CEPA's Watch List (section 75.1(1)) of substitutable uses should be implemented and used by stakeholders to easily identify

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190 *Hydro-Quebec, supra* note 25 at para 138.

191 William S Dean et al, "A Framework for Regulation of New and Existing PFAS by EPA" (2020) 16:1 JSPC. / See: II. Establishing a formal PFAS class definition for standardized regulatory action.

whether their intended use of PFAS is deemed essential, non-essential, or substitutable.

5. In a partnership model (section 73(2)(a)), industry actors should partner in the research and development of the framework with the aim of protecting human and environmental health.

6. A reverse onus PFAS risk management approach should be used to allow industry actors to prove the PFAS-based chemical is essential to society and is not harmful to human and ecological health.

7. A mandatory review clause should be introduced to review the human and environmental health effects of emerging types of PFAS (e.g., shift to short chain) and to ensure the continued safety and essentiality of PFAS to society, and to determine which PFAS need to be added to CEPA's Watch List and list of toxic substances.

XI. Conclusion

The Cousins et al.'s PFAS essential use framework is introduced as a new chemical management technique to be implemented in the risk management phase of Canada's cyclical regulatory approach to managing chemicals. This management tool is supported by the recently amended CEPA (June 2023) where under section 73(1) the Ministers of ECCC and HC must establish a plan in support of section 77(6)(c)(ii). In this article, we contend that the plan could "specify" that the scope of the PFAS class approach framework includes an "initiative … [in] assessing, controlling or … managing the risks to the environment or to health" (i.e., under section 73(1)(b)) that is grounded in the idea of essentiality. The introduction of an essentiality framework is supported by section 73(2)(b) where an obligation is placed on the Ministers to "consider" the benefits of assessing substances by way of a class approach. We contend that the PFAS class of substances and the supporting PFAS science compels the Ministers to adopt a precautionary essential use technique that recognizes how the practices and production processes of industry intimately contribute to PFAS pollution and the harms to human health and the environment.[192] A regulatory shift is needed that will move regulation away from the traditional risk assessment of individual PFAS substances towards a class approach that

[192] *Scott*, *supra* note 7.

redirects the focus on the idea of essentiality of PFAS products and processes in society and in economic-based commercial applications.