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c/o The Executive Director Program Development and Engagement Division
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RE: Notice of Objection and Request for Board of Review in relation to the Order Adding a Toxic Substance to Schedule 1 to the *Canadian Environmental Protection Act, 1999*, as published in the *Canada Gazette*, Part I, Volume 154, Number 41 on October 10, 2020 (the "Order")

I. INTRODUCTION

Pursuant to section 333 of the *Canadian Environmental Protection and Enhancement Act, 1999*, SC 1999, c 33 ("CEPA"), American Fuel & Petrochemical Manufacturers ("AFPM") hereby files a formal Notice of Objection in relation to the Order and requests the establishment of a Board of Review to inquire into the nature and extent of the danger posed by "plastic manufactured items." As described in further detail herein, AFPM's reasons for this objection include the following:

1. The Science Assessment of Plastic Pollution[1] ("Science Assessment") fails to substantiate adding "plastic manufactured items" to the List of Toxic Substances at Schedule 1;
2. "Plastic manufactured items" are not a "toxic substance" and cannot be added to the List of Toxic Substances at Schedule 1;
3. The Science Assessment applies the precautionary principle without first demonstrating the required "threat for a serious or irreversible damage;" and
4. Environment and Climate Change Canada ("ECCC") must demonstrate a commitment to sound science before engaging in policy-making.

Based on the foregoing concerns, additional scientific review is essential to determine whether the nature and extent of the danger posed by "plastic manufactured items" in fact causes those items to be "toxic substances" under the CEPA.

As noted in AFPM's comments on the Order and on the Proposed Integrated Management Approach to Plastic Products to Prevent Waste and Pollution – Discussion Paper (the "Discussion Paper"),[2] attached hereto, the potential impacts of the Order are serious and far-reaching and warrant the application of the robust scientific rigour contemplated and required by the CEPA. Based on the reasons discussed herein, the additional scientific scrutiny of a Board of Review is required before the Federal Government can make any claim to science-based decision making.

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[1] ECCC, "Science assessment of plastic pollution" (October 2020), online: https://www.canada.ca/content/dam/eccc/documents/pdf/pded/plastic-pollution/Science-assessment-plastic-pollution.pdf.
[2] ECCC, "A proposed integrated management approach to plastic products: discussion paper" (October 2020), online: https://www.canada.ca/content/dam/eccc/documents/pdf/cepa/proposed-approach-plastic-management-eng.pdf.

II. ABOUT AFPM

AFPM is a national trade association representing nearly all U.S. refining and petrochemical manufacturing capacity. AFPM members operate in both the United States and Canada and produce the fuels that drive the North American economy and the chemical building blocks integral to millions of products that make modern life possible. AFPM member companies are leaders in human safety, process safety, sustainability and environmental responsibility.

AFPM members supply the petrochemicals and derivatives that growing global populations and economies need to thrive while doing so in an environmentally sustainable way. AFPM supports a targeted and risk-based approach to chemical safety and plastic pollution. AFPM remains committed to working with the Federal Government, provinces, and all stakeholders to reduce the small percentage of plastic waste that escape Canada's regulated waste management systems and end up as plastic pollution through actions such as littering.

Unfortunately, the Science Assessment prepared by ECCC fails to provide any scientific assessment or reasonable basis to substantiate listing "plastic manufactured items" on the List of Toxic Substances at Schedule 1 of the CEPA. AFPM has been actively engaged in the Federal Government's limited consultation to date and attaches a copy of its comments filed with ECCC, which address both the Order and the Discussion Paper.

III. REASONS FOR AFPM'S OBJECTION

1. The Science Assessment fails to substantiate adding "plastic manufactured items" to the List of Toxic Substances at Schedule 1 of the CEPA

The Science Assessment falls far short of providing the data or analysis necessary to substantiate adding "plastic manufactured items" (or any other individual type of plastic) to the List of Toxic Substances. Notwithstanding its name, the Science Assessment itself is clear that it is a "summary" or "review" of "the current state of the science on plastic pollution," and "is not intended as a substitute for chemical risk assessment,[3]" Based on that review, the Science Assessment repeatedly acknowledges the considerable uncertainty present in current scientific studies, and concludes on that basis that additional scientific research is required.[4] The Science Assessment provides little information applicable to Canada, and acknowledges that "since Canadian occurrence data are often lacking, data from other areas around the world are also presented in many instances."[5] The high levels of scientific uncertainty noted in the Science Assessment alone provide an unsuitable foundation for making the Order and warrant re-examination by a Board of Review.

The Science Assessment contains no analysis of whether microplastics, macroplastics, or "plastic manufactured items" meet the criteria of a toxic substance in section 64 of the CEPA. In relation

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[3] Science Assessment at pages 13

[4] Science Assessment at page 78, at section 10, "Findings": "The evidence for potential effects of microplastic pollution on environmental receptors is less clear and sometimes contradictory, and further research is required". Regarding microplastics: "The current literature on the human health effects of microplastics is limited. Potential exposure pathways include air, water and food. While some occupational epidemiology and experimental animal studies show the potential for effects at high exposure concentrations, they are of questionable reliability and relevance, and further research on the potential for microplastics to impact human health is required." Regarding the additional research required, the Science Assessment notes et at page 78: "In order to advance the understanding of the impacts of plastic pollution on the environment and human health, it is recommended that research be conducted to address key knowledge gaps identified in this report."

[5] Science Assessment at page 31.

to an order under section 90 of the CEPA, ECCC itself states that a substance is "CEPA-toxic equivalent" if it satisfies the criteria of "CEPA-toxic" as a result of a systematic, risk-based assessment.[6] When conducting risk-based assessment, Canada's own guidance is clear: "in risk management, sound scientific information and its evaluation must be the basis for the decision to apply precaution and the measure selected in applying precaution."[7]

ECCC has not conducted such a risk assessment. As a result, the Order and its determination of toxicity on the basis of the Science Assessment represents the sidestepping of the CEPA's existing risk assessment requirements and processes that are in place to ensure a transparent procedure and science-based decision-making.

The Science Assessment suggests that "it is similar to the approach taken for the Science Summary on Microbeads."[8] Respectfully, this suggestion is inaccurate: the Science Summary of Microbeads explicitly considered whether microbeads met the criteria of a "toxic substance" at section 64 of CEPA, and then reached a conclusion on the substance's toxicity based on the science reviewed in that summary.[9] The Science Assessment neither attempts this type of analysis nor reaches any such conclusion. Instead, the Science Assessment explicitly states that it is not a risk assessment and recognizes that conducting a risk assessment would be difficult due to the inconsistencies in various data.[10] The Science Assessment's greatest shortcoming are best described by the Assessment itself:

> *Significant data gaps currently exist that preclude the ability to conduct a quantitative risk assessment, including a lack of standardized methods for monitoring microplastics and characterizing the environmental and human health effects of plastic pollution, as well as inconsistencies in the reporting of occurrence and effects data in the scientific literature.*[11]

The Science Assessment is therefore outside the CEPA's existing risk assessment mechanisms and processes that would otherwise ensure a transparent procedure and science-based decision-making. AFPM suggests that a draft screening level risk assessment under section 74 of the CEPA would have reached a very different conclusion and would have precluded ECCC from recommending the designation of such a broad category of substances as all "plastic manufactured items."

At most, the Science Assessment undertakes an incomplete review of the literature on the potential impacts of plastics when they are released into the environment as pollution. While the Science Assessment takes some small incomplete steps toward reviewing the potential impacts of plastic pollution on the environment (which is not the same as assessing toxicity), it does nothing to examine the toxicity of "plastic manufactured items" individually or as a group.

The Science Assessment therefore lacks the rigorous scientific assessment of toxicity that is required under the CEPA and provides an insufficient basis for the Order. These clear

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[6] ECCC, "Risk assessments under section 90(1) of Canadian Environmental Protection Act, 1999" (date modified: 2019-05-23) online: https://www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act-registry/substances-list/risk-assessments-section-90-1.html.

[7] ECCC, "overview of the Existing Substances Program" (April 2007; modified April 28, 2017) at page 4 online: https://www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act-registry/substances-list/overview-existing-program.html.

[8] Science Assessment at section 1.1, page 14.

[9] *See* https://www.canada.ca/en/health-canada/services/chemical-substances/other-chemical-substances-interest/microbeads.html.

[10] Science Assessment at section 1.1, page 14.

[11] *Ibid*.

shortcomings provide strong justification for a science-based inquiry into the nature and extent of the danger posed by "plastic manufactured items" by a Board of Review.

2. "Plastic Manufactured Items" are not a "toxic substance" and cannot be added to the List of Toxic Substances at Schedule 1 of the CEPA

As noted above, the Science Assessment does not assess or reach a conclusion as to whether "microplastics," "macroplastics," or "plastic manufactured items" meet the criteria of a toxic substance pursuant to section 64 of the CEPA. Based on the findings summarized by the Science Assessment, AFPM maintains that there is no scientific evidence to support the view that plastic manufactured items – either as a broad class of substances or as individual polymers - are toxic in the ordinary sense or based on a reasonable application of the criteria at section 64 of the CEPA. A "toxic substance" is defined as followed in the CEPA:

> ***Toxic substances***
> ***64*** *For the purposes of this Part and Part 6, except where the expression "inherently toxic" appears, a substance is toxic if it is entering or may enter the environment in a quantity or concentration or under conditions that*
> ***(a)*** *have or may have an immediate or long-term harmful effect on the environment or its biological diversity;*
> ***(b)*** *constitute or may constitute a danger to the environment on which life depends; or*
> ***(c)*** *constitute or may constitute a danger in Canada to human life or health. [emphasis added]*

Before a substance can be added to Schedule 1 through section 90(1), the Governor in Council must be satisfied that a substance is toxic.[12] In other words, to be a toxic substance under the CEPA, a substance must present a risk of harm (as listed at subsections 64(a), (b), or (c)) and a link between that risk of harm and the quantity, concentration, or conditions under which it is entering the environment. These criteria are not established through the Science Assessment for "plastic manufactured items."

Section 64(c) criteria for harm is ruled out at the outset. The Science Assessment concludes that for microplastics, "a concern for human health has not been identified at this time,"[13] whereas for macroplastics, "human exposure to macroplastic pollution is not anticipated to be a concern" and did not review studies relevant thereto.[14] As a result, ECCC does not establish that these materials "constitute a danger in Canada to human life or health" and therefore the section 64(c) is not met.

Likewise, the data on microplastics provides no conclusive evidence that would permit the criteria for toxicity at section 64(a) and (b) to be met, since the Science Assessment concludes that "evidence for potential effects of microplastic pollution on environmental receptors is less clear and sometimes contradictory, and further research is required."[15] Section 64(a) and (b) are therefore not engaged by plastic pollution from microplastics.

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[12] CEPA section 90(1)
[13] Science Assessment at section 10.
[14] Science Assessment at section 7.1.
[15] Science Assessment at section 10, page 82.

As a result, the only remaining avenue would be a determination under subsection 64(a) or (b) that macroplastics are entering or may enter the environment in a quantity or concentration or under conditions that have or may have an immediate or long-term effect an constituting a danger to the environment on which life depends. The Science Assessment fails to provide evidence that could support such a conclusion, determining instead that "macroplastics have been demonstrated to cause physical harm to environmental receptors on an individual level and to have the potential to adversely affect habitat integrity."[16] However, the Science Assessment identifies that only 1% of plastic waste enters the environment outside of controlled waste management stream (i.e., as pollution), and does not address what percent of the 1% could cause harm.

Put simply, physical harm to individual receptors does not, in and of itself, constitute an immediate or long-term effect, or a danger to the environment on which life depends that is necessary to engage section 64(a). Nor does the Science Assessment suggest that either (i) the harm in question or (ii) the potential adverse effect on habitat integrity would constitute or may constitute a danger to the environment on which life depends so as to engage section 64(b).

Perhaps most importantly, the key link between the identified risks of harm and the exposure levels have not been made. Section 64 specifically requires that the identified risk of harm from a substance be connected to the quantity, concentration or conditions under which the substance is entering, or may enter, the environment. This connection remains unmade. The Science Assessment itself acknowledges that "Canadian occurrence data are often lacking"[17] and there is insufficient science to evaluate the exposure levels. The Science Assessment goes on to acknowledge that due to "the absence of standardized methods and techniques," "it is not possible to quantitatively characterize environmental or human exposure levels at this time."[18]

The Science Assessment does not make the link necessary for a toxicity determination under the CEPA: it does not connect the individual impacts identified in specific studies and the exposure levels at which plastic manufactured items, either individually (whether as items or specific polymers) or as broad category, become CEPA-toxic. The Science Assessment does not support a conclusion that "plastic manufactured items" satisfy the criteria of a toxic substance CEPA.

3. The Science Assessment applies the precautionary principle without first demonstrating the required "threat for a serious or irreversible damage"

The Science Assessment applies the precautionary principle improperly and without explanation or analysis. Under the CEPA, the precautionary principle provides 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." [emphasis added][19]

However, the condition precedent for the application of the precautionary principle is missing. No "threat of serious or irreversible damage" is identified in the Science Assessment. The word "irreversible" does not appear in the Science Assessment, and no conclusion as to the seriousness

[16] Science Assessment at section 10.
[17] Science Assessment at section 5, page 32.
[18] Science Assessment at section 5, page 32.
[19] CEPA at section 2(1)(a).

of any damage noted in the studies reviewed is made.[20] The Regulatory Impact Statement equally fails to demonstrate what threat of serious or irreversible damage has been identified by the Ministers. The reliance on the precautionary principle is therefore without justification, and the call to action contained in the Science Assessment – and relied upon in the Order – is premature.

4. ECCC should demonstrate a commitment to sound science before engaging in policymaking

Based on the foregoing shortcomings of the Science Assessment and the inherently inadequate data and analysis provided to support the Order, a Board of Review should be established to inquire into the nature and extent of the danger posed by "plastic manufactured items." A Board would provide the necessary scientific, apolitical investigation that is enshrined in the CEPA, and would provide a fair review of the relevant scientific evidence to date. Such an assessment is vital to ensuring that the Federal Government's decisions are backed by sound science.

ECCC has admitted that there are scientific gaps in Science Assessment that preclude the ability to conduct a quantitative risk assessment. A Board of Review would have the ability to fill these gaps. More science – not less - is consistent with the Prime Minister's instructions in the Minister's mandate letter to ensure that "(t)he Government of Canada is committed to strengthen science in government decision-making and to support scientists' vital work."[21] Granting a Board of Review would demonstrate the Federal Government's commitment to sound science and risk-based approach to chemical safety and plastic pollution and aid in the selection of the most effective actions to address plastic pollution.

The Order provides the legislative grounding for the Federal Government's plastics agenda. Considering the numerous and valid concerns raised by a broad swath of stakeholders regarding the methods and findings of the Science Assessment,[22] a Board of Review would provide much-needed scientific rigour to underpin not only the Order, but all future exercise of the Federal Government's powers under the CEPA.

IV. Conclusion

In accordance with section 333 of the CEPA, a "Board of Review" should be formed on this issue and a group of independent scientists should be convened by the Minister to review the previous findings of ECCC. Basing any additional actions or instruments on the flimsy foundation provided by the Science Assessment stands to jeopardize meaningful action on plastic pollution.

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[20] Science Assessment.
[21] See https://pm.gc.ca/en/news/backgrounders/2017/09/26/chief-science-advisor
[22] Over 70 comments were received from different stakeholder groups, including over 50 from businesses and industry associations and these comments are summarized at https://www.canada.ca/en/environment-climate-change/services/evaluating-existing-substances/summary-public-comments-received-regarding-draft-science-assessment-plastic-pollution.html.