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February 7, 2017

Via e-mail

Hon. Chris Ballard, Minister
Environment and Climate Change
Ferguson Block 11th Flr
77 Wellesley St W
Toronto, ON, M7A 2T5
Phone: 416-314-6790
minister.moecc@ontario.ca

Re: **EBR Registry #013-1680, Proposed Policy --
Cumulative Effects Assessment in Air Approvals**

Dear Minister Ballard,

As members of the Osgoode Hall Law School's Environmental Justice and Sustainability Clinic, we are writing to provide comments on the Ministry of the Environment and Climate Change (MOECC) proposal for a new policy for Cumulative Effects Assessment (CEA) in air approvals posted to the Environmental Registry on November 9, 2017 ("the Proposal"). We are faculty and students affiliated with Osgoode Hall Law School's Environmental Justice & Sustainability Clinic.¹ Our aim is to contribute to the creation of policy and law that enacts principles of justice and enables access to a healthy environment for everyone in Ontario.

The MOECC's Proposal is a major disappointment. Given the pressing need for a robust cumulative effects assessment policy that can tackle the already dangerous and worsening air pollution that disproportionately burdens poor and marginalized communities in Ontario, the MOECC needs to be much more ambitious.

¹ As academics and lawyers with more than 35 years' of collective experience in environmental law and governance, our team brings a wealth of expertise to this submission. The lead author, Dr. Dayna Nadine Scott, Associate Professor at Osgoode Hall Law and the Faculty of Environmental Studies at York University and Academic Co-Director of the Environmental Justice and Sustainability Clinic, engages in scholarship related to environmental health, toxics regulation and environmental justice. She previously served as the Director of the National Network on Environments and Women's Health, a research institute funded by Health Canada, and has conducted extensive research on the chronic sources of industrial pollution and high burden of environmental health harms experienced by the Aamjiwnaang First Nation community. In 2015, she published an edited collection, *Our Chemical Selves: Gender, Toxics, and Environmental Health* (UBC Press). Environmental lawyers, Lara Tessaro and Jacynthe Ledoux, and current York University graduate and JD students, Aaron Cressman, Meagan Dellavilla, Jacqueline Hebert and Christina McLeod, provided additional support to this submission.

In our assessment, the Proposal will not be effective at achieving even its own overly modest goal of preventing further deterioration of air quality in the notorious pollution “hotspots” of Hamilton, Sarnia and the nearby Aamjiwnaang First Nation. People living in these communities are forced to breathe the toxic soup from so-called “overstressed airsheds”, long blighted by high concentrations of multiple toxic contaminants from a concentration of major industrial sources of pollution. This policy presents a long-awaited opportunity to promote environmental health in these communities and begin remedying the heavy burden of environmental disease affecting their residents.² In this respect, the policy is a major disappointment. Its objective of trying to slow or stop any *increases* in pollution levels is not only overly modest, but, in the Proposal as drafted, highly unlikely to be achieved. Moreover, that modest objective ignores the urgent crisis. In our view, instead of merely aiming to prevent further deterioration, the MOECC should be aiming at mitigating the existing adverse environmental health impacts related to high air pollution burdens in these areas. That is, on the basis of its own data demonstrating that ambient air concentrations of proven carcinogens such as benzene routinely exceed accepted health-based thresholds, the MOECC should be putting forward a proposal for *improving* air quality for the residents of places like Sarnia, Hamilton and the Aamjiwnaang First Nation. This action, we submit, is the minimum required to achieve environmental justice.

In our submission, we put forward several reasons for why the Proposal will be ineffective, and we offer several recommendations for strengthening it.

1. The Proposal cannot reasonably be described as a policy on “Cumulative Effects Assessment”

The MOECC Proposal targets only two contaminants in the Hamilton/Burlington region, benzene and benzo[a]pyrene (“B[a]P”), and only benzene in the Sarnia/Corunna region. Selecting only two contaminants for a Cumulative Effects Assessment (“CEA”) will not properly address the pressing health risks in these communities; in fact, it betrays a remarkable disregard for the serious impacts to health stemming from air pollution in these communities. We agree that, obviously, benzene and BAP must be included in any CEA policy, but to focus solely on them amounts essentially to a single-contaminant assessment, not a CEA.

Residents of these communities face health risks posed by high levels of emissions that go far beyond benzene. The Aamjiwnaang First Nation reserve is situated in one of Canada’s most toxic regions, aptly named ‘Chemical Valley’ for the fact that roughly 40% of Canada’s petro-chemical production is located in close proximity to the reserve.³ The people of this community experience high levels of pollution from a toxic soup of emissions on a daily basis. While benzene exposures are a major concern for people in Aamjiwnaang and in the surrounding region, it is the health risks posed by those *emissions in the context of the background ambient levels of many other contaminants* that should be assessed in a cumulative effects policy.

i) What is Cumulative Effects Assessment?

In theory, Cumulative Effects Assessment (CEA) is the process of understanding how natural systems -- in this case, *people’s bodies* -- are affected by the totality of industrial activities proposed and ongoing in the surrounding area. In this respect, CEA is intended as an alternative to focusing only on the effects of one particular project, one particular proposal, or, as in this case, one particular *contaminant*. While the concept is relatively well-developed in the environmental assessment context, it is less well-understood in

² For an authoritative scientific assessment of the need for regulators to take action on this front, see PJ Landrigan et al, *The Lancet Commission on Pollution and Health*, October 19, 2017.

³ Elaine MacDonald and Sarah Rang, *Exposing Canada’s Chemical Valley: an Investigation of Cumulative Air Pollution Emissions in the Sarnia, Ontario Area* (Toronto: Ecojustice Canada, 2007).

the context of air pollution. That said, environmental health literature and practitioners have been refining the concept to apply in relation to pollution hotspots for well over a decade.⁴ Much of the impetus for CEA comes from the recognition that the multiple assaults on overburdened airsheds cannot be understood if regulators continue to focus on isolated, individual contaminants one-at-a-time.

When applied in the context of regulatory decision-making on particular approvals to emit air pollution, CEA requires an understanding of how that one particular approval impacts the airshed overall, in the context of ongoing impacts from a range of other approvals, industrial activities, transportation-related pollution etc. In order to understand the impact of new sources of industrial air pollution on people's bodies, the regulator must understand the overall condition of the airshed. This means that decision-making on discrete ECAs and other air approvals *must start with an understanding of the totality of stressors on a given airshed*, considering the actual condition of that airshed as a result of all sources of pollution. Further, the literature makes clear that the receiving environment -- here, the airshed - must be in "good condition" if a decision to add to the cumulative burden of stressors is to be deemed acceptable.⁵

As people are exposed to a mixture of contaminants, it is essential to consider the combined, or *cumulative*, impacts of these contaminants on human health, even when the levels of most of those contaminants are individually below levels of concern. While scientific protocols for assessing the health impacts of mixtures of chemicals continue to evolve, accepted approaches are readily available. Given the length of time that the MOECC has been studying this issue, it is entirely reasonable to expect that one of those protocols be adopted right away.

One of the commonly accepted approaches is to group contaminants according to similar mechanisms of toxicity or 'common modes of action' in the body. For example, Toronto Public Health, in its Cumulative Health Risk Assessment of Air Quality completed in 2014, identified three categories of contaminants, one of which was "carcinogens".⁶ Then, to assess health risks, it grouped together exposures to all carcinogens (benzene, chromium (VI), 1,3-butadiene, tetrachloroethylene (or perchloroethylene), formaldehyde, 1,4-dichlorobenzene, acetaldehyde, and benzo[a]pyrene) to come up with a combined exposure picture.

In the context of air approvals for Sarnia and Hamilton, a robust approach to CEA is crucial. The MOECC must understand the concentration of all contaminants in ambient air from all pollution sources, and the expected health impacts from the total burden, prior to authorizing any additional contributions from a contemplated new approval. Moreover, CEA should help MOECC decision-makers understand how emissions permitted under a contemplated approval would contribute to the concentration of contaminants already in the air; CEA enables decision-makers to "understand the relative contributions of various stressors" and will help them to decide "when cumulative effects may foreclose future activities" due to existing stressors and their existing impacts on health.⁷

⁴ David O Carpenter, Kathleen Arcaro and David C Spink, "Understanding the Human Health Effects of Chemical Mixtures" (2002) 110:1 *Environmental Health Perspectives* 25, online: <<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1241145/>>; Ken Sexton and Dale Hattis, "Assessing Cumulative Health Risks from Exposure to Environmental Mixtures – Three Fundamental Questions" (2007) 115:5 *Environmental Health Perspectives* 825 <<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1867955/>>; Ken Sexton, "Cumulative Risk Assessment: An Overview of Methodological Approaches for Evaluating Combined Health Effects from Exposure to Multiple Environmental Stressors" (2012) 9:2 *Int J Environ Res Public Health* 370 <<http://www.mdpi.com/1660-4601/9/2/370/htm>>.

⁵ A. John Sinclair, Meinhard Doelle and Peter N. Duinker, "Looking up, down, and sideways: Reconceiving cumulative effects assessment as a mindset" (2017) 62 *Environmental Impact Assessment Review* 183 at 184.

⁶ *Cumulative Health Impact Assessment of Air Quality* (Toronto: Toronto Public Health, 2014) <<https://www.toronto.ca/legdocs/mmis/2014/pe/bgrd/backgroundfile-67066.pdf>>.

⁷ Sinclair et al. supra note 5 at 183.

As is clear from the above, the MOECC Proposal cannot reasonably be described as implementing a “Cumulative Effects Assessment”. It does not propose to treat emissions of all contaminants with a similar mode of action as additive; it does not propose to assess the overall health of the airshed prior to approving any new pollution sources; it does not propose to foreclose the possibility of further toxic emissions based on the health of the airshed or the human bodies within it. In conclusion, it is not a robust Cumulative Effects Assessment policy.

2. The Proposal cannot be expected to improve air quality in Ontario

In our submission, the Proposal will necessarily fail to improve the air quality and the health of people in the Sarnia and Hamilton regions. Indeed, the Proposal appears to be fundamentally premised on the assumption that existing facilities will never be required by the MOECC to pollute any less than they already do. In other words, the Proposal envisions that the MOECC will do nothing meaningful to remedy current excessive levels of air pollution in these communities.

i) The Proposal would do nothing to remedy existing levels of contaminants, released by existing facilities, that already present serious health risks in these communities

The MOECC acknowledges that ambient concentrations of priority contaminants routinely exceed Ambient Air Quality Criteria (AAQCs) in Hamilton/Burlington and Sarnia/Corunna.⁸ Put another way, the facilities that exist in the Hamilton/Burlington and Sarnia/Corunna regions are already emitting benzene and B[a]P at levels that already threaten health. As noted in the Proposal:

In these specific areas of Hamilton/Burlington and Sarnia/Corunna, ambient air quality levels of contaminants exceed Ambient Air Quality Criteria (AAQCs) and there is a concentration of industrial sources. In these areas, from 2009 to 2014 the AAQCs for benzene and benzo[a]pyrene were exceeded at monitoring locations based on annual average concentrations. In these areas, there are multiple industrial sources of those contaminants reported to the National Pollutant Release Inventory (NPRI).⁹

Despite this, the additional requirements for industry described in the Proposal would apply *only to new and expanding facilities*. That is, the Proposal contemplates that only new and expanding facilities would be subject to the requirements to produce a benchmarking report or install best-available technology, measures that would become mandatory under the policy when ambient air concentrations of the two identified priority contaminants reach levels of 10-100x the health-based thresholds. By shielding existing polluters from these requirements, the Proposal would fail to remedy current (exceedingly high) levels of air pollution in priority communities.

In neglecting to address this situation, we submit that the MOECC is failing to meet its mandate, as outlined in its Statement of Environmental Values (SEVs), to apply a “precautionary, science-based approach in its decision-making to protect human health and the environment”.¹⁰ The MOECC must instead develop and implement a CEA policy that ensures a decrease in current concentration levels of ambient air contaminants. In other words, we urge the MOECC to put in place a CEA policy that can be reasonably expected to *improve* the air quality in over-burdened airsheds.

⁸ *Discussion Paper: Cumulative Effects Assessment in Air Approvals* (Ontario: Ministry of the Environment and Climate Change, November 2017) at 10.

⁹ *Proposal for Cumulative Effects Assessment (CEA) in Air Approvals* (Ontario: Ministry of the Environment and Climate Change, November 2017), at 4.

¹⁰ *Statement of Environmental Values* (Ontario: Ministry of the Environment and Climate Change, 2018), Environmental Registry < <https://www.ebr.gov.on.ca/ERS-WEB-External/content/sev.jsp?pageName=sevList&subPageName=10001>>.

As it stands, people living and working in Hamilton and Sarnia/Aamjiwnaang already face health risks from poor air quality. The reality for many families, particularly in the Aamjiwnaang community, is that emissions from these facilities are already adversely impacting their health.¹¹ Benzene exposure is a particular concern, as it has long been linked conclusively with increased risks of childhood leukemia.¹² The most recent research demonstrates that public health authorities and regulators have “underestimated the impact of toxic chemicals on death and disease”.¹³ Many scientists now believe that certain pollutants, including benzene, “do not exhibit a threshold and are proportionately more toxic at the lowest levels of exposure”, leading them to recommend that regulators should be aiming for “near-zero exposures” to protect public health.¹⁴

Choosing to confine this model to new and expanding facilities allows existing facilities to continue emitting in a business-as-usual scenario. This will greatly reduce the effectiveness of any forthcoming CEA policy in Ontario, and will continue to endanger people’s health. Without putting forward a plan that aims to remedy the exceedingly high pollution levels from facilities that are currently in operation, and that details the circumstances in which the MOECC will require emission reductions (through discretionary decisions under existing statutory enactments), the MOECC’s proposal will continue to expose vulnerable communities in pollution hotspots to ongoing adverse health risks.

ii) **Air quality will continue to deteriorate under this Proposal**

On top of its failure to remedy the current air pollution burden, the Proposal would only *marginally* mitigate future increases in emissions in these areas. The Proposal would introduce the most minimal requirements on new and expanding facilities to manage their excess emissions. As stated in the Proposal, so-called Action Level 1 (AAQC to 10x AAQC) would require no further action for industry and only periodic evaluation by the MOECC. Action Level 2 (10x AAQC to 100x AAQC) would require technology benchmarking reports (with exceptions) and would potentially require the adoption of best available pollution control methods. Action Level 3 (greater than 100x AAQC) would require technology benchmarking reports (with exceptions) and pollution control methods to achieve the lowest possible emission rates as compared to an existing pollution source of the same kind in North America.

In other words, the MOECC proposes to not take *any* form of action at all until Action Level 2. Action Level 2 is the point at which the AAQC – a health-based threshold – has been *exceeded tenfold*. To be clear, our understanding of this Proposal is that a new or expanding facility that applies to emit benzene in the priority areas – indeed, even when the health-based thresholds are routinely exceeded by up to 100 times – will be permitted to do so (as long as they write a report and install the best available equipment). In our submission, this is grievously inadequate.

What this means for the residents of Hamilton and Sarnia/Aamjiwnaang is that, despite recognizing that the cumulative impact on air quality from additional or expanding facilities will worsen an already considerable pollution burden, the MOECC would continue to sanction increased emissions in these areas. The only proactive management action that the MOECC would require is the inclusion of pollution control methods to achieve the lowest possible emission rates for facilities where concentration in the air of benzene or B[a]P is greater than 100X the AAQC. As a result, the MOECC not only fails to put

¹¹ Sarah M Wiebe, *Everyday Exposure: Indigenous Mobilization and Environmental Justice in Canada’s Chemical Valley* (Vancouver: UBC Press, 2016).

¹² Rinsky RA. Benzene and leukemia: an epidemiologic risk assessment (1989) *Environmental Health Perspectives* 82:189–91.

¹³ Bruce P Lanphear, “Low-level toxicity of chemicals: No acceptable levels?” (2017) 15:12 *PLoS Biol*, <<http://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.2003066>>.

¹⁴ *Ibid.*

forward a plan for improving air quality in these communities, it invites a worsening of air quality in these areas.

Further, the Proposal does not address the fact that the MOECC is authorized to issue a Site-Specific Standard (SSS) and/or a Registration to a Technical Standard in addition to an ECA. Under section 32(1) of O. Reg. 419/05, a person may request that the Director set a SSS for a Schedule 3 contaminant where, in certain prescribed circumstances, “discharges of the contaminant for the facility would result in the concentration of the contaminant at a point of impingement exceeding the standard set out in Schedule 3 for the contaminant and the specified averaging period”.¹⁵ This essentially exempts facilities that will operate with emissions levels that may greatly exceed the AAQCs established by the MOECC. Thus, as long as SSSs continue to be granted, emissions may still rise past acceptable health standards. In light of this, to meet the objective of limiting harmful emission increases in areas of concern, the MOECC will need to begin amending or revoking SSSs.¹⁶

Likewise, certain facilities may apply to register under a Technical Standard. Under O. Reg. 419/05, Technical Standards require certain types of pollution abatement equipment to be installed, but do not mandate maximum concentration levels of contaminants emitted.¹⁷ In fact, in Sarnia, all seven facilities that have authorization to emit benzene do so according to either the Petrochemical Industry or Petroleum Refining Sector Technical Standards.¹⁸ As an example, a Registration to a Petrochemical Industry Technical Standard for Styrolution, in Sarnia, was granted in July 2016. In response to a comment by the Aamjiwnaang First Nation posted to the Environmental Registry, the MOECC stated that this Technical Standard includes requirements “that will support air quality improvements” such as: “[n]ew requirements for property-line monitoring of benzene and 1,3 butadiene to provide important information to the MOECC, industry and surrounding communities and to assist in determining if additional air pollution control requirements will be required in the future; and [r]equirements to share information from the property-line ambient monitors on a public website thereby enhancing public transparency”.¹⁹ With respect, neither of these requirements can be reliably expected to produce air quality improvements, beyond a hope that worsening air quality will motivate the MOECC to introduce a more robust CEA policy in the future. Instead, to mitigate emissions of benzene and B[a]P from facilities in the Sarnia area, the MOECC will need to either amend and strengthen the standards in its Technical Standards publication under O. Reg. 419/05, or to revoke facilities' registrations.²⁰

Finally, emissions of benzene and B[a]P can also be generated as “fugitive emissions” (ie. from leaky pipes or storage tanks) and during flaring, start-ups and shut-downs. The Petroleum Refinery and the Petrochemical Sector Technical Standards were developed to address fugitive emissions, but the MOECC has not yet taken any action to address emissions of benzene and B[a]P from flaring, shut-downs or start-ups – nor are these emissions typically included in the Emission Summary and Dispersion Modelling reports, leading to the under-estimation of ambient concentration levels for key contaminants.²¹

¹⁵ O. Reg. 419/05, s 32(1).

¹⁶ O. Reg. 419/05, ss. 36(2), 37(1) and (2).

¹⁷ Ibid, ss. 38 and 39. See also Petrochemical - Industry Standard under the Local Air Quality Regulation (O. Reg. 419/05) (Environmental Protection Act, R.S.O. 1990); Petroleum Refining - Industry Standard under the Local Air Quality Regulation (O. Reg. 419/05) (Environmental Protection Act, R.S.O. 1990), both issued July 28, 2016.

¹⁸ Ibid. We recognize that the development of the Petroleum Refinery – Industry Standard and the Petrochemical –Industry Standard instituted a property-line monitoring requirement to provide information to assist in determining if additional air pollution control requirements will be required in the future, and that a technical review of the performance of these sectors is to be completed by 2023 or sooner, to determine whether additional efforts are required.

¹⁹ According to the Technical Standard, fence-line monitoring was to begin on January 1, 2018. Section 66 specifies that “No later than 60 days after a two-week air sample is taken, the information shall be added to the table on the website”, therefore we should expect the data to be posted no later than mid-March 2018.

²⁰ O. Reg. 419/05, s. 40.

²¹ To make the situation worse, ambient air monitoring stations are typically located so as to capture regional air quality data, therefore, they tend to report lower concentrations of contaminants than point source monitors located close to industrial sources.

3. The Proposal is weaker and less effective than approaches undertaken in other comparable jurisdictions

In our submission, Ontario must aim higher to protect the health of residents of pollution hotspots. The jurisdictional review led by the Cumulative Air Emissions Assessment (CAEA) subgroup members revealed more ambitious options.²² In California, the AB2588 Air Toxics “Hot Spots” program²³ requires facilities to report their toxic air emissions and notify the local community, but most importantly – those facilities are then required to demonstrate that they are *taking steps to reduce that risk*. In Alberta, no permits for new facilities are issued if emissions are above the Ambient Air Quality threshold set under the Alberta *Environmental Protection and Enhancement Act*.²⁴ Furthermore, facilities requiring a permit renewal while emissions are close to or over the threshold are required to produce *a strict plan to reduce emissions*. In Quebec, certain facilities are required to obtain a “Depollution Attestation” detailing the environmental mitigation plan the facility will apply.²⁵ Additionally, no permit is generally issued if planned emissions are above the set threshold.²⁶ It is clear that models are available if Ontario wishes to strengthen its current Proposal to develop and implement a robust CEA policy.

Conclusion and Recommendations

Based on these submissions regarding the critical shortcomings in the MOECC’s Proposal, we recommend that MOECC revise its Proposal by adopting the following recommendations to strengthen its approach and fulfill its mandate.

RECOMMENDATION 1. The MOECC should propose and implement a robust CEA policy that includes assessment of the overall health of the airshed prior to issuing any new authorizations for air emissions. This includes the need to:

- 1.1 Identify the class of contaminants that are likely to have common modes of action as benzene and B[a]P (the “class” of contaminants), and treat the emissions of the class as additive.

RECOMMENDATION 2. The CEA policy should provide measures through which the MOECC can implement a total “cap” on the authorized emissions of contaminants in the class. This means:

- 2.1 The MOECC should direct that, when the AAQC of any contaminant of concern within the scope of the policy is exceeded then, absent exceptional circumstances motivated by the Act’s purpose of protecting and conserving the environment, the MOECC should not authorize
 - a) any increased releases or emissions by existing facilities, or
 - b) any new sources of emissions, in the two areas of concern.

²² *Discussion Paper*, supra note 8 at 7-8.

²³ *Toxic Air Contaminant Identification and Control Act* (AB 1807, Tanner 1983). See also the *Air Toxics “Hot Spots” Information and Assessment Act* (AB 2588, Connelly 1987).

²⁴ RSA 2000, c E-12.

²⁵ *Regulation respecting industrial depollution attestations*, c Q-2, r 5. See also the additional requirements applied to organic volatile compounds under the *Clean Air Regulation Act*, LRQ, Q-2, r 4.1 [CARA]. For example, operators of petroleum refineries, petrochemical or organic chemical plants emitting volatile organic compound must implement an annual plan to monitor and repair any leaks (CARA, s 46).

²⁶ *Environment Quality Act*, LRQ, c Q-2, s 22.

In guiding the MOECC to decline authorizations to any such increased or new releases, absent exceptional circumstances, the Policy must apply not only to ECAs but to also to SSSs.

- 2.2 The MOECC should, where necessary, ensure reductions to the authorized emissions of contaminants through the amendment, review, suspension and/or revocation of existing ECAs and SSSs; and the amendment of its Technical Standards or the revocation of facilities' registrations to it.

RECOMMENDATION 3. The MOECC must address the problem of flaring, shut-downs and start-ups, which are likely a significant source of benzene and related contaminants in areas with multiple industrial facilities, and should install ambient air monitoring stations close to these industrial sources.

Sincerely,



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cc: Lubna Hussain, Manager, Ministry of the Environment and Climate Change
Environmental Sciences and Standards Division, Standards Development Branch