

To: National Pollutant Release Inventory, Environment and Climate Change Canada

C/O: jody.rosenberger@canada.ca; Lisa.Swain@canada.ca

June 4, 2021

To: Submitted to: National Pollutant Release Inventory, Environment and Climate Change Canada

Re: NGO comments to *New requirements for reporting releases of criteria air contaminants and speciated volatile organic compounds to the National Pollutant Release Inventory Consultation Document*

We are providing the following comments and recommendations to the consultation document released for public comments: *New requirements for reporting releases of criteria air contaminants and speciated volatile organic compounds to the National Pollutant Release Inventory, Consultation document, March 2021*. Our comments and recommendations below build upon initial comments provided as early engagement.

We recommend that your consultation document be entitled “Proposed new requirements ...” Omission of the word “proposed” implies that decisions have been made and that the requirements are in force. However, should this be the case there would be no reason for this consultation period.

Overall, our organizations understand that these changes are being proposed largely to help meet the needs of Air Quality Modellers who use NPRI data to develop spatially and temporally explicit maps, forecasts and other datasets. The use of models allow us to predict events that are yet to occur; estimate air quality in areas without any monitoring; and to explore relationships between emissions, transport, transformation processes, pollutant fate, and potential outcomes to human health, the environment and even structures. This is why we think it is key that the NPRI aim to be as inclusive, accurate and easily accessible to the public as possible, and do not want the proposed changes to undermine those efforts with the introduction of further exclusions and thresholds.

In addition, we are also concerned about how the continuous changing of reporting requirements affects dataset usability, particularly in the search for temporal trends and patterns. Exploring how emissions change and vary over time is a key feature of such an inventory, particularly when updated annually. We would like to see some sort of analysis of how changes in reporting requirements affect data quality, accuracy and usefulness. These changes would also have a significant impact on the modellers for whom the stack data are reported; and when using the NPRI data in programmes related to acid deposition (e.g. the Acid Rain Programme), reporting on multilateral agreements (e.g. the Canada-United States Air Quality), and any other usage that requires a temporal aspect (e.g. summarising NPRI data

for the public). Once the impacts of such changes are understood, they could be included in the weighing of user benefits versus reporter effort. In addition, some sort of guidance, (or in some cases algorithms) should be provided to reporters and users of the NPRI to explain (or even eliminate) any discrepancies resulting from changes in reporting requirements that make years incomparable from one another for some or all substances. In some cases emissions could appear to follow an opposite trend than they truly follow due to continuously changing a substance threshold for instance.

Current and proposed stack air release thresholds for CACs

The Consultation document provides a summary of proposed changes to stack release threshold at the very beginning of the consultation document (Tables 1 and 2). The most substantial of these proposed changes are the five-fold increases in substance thresholds for Total Particulate Matter (TPM) and sulphur dioxide (SO₂) to 25 from 5 tonnes per year.

While we realise that facilities will still need to report these emissions, assuming they meet the facility substance thresholds, we believe small sources are particularly important in assessing air quality at the community or airshed level, or anytime increased spatial resolution is sought after—particularly in areas that may be dominated by one specific activity/industry. For instance upstream oil and gas is known to have numerous small facilities/stacks to the point that you exempt these sources from the new stack reporting requirements.

The logic behind this exemption is unclear, but a guess would be that if these sources were to report there would be far too many, leading to an unmanageable dataset. While we understand the importance of not making the process unnecessarily onerous for the reporters, managers or users of the NPRI, our organisations' school of thought is that the more coverage there is, the better the data, and the more useful the information to be drawn from them.

We are also of the opinion that the full and complete disclosure of releases in communities should bear more weight than reducing the burden of reporting on facilities. If stack height were restricted would we see more proposals to build lower stacks (e.g. 24 m), in order to avoid such reporting requirements? This would be similar to what is said of some industries, building numerous smaller facilities rather than one large central facility, in order to escape the 20,000 employee hour facility reporting threshold.

We were interested in whether lower reporting thresholds would result in any new facilities reporting under NPRI. So, we tried to carry out our own analysis with the assistance of Annex I, and set stack air release thresholds down to 50% their current threshold, then another 50% and so on in the 'release threshold only' rows (20-26) . However, this changed none of the other cells, except for the changing row 20 (current) release values as it will

then delete all the other scenarios and their parameters. It would be helpful if the spreadsheet in the Annex were more functional.

We don't understand the need for a temperature threshold, no matter what it is. Annex I makes it very clear that such a threshold can have drastic outcomes on stack and release coverages. Although these cool plumes may lack some of the traditional buoyancy, it doesn't mean their emissions are any less of importance. Further, it isn't clear why you chose 50°C offering 90% coverage versus 25°C which increased coverage by an average 15% for all CAC.

Similarly, it isn't clear why you are seeking such a low stack coverage (<15%)? To us that means 85% of stacks are excluded with the threshold, and this seems counter intuitive when a complete or comprehensive emission inventory.

Once tonnage thresholds for specific contaminants have been increased, it is very difficult to lower them again should new information arise, new sources come about or modelling systems improve such that the inclusion of 10s of 1000s of small sources (individual stacks) is no longer an arduous task. We want to prevent any changes being made hastily without a full understanding and acceptance of their future implications.

Releases of CAC from Combustion and Fuel Use

We find the specifying of CAC as being from combustion, or energy generation adds specific information that will assist decision makers, modellers, users, and citizens in receiving more complete information, that also plays a role in the potential health and environmental effects of a substance. We support this change.

Releases of speciated VOC

Non-speciated VOC are not considered terribly useful for use in chemical transport modes, health risk assessments, air quality forecasts and advisories ore other related endeavour, and we would like to applaud ECCC on this addition of detail to the NPRI.

Also, in addition to considering "... those with greater photochemical reactivity, ozone-forming potentials, volatilities, and aerosol-forming potentials; those that are known or suspected carcinogens; or those that have been individually assessed as toxic under section 64 of the *Canadian Environmental Protection Act*)" (Section B.5 Conclusions) when determining thresholds for specific VOC, other important features to consider may be whether they are known endocrine disruptors, persistent or bioaccumulative in the environment (particularly if including semi-volatiles), or whether they are ubiquitous in our daily lives.

Miscellaneous Changes

We concur with the requirement to report where TPM, PM₁₀ and PM_{2.5} include condensable PM. However, are wondering whether this should include PM₁ or even PM_{0.1}, or ‘ultrafine particles’. Unlike PM₁₀ and PM_{2.5} (which in theory should include all smaller particles) ultrafines, because of their size, can directly enter the blood stream from the lungs, making them considerably more dangerous from a health perspective. Most condensables fall into this category, but so do ultrafine solids such as those emitted in wood smoke.

Additionally, like the change to report speciated VOC we support a change to require the speciation of PM. There are 10s of 1000s of compounds, many also reported to the NPRI in another form, that can be in present in generalised PM. Heavy metals, soot, halides, hydrocarbons, condensed gases, silicates and more can all be found in PM in Canada, and all have a very different biological response profile. If ECCC wishes to make the NPRI data more health relevant, which seems to be the case from the inclusion of condensables, we would support this improvement as well.

General Comments

We feel that providing details, such as the methods used to calculate the reported emissions, are aspects that should be reported by all releasing facilities, to improve the inventory representativeness and usage. We find similar aspects of the reporting rules confusing; for instance if you already must decide what VOC are emitting at 1 tonne (facility) or 0.25 t (stack) then VOC are already being speciated and this information should be reported and made available.

It is no more an arduous task to report, as it has been completed anyway, while still providing additional benefits to users. Additionally, if a facility must know whether or not they emit condensables, wouldn’t they also automatically know the quantity?

Ideally we would like to see every emissions source, big or small, need to report. Although emissions’ estimates are loaded with error and uncertainty, we think that source exclusion is a causative factor in such error. For instance, we want to see the release data from 15,000 facilities not meeting the facility-wide thresholds, and the 62,000 individual stacks that are below threshold as well (subsection 2.3.1). It should by now be common sense that many small sources combined can emit more than fewer large sources; yet we continue to ignore small sources within regulatory frameworks.

Our air contains a mix of numerous contaminants (just look at the Part 1 substances list). Each of these substances can affect human and environmental health, on their own, or after reacting with another atmospheric constituent (pollutant or otherwise). Not only can the

mix produce secondary compounds that are not reported to the NPRI or elsewhere, but each of the contaminants may cause its own direct health/environmental impacts.

Particulate Matter (PM) alone, for which the stack reporting threshold has been reduced by 80%, has been linked to asthma, chronic obstructive pulmonary disease (COPD), decreased lung function and additional pulmonary diseases¹. Additional PM-related health conditions, not necessarily involving the lungs, include arterial hypertension, coronary artery disease, obesity, adverse pregnancy outcomes, cancers, and diabetes².

Lastly, there are some minor sources of confusion within the document that are not all listed here. For instance the first exemption in 2.1.2: "... Releases from these stacks would still be required to be reported as part of stack or point releases..." But how can a stack be "part of a stack"? Maybe it should read "... Releases from these stacks would still be required to be reported at the facility level..." (assuming the facility meets reporting requirements). We trust that when the new reporting requirements are officially released, the language will be clear and easy to follow.

We thank you for the consideration of our comments and recommendations.

¹ Pope, C.A. III, Dockery, D.W., 2006. Health effects of fine particulate air pollution: lines that connect. *Journal of the Air Waste Management Association* 56:709-742.; Hrebentyk, B., McEwn, B., and Bates, D.V., 2005. Development of Options for a New Provincial PM2.5 Air Quality Objective. Phase 1" Review of Criteria in Other Jurisdiction and Recommendations for British Columbia. Prepared for: BC Lung Association, by: SENES Consultants Ltd. 228 pp.

² Kappos, A.D., Bruckmann P., Eikmann, T., Englert, N., Heinrich, U., Hoppe, P., Koch, E., Krause, G.H., Kreyling, W.G., Rauchfuss, K., Rombout, P., Schulz-Klemp, V., Thiel, W.R., Wichmann, H.E., 2004. Health effects of particles in ambient air. *International Journal of Hygiene and Environmental Health* 2004, 207:399-407.

Lelieveld, J. and U. Pöschl. 2017. Chemists can help to solve the air-pollution health crisis. *Nature* 551: 291-293. doi:10.1038/d41586-017-05906-9.

Submitted by:

Canadian Association of Physicians for the Environment (CAPE)

Judi Krzyzanowski, NPRI Representative

Email: judi@krzyzanowski.ca

Ecology Action Centre

Leif Helmer

Leif.Helmer@nsc.ca

Citizens' Network on Waste Management

John Jackson, Coordinator

Email: jjackson@web.ca

Canadian Environmental Law Association

Fe de Leon

Email: deleonf@cela.ca

Mining Watch Canada

Jamie Kneen

Email: jamie@miningwatch.ca

Watershed Sentinel Educational Society (WSES)

Anna Tilman

Email: annatilman@sympatico.ca