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Anne Monette  
A/Head NPRI Development  
Environment and Climate Change Canada  
45 Alderney Dr.  
Dartmouth, Nova Scotia B2Y 2N6      Email: anne.monette@ec.gc.ca

Lisa Swain  
Senior Science Officer  
National Pollutant Release Inventory and Substance Information Division  
Environment and Climate Change Canada  
351, boul. Saint-Joseph  
Gatineau, Quebec K1A 0H3      Email: Lisa.Swain@ec.gc.ca

**Re: Response to change proposal: Ethylene Oxide – Alternate Threshold, Early engagement, presented at the NPRI Multi-Stakeholder Work Group, Meeting on June 18 2024**

Dear Anne and Lisa:

Please consider the following comments and recommendations from the Canadian Environmental Law Association and Citizens' Network on Waste Management responding to document "Change proposal: Ethylene Oxide – Alternate Threshold" presented for Early engagement at the NPRI Multi-Stakeholder Work Group Meeting on June 18, 2024 (early engagement document).

Overall, we support the proposal to change the threshold for reporting for ethylene oxide under the National Pollutant Release Inventory. The proposed change in thresholds aims to increase the number of companies and their facilities reporting their releases, disposal and transfer of ethylene oxide. Based on the table: NPRI Releases (1993-2022) of the early engagement document, the number of facilities reporting, and quantity reported on ethylene oxide to NPRI have decreased overtime, with a significant decrease in 2007. The early engagement document and the table do not explain the significant reduction in the number of facilities reporting to NPRI or the releases reported to the NPRI, with the exception of making reference to the release of the Guidelines for ethylene oxide. Details to explain the dramatic reduction of facilities or sectors reporting, reporting to the NPRI and their releases should be included in the consultation document.

Based on the current search of the NPRI for pollution releases and transfers for ethylene oxide between 2014 and 2023, there have been six to eleven facilities reporting to the NPRI. See Table 1. Six facilities reported on ethylene oxide in 2017 while eleven facilities reported in 2022. The

sector with the highest reporting on ethylene oxide during the timeframe is the waste treatment and disposal sector.<sup>1</sup> The proposed change to reduce the reporting threshold to 10 kg from 10 tonnes Manufactured Processed or Otherwise used (MPO) should see the number of facilities reporting under NPRI increase, particularly facilities (e.g., hospitals, etc.) that are involved in the sterilization of medical devices and tools.

**Recommendation 1: We support the change of the MPO threshold for ethylene oxide from 10 tonnes to 10 kg.**

**Recommendation 2: Add more details in the consultation document to explain the reductions reported to the NPRI in 2007 for the number of facilities, types of sectors and the release data on ethylene oxide compare to reporting seen in 2006.**

**Table 1: NPRI facilities reporting on ethylene oxide between 2014-2023**

NPRI ID	Year	Company	Facility	City	Province	NAICS
2216	2014	Stepan Canada	Longford Mills Plant	LONGFORD MILLS	Ontario	325610
2537	2014	Clean Harbors Canada, Inc.	Clean Harbors Corunna	CORUNNA	Ontario	562210
2963	2014	Shell Chemicals Canada Limited.	Scotford Chemical Plant	FORT SASKATCHEWAN	Alberta	325110
5644	2014	Sterigenics	Sterigenics	SCARBOROUGH	Ontario	561910
8645	2014	Safety-Kleen Canada Inc.	Centre de recyclage et succursale Chambly	CHAMBLY	Quebec	562110
18996	2014	MEGlobal Canada Inc.	Fort Saskatchewan EOEG	FORT SASKATCHEWAN	Alberta	325190
18997	2014	MEGlobal Canada Inc.	Prentiss Chemical Manufacturing Facility	LACOMBE	Alberta	325190
2216	2015	Stepan Canada	Longford Mills Plant	LONGFORD MILLS	Ontario	325610
2537	2015	Clean Harbors Canada, Inc.	Clean Harbors Corunna	CORUNNA	Ontario	562210
2963	2015	Shell Chemicals Canada Limited.	Scotford Chemical Plant	FORT SASKATCHEWAN, STRATHCONA COUNTY	Alberta	325110
5088	2015	Central Regional Health Authority	James Paton Memorial Hospital	GANDER	Newfoundland and Labrador	622111
5644	2015	Sterigenics	Sterigenics	SCARBOROUGH	Ontario	561910
8645	2015	Safety-Kleen Canada Inc.	Centre de recyclage et succursale Chambly	CHAMBLY	Quebec	562110
18996	2015	MEGlobal Canada ULC	Fort Saskatchewan EOEG	FORT SASKATCHEWAN	Alberta	325190
18997	2015	MEGlobal Canada ULC.	Prentiss Chemical Manufacturing Facility	LACOMBE COUNTY	Alberta	325190
2216	2016	Stepan Canada	Longford Mills Plant	LONGFORD MILLS	Ontario	325610
2537	2016	Clean Harbors Canada, Inc.	Clean Harbors Canada, Inc	CORUNNA	Ontario	562210
2963	2016	Shell Chemicals Canada Ltd	Scotford Chemical Plant	FORT SASKATCHEWAN	Alberta	325110
5644	2016	Sterigenics	Sterigenics	SCARBOROUGH	Ontario	561910

<sup>1</sup> NPRI Dashboard results for ethylene oxide. July 22, 2024. See: <https://www.canada.ca/en/environment-climate-change/services/national-pollutant-release-inventory/tools-resources-data/all-year-dashboard.html>

8073	2016	Central Regional Health Authority	Central NL Regional Health Care Centre	GRAND FALLS	Newfoundland and Labrador	622111
8645	2016	Safety-Kleen Canada Inc.	Centre de recyclage et succursale Chambly	CHAMBLY	Quebec	562110
18996	2016	MEGlobal Canada Inc.	Fort Saskatchewan EOEG	FORT SASKATCHEWAN	Alberta	325190
18997	2016	MEGlobal Canada Inc.	Prentiss Chemical Manufacturing Facility	LACOMBE	Alberta	325190
2537	2017	Clean Harbors Canada, Inc.	Clean Harbors Canada, Inc	CORUNNA	Ontario	562210
2963	2017	Shell Chemicals Canada Ltd	Scotford Chemical Plant	FORT SASKATCHEWAN	Alberta	325110
5644	2017	Sterigenics	Sterigenics	SCARBOROUGH	Ontario	561910
8645	2017	Safety-Kleen Canada Inc.	Centre de recyclage et succursale Chambly	CHAMBLY	Quebec	562110
18996	2017	MEGlobal Canada Inc.	Fort Saskatchewan EOEG	FORT SASKATCHEWAN	Alberta	325190
18997	2017	MEGlobal Canada ULC	Prentiss Chemical Manufacturing Facility	LACOMBE	Alberta	325190
2537	2018	Clean Harbors Canada, Inc.	Clean Harbors Canada, Inc	CORUNNA	Ontario	562210
2963	2018	Shell Chemicals Canada Ltd	Scotford Chemical Plant	FORT SASKATCHEWAN	Alberta	325110
5644	2018	Sterigenics	Sterigenics	SCARBOROUGH	Ontario	561910
8645	2018	Safety-Kleen Canada Inc.	Centre de recyclage et succursale Chambly	CHAMBLY	Quebec	562110
18996	2018	MEGlobal Canada Inc.	Fort Saskatchewan EOEG	FORT SASKATCHEWAN	Alberta	325190
18997	2018	MEGlobal Canada ULC	Prentiss Chemical Manufacturing Facility	LACOMBE	Alberta	325190
2537	2019	Clean Harbors Canada, Inc.	Clean Harbors Canada, Inc	CORUNNA	Ontario	562210
2963	2019	Shell Chemicals Canada	Scotford Chemical Plant	FORT SASKATCHEWAN, STRATHCONA COUNTY	Alberta	325110
5644	2019	Sterigenics	Sterigenics	SCARBOROUGH	Ontario	561910
8645	2019	Safety-Kleen Canada Inc.	Centre de recyclage et succursale Chambly	CHAMBLY	Quebec	562110
18996	2019	MEGlobal Canada ULC	Fort Saskatchewan EOEG	FORT SASKATCHEWAN	Alberta	325190
18997	2019	MEGlobal Canada ULC.	Prentiss Chemical Manufacturing Facility	LACOMBE COUNTY	Alberta	325190
2537	2020	Clean Harbors Canada, Inc.	Clean Harbors Canada, Inc	CORUNNA	Ontario	562210
2963	2020	Shell Chemicals Canada	Scotford Chemical Plant	FORT SASKATCHEWAN, STRATHCONA COUNTY	Alberta	325110
4948	2020	Clean Harbors Canada, Inc.	Clean Harbors Canada Inc.	Mississauga	Ontario	562210
5644	2020	Sterigenics	Sterigenics	SCARBOROUGH	Ontario	561910
8645	2020	Safety-Kleen Canada Inc.	Centre de recyclage et succursale Chambly	Chambly	Quebec	562110
18996	2020	MEGlobal Canada ULC	Fort Saskatchewan EOEG	FORT SASKATCHEWAN	Alberta	325190
18997	2020	MEGlobal Canada ULC	Prentiss Chemical Manufacturing Facility	LACOMBE COUNTY	Alberta	325190
23544	2020	Clean Harbors Canada, Inc.	Red Deer	RED DEER COUNTY	Alberta	562990
2537	2021	Clean Harbors Canada, Inc.	Clean Harbors Canada, Inc	Corunna	Ontario	562210
2963	2021	Shell Chemicals Canada	Scotford Chemical Plant	Fort Saskatchewan, Strathcona County	Alberta	325110
4871	2021	Clean Harbors Canada, Inc.	Ryley Facility	Ryley	Alberta	562210
4948	2021	Clean Harbors Canada, Inc.	Clean Harbors Canada Inc.	Mississauga	Ontario	562210
5644	2021	Sterigenics	Sterigenics	Scarborough	Ontario	561910
8645	2021	Safety-Kleen Canada Inc. [principal]	Centre de recyclage et succursale Chambly	Chambly	Quebec	562110

18996	2021	MEGlobal Canada ULC	Fort Saskatchewan EOEG	Fort Saskatchewan	Alberta	325190
18997	2021	MEGlobal Canada ULC	Prentiss Chemical Manufacturing Facility	Lacombe County	Alberta	325190
23544	2021	Clean Harbors Canada, Inc.	Red Deer	Red Deer County	Alberta	562990
2537	2022	Clean Harbors Canada, Inc.	Clean Harbors Canada, Inc	Corunna	Ontario	562210
2963	2022	Shell Chemicals Canada	Scotford Chemical Plant	Fort Saskatchewan, Strathcona County	Alberta	325110
4871	2022	Clean Harbors Canada, Inc.	Ryley Facility	Ryley	Alberta	562210
4948	2022	Clean Harbors Canada, Inc.	Clean Harbors Canada Inc.	Mississauga	Ontario	562210
5644	2022	Sterigenics	Sterigenics - Scarborough	Scarborough	Ontario	561910
5644	2022	Sterigenics	Sterigenics - Scarborough	Scarborough	Ontario	561910
8645	2022	Safety-Kleen Canada Inc. [principal]	Centre de recyclage et succursale Chambly	Chambly	Quebec	562110
18996	2022	MEGlobal Canada ULC	Fort Saskatchewan EOEG	Fort Saskatchewan	Alberta	325190
18997	2022	MEGlobal Canada ULC	Prentiss Chemical Manufacturing Facility	Lacombe County	Alberta	325190
23544	2022	Clean Harbors Canada, Inc.	Red Deer	Red Deer County	Alberta	562990
33893	2022	Sterigenics	Sterigenics - Mississauga	Mississauga	Ontario	561910
2537	2023	Clean Harbors Canada, Inc.	Clean Harbors Canada, Inc	Corunna	Ontario	562210
2963	2023	Shell Chemicals Canada	Scotford Chemical Plant	Fort Saskatchewan, Strathcona County	Alberta	325110
5729	2023	Safety-Kleen Canada Inc. [principal]	Brampton Service Center	Brampton	Ontario	562110
8645	2023	Safety-Kleen Canada Inc. [principal]	Centre de recyclage et succursale Chambly	Chambly	Quebec	562110
18996	2023	MEGlobal Canada ULC	Fort Saskatchewan EOEG	Fort Saskatchewan	Alberta	325190
18997	2023	MEGlobal Canada ULC	Prentiss Chemical Manufacturing Facility	Lacombe County	Alberta	325190
23544	2023	Clean Harbors Canada, Inc.	Red Deer	Red Deer County	Alberta	562990
33893	2023	Sterigenics	Sterigenics - Mississauga	Mississauga	Ontario	561910

The change in threshold to 10 kg is supported given the extent of impacts associated with ethylene oxide to health. The early engagement document noted that the US Environmental Protection Agency (EPA) assessment of ethylene oxide in 2016 concluded that ethylene oxide is 30x more carcinogenic than originally assessed. It is worth repeating the results of Canada's assessment of ethylene oxide completed in 2001, which concluded the following about ethylene oxide:

CEPA 1999 64(c): Based on available data, it has been concluded that ethylene oxide is entering the environment in a quantity or concentration or under conditions that constitute or may constitute a danger in Canada to human life or health. Therefore, ethylene oxide is considered to be "toxic" as defined under Paragraph 64(c) of CEPA 1999. This approach is consistent with the objective that exposure to compounds where induction of cancer through direct interaction with genetic material cannot be ruled out be reduced wherever possible and obviates the need to establish an arbitrary "de minimis" level of risk for the determination of "toxic" under CEPA 1999. On the basis of

limited monitoring data and predicted concentrations of ethylene oxide in air, the priority for investigation of options to reduce exposure, particularly in the vicinity of point sources, is considered to be high.<sup>2</sup>

Canada's 2001 assessment of ethylene oxide noted that source point releases of ethylene oxide are important. It was noted that "although sterilization was not considered a major use of ethylene oxide, in terms of volumes consumed, it may be a very significant source of release to the environment." The assessment also noted that a survey was conducted by the Canadian Hospital Association of hospitals using ethylene oxide as a sterilizing agent in 1994. A total of 204 hospitals were contacted in all provinces and territories. Eighty nine of the 204 hospitals responded to the survey. All survey respondents indicated they use ethylene oxide for sterilization. Nineteen of the respondents used ethylene oxide at 100% concentration, while seventy of the respondents used ethylene oxide at 12% concentration.<sup>3</sup> The information regarding the current use of ethylene oxide in hospital settings warrants an update. The results for ethylene oxide in Table 1 indicate that only 1 hospital (Newfoundland in 2015) reported to NPRI on ethylene oxide. ECCC should include a study showing why only 1 hospital reported in 2015. We need to know the "whys" in order to know what changes need to be made to NPRI to capture more facilities. For example, is it because the MPO threshold is too high? Is it because of the employee threshold? Are there other reasons?

This information remains relevant but a current report on the use of ethylene oxide by hospitals was not included in the early engagement document. The inclusion of the 2023 & 2016 Galarneau studies are valuable to show the need to investigate point sources of ethylene oxide from facilities engaged in sterilization (including hospitals and contributions of already known sterilization facilities). Other such facilities may include food processing and distribution facilities, veterinary facilities, etc. that may not yet be reporting to the NPRI. Furthermore, these studies show that for urban settings, such as Toronto, where several hospitals are located in close proximity, the levels of ethylene oxide in the air are higher than in areas where such facilities are not located.

**Recommendation 3: Add additional information to the consultation document on the types of facilities that potentially use and release/dispose/transfer ethylene oxide, including hospitals, veterinary facilities, and food processing and distribution facilities.**

### *Review 10 employee threshold for ethylene oxides*

While we think the proposed change to the MPO threshold to 10kg could result in higher numbers of facilities reporting, the current employee threshold of 10 FTE could remain a barrier to collecting much needed data for ethylene oxides. The early engagement document has not offered analysis of the number of facilities expected to report to NPRI with the

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<sup>2</sup> Environment Canada and Health Canada. 2001. [ARCHIVED - Priority Substances List Assessment Report for Ethylene Oxide - Canada.ca](#). ISBN: 0-662-28980-3.

<sup>3</sup> Environment Canada and Health Canada. 2001. [ARCHIVED - Priority Substances List Assessment Report for Ethylene Oxide - Canada.ca](#). ISBN: 0-662-28980-3.

proposed threshold of 10kg. Further analysis should be undertaken to assess the number of employees associated with specific facilities involved in sterilization applications. Some facilities may be operating with minimal staff that fall below the employee threshold under the NPRI. A quick search for “medical sterilization facilities in Canada” generated a list of facilities/operations that are not reporting currently under the NPRI, including PAMA Manufacturing and Sterilization Services in Quebec (see: <https://www.pamamfg.com/>); Central Sterilization Services (CSS), University of Toronto (see: <https://rhse.temertymedicine.utoronto.ca/central-sterilization-services-css>), Steris (located in Whitby and London, ON) (see: <https://www.steris-ast.com/solutions/ethylene-oxide-sterilization/>). Some efforts to verify the number of employees is necessary to ensure that the facilities using and releasing ethylene oxide will be captured for reporting under NPRI.

To support the communities right to know regarding releases, it is time that the NPRI program give careful consideration to the impacts of maintaining the current employee threshold of 10 FTE for ethylene oxide. How many facilities will be excluded from reporting on ethylene oxide with a threshold of 10 employees?

**Recommendation 4: An assessment is needed to determine the number of facilities that would not be required to report on ethylene oxide with a threshold of 10 employees. Consideration should be given in this document to lowering the employee threshold for reporting on ethylene oxide, as well as lowering the MPO threshold. Changing both thresholds at once would be more effective and efficient.**

#### *Guidelines for reduction of ethylene oxide releases from sterilization applications*

The main tool used to promote reduction of ethylene oxide from sterilization applications has been the Guidelines for the reduction of ethylene oxide releases from sterilization applications (first released in 2007) (guidelines). The early engagement document indicates that the “effectiveness of sterilization sector guidelines [is] uncertain”. The voluntary nature of the guidelines is a barrier for ensuring ethylene oxide release is reduced during sterilization applications.

However, the application of the guidelines may benefit with the proposed threshold change for ethylene oxide reporting under NPRI because the thresholds for the Guidelines are set at the same level as the proposed threshold of 10 kg. Section 2 of the Guideline notes:

*2. Effective January 1, 2007, subject to section 3, these guidelines apply with respect to facilities that purchase or use a total of 10 kg or more of ethylene oxide per year for sterilization purposes.<sup>4</sup>*

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<sup>4</sup> Government of Canada. Guidelines for the reduction of ethylene oxide releases from sterilization applications. See: <https://www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act-registry/guidelines-objectives-codes-practice/reduction-ethylene-oxide-releases-sterilization.html>

It would be important to know what measures are taken by facilities, particularly those involved in sterilization, to reduce ethylene oxide releases, disposal and transfer.

**Recommendation 5: Require all facilities to report pollution prevention activities on ethylene oxide.**

Thank you for considering our comments and recommendations.

**CONTACTS:**

CANADIAN ENVIRONMENTAL LAW ASSOCIATION (Contact: Fe de Leon,  
[deleonf@cela.ca](mailto:deleonf@cela.ca))

CITIZENS' NETWORK ON WASTE MANAGEMENT (Contact: John Jackson,  
[jjackson@web.ca](mailto:jjackson@web.ca))