Appendix D

Assessment of Negligibility

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Identifying Significant Contaminants Using an Emission Threshold

Some compounds listed in Table C.1 were screened for negligibility in accordance with Section 7.1.2 of ESDM Procedure Document:

$$Emission\ Threshold\ \left(\frac{g}{s}\right) = \frac{0.5 \times MECP\ POI\ Limit\ \left(\frac{\mu g}{m^3}\right)}{Dispersion\ Factor\ \left(\frac{\mu g}{m^3}\ per \frac{g}{s} emission\right)}$$

Table B-1 of the ESDM Procedure Document presents the 1-hour SCREEN3 dispersion factors to be used. For the facility, the rural dispersion factor with a distance from source of up to 20 m was selected (10,000 µg/m^3 per g/s).

To convert the dispersion factor from 1-hour average to other applicable averaging periods, the Average Period Conversion Factor formula was used:

$$C_0 = C_1 \times F = C_1 \times \left(\frac{t_1}{t_0}\right)^n$$

Where C_x is the concentration at averaging period at time t_x, and n is equal to 0.28 (representative average).

Table D.1
Assessment of Significance
Ridge Landfill

Contaminant Name	CAS No.	Total Facility Emission Rate [g/s]	Averaging Periods [hrs]	MECP POI Limit [µg/m^3](1)	Emission Threshold [g/s](4)	Modelled Maximum POI Concentration [µg/m^3](5)	Significant? [Y/N]
Nitrogen oxides	10102-44-0	1.83E+00	1	400	2.00E-02	--	Y
Nitrogen oxides	10102-44-0	1.83E+00	24	200	2.43E-02	--	Y
Sulphur dioxide	7446-09-05	1.98E+00	1	100 (2)	5.00E-03	--	Y
Sulphur dioxide	7446-09-05	1.98E+00	24	275	3.35E-02	--	Y
Sulphur dioxide	7446-09-05	1.98E+00	Annual	10 (2)	6.35E-03	--	Y
Carbon monoxide	630-08-0	2.48E+00	0.5	6,000	2.47E-01	--	Y
TSP	N/A - TSP	9.45E-01	24	120	1.46E-02	--	Y
Methane	74-82-8	8.71E+02	24	37,330	4.54E+00	--	Y
Carbon dioxide	124-38-9	1.69E+04	24	255,800	3.11E+01	--	Y
Hydrogen chloride	7647-01-0	2.40E+00	24	20	2.43E-03	--	Y
1,1,1-Trichloroethane (methyl chloroform)	71-55-6	6.03E-03	24	115,000	1.40E+01	--	N
1,1,2,2-Tetrachloroethane(3)	79-34-5	1.09E-02	24	0.1	1.22E-05	--	Y
1,1-Dichloroethane (ethylidene dichloride)	75-34-3	2.24E-02	24	165	2.01E-02	--	Y
1,1-Dichloroethene (vinylidene chloride)	75-35-4	1.83E-03	24	10	1.22E-03	--	Y
1,2-Dichloroethane (ethylene dichloride)	107-06-2	3.82E-03	24	2	2.43E-04	--	Y
1,2-Dichloropropane (propylene dichloride)	78-87-5	1.92E-03	24	2,400	2.92E-01	--	N
2-Propanol (isopropyl alcohol)	67-63-0	2.83E-01	24	7,300	8.89E-01	--	N
Acetone	67-64-1	3.83E-02	24	11,880	1.45E+00	--	N
Acrylonitrile	107-13-1	3.15E-02	24	0.6	7.30E-05	--	Y
Benzene	71-43-2	1.40E-02	Annual	0.45	2.86E-04	--	Y
Bromodichloromethane	75-27-4	4.78E-02	24	350	4.26E-02	--	Y
Butane	106-97-8	2.74E-02	24	3,600	4.38E-01	--	N
Carbon disulfide	75-15-0	4.16E-03	24	330	4.02E-02	--	N
Carbon tetrachloride	56-23-5	5.80E-05	24	2.4	2.92E-04	--	N
Carbonyl sulfide	463-58-1	2.77E-03	24	13	1.58E-03	--	Y
Chlorobenzene	108-90-7	2.65E-03	10-min	4,500	1.36E-01	--	N
Chlorobenzene	108-90-7	2.65E-03	1	3,500	1.75E-01	--	N
Chlorodifluoromethane	75-45-6	1.06E-02	24	350,000	4.26E+01	--	N
Chloroethane (ethyl chloride)	75-00-3	7.90E-03	24	5,600	6.82E-01	--	N
Chloroform	67-66-3	3.37E-04	24	1	1.22E-04	--	Y
Chloromethane	74-87-3	5.71E-03	24	320	3.90E-02	--	N
Dichlorobenzene	95-50-1	2.91E-03	1	30,500	1.53E+00	--	N
Dichlorobenzene	106-46-7	2.91E-03	24	95	1.16E-02	--	N
Dichlorodifluoromethane	75-71-8	1.82E-01	24	500,000	6.09E+01	--	N
Dichlorofluoromethane	75-43-4	2.52E-02	24	500	6.09E-02	--	N
Dichloromethane (methylene chloride)	75-09-2	1.12E-01	24	220	2.68E-02	--	Y
Dimethyl sulfide (methyl sulfide)	75-18-3	4.56E-02	10-min	30	9.08E-04	--	Y
Ethane	74-84-0	2.52E+00	24	14,500	1.77E+00	--	Y
Ethanol	64-17-5	1.17E-01	1	19,000	9.50E-01	--	N
Ethyl mercaptan (ethanethiol)	75-08-1	1.35E-02	24	0.1 (5)	--	9.46E-02	N
Ethylbenzene	100-41-4	4.60E-02	10-min	1,900	5.75E-02	--	N
Ethylene dibromide	106-93-4	1.77E-05	24	3	3.65E-04	--	N
Fluorotrichloromethane	75-69-4	9.83E-03	24	6,000	7.30E-01	--	N
Hexane	110-54-3	5.36E-02	24	7,500	9.13E-01	--	N
Hydrogen sulfide	7783-06-4	1.16E-01	10-min	13	3.94E-04	--	Y
Hydrogen sulfide	7783-06-4	1.16E-01	24	7	8.52E-04	--	Y
Mercury (total)	7439-97-6	2.51E-05	24	2	2.43E-04	--	N
Methyl ethyl ketone	78-93-3	4.82E-02	24	1,000	1.22E-01	--	N
Methyl isobutyl ketone	108-10-1	1.79E-02	24	1,200	1.46E-01	--	N
Methyl mercaptan	74-93-1	1.13E-02	24	0.1 (5)	--	7.96E-02	N
Pentane	109-66-0	2.24E-02	24	35,500	4.32E+00	--	N
Perchloroethylene (tetrachloroethylene)	127-18-4	5.78E-02	24	360	4.38E-02	--	Y
Propane	74-98-6	4.57E-02	24	215,000	2.62E+01	--	N
t-1,2-Dichloroethene	156-60-5	2.56E-02	24	105	1.28E-02	--	Y
Toluene	108-88-3	3.38E-01	24	2,000	2.43E-01	--	Y
Trichloroethylene (trichloroethene)	79-01-6	3.47E-02	24	12	1.46E-03	--	Y
Vinyl chloride	75-01-4	4.30E-02	24	1	1.22E-04	--	Y
Xylenes	1330-20-7	1.20E-01	10-min	3,000	9.08E-02	--	Y

Notes

(1) Criteria listed in the MECP Air Contaminants Benchmarks (ACB) List: Standards, Guidelines, and Screening Levels for Assessing POI Concentrations of Air Contaminants, Version 2.0, dated April 2018.
(2) MECP proposed POI limit, effective on July 1, 2023. The current SO_2 1-hr average MECP limit is less stringent than the proposed limit and has been used for determination of compliance.
(3) The emission rate and maximum POI concentration for 1,1,2,2-Tetrachloroethane has been refined to represent the worst-case LFG generation scenario for each individual landfill footprint. Please
(4) Calculated in accordance with Section 7.1.2 of the ESDM Procedure document using the 1-hr SCREEN3 rural dispersion factors as described below.

Screen3 Urban Dispersion Factor [ug/m3]/[g/s]					
10-minute	30-min	1 hr	24 hr	30 day	Annual
16,515	12,142	10,000	4,107	1,585	787

(5) As per Table B-2A of the ESDM Procedure document, if the substance is not on the ACB List and not on the Table B-2B List of contaminants excluded from de minimus level, the significance of impacts may be compared against 0.1 µg/m^3 (24-hr average).
B1 - Benchmark 1 - Exceedence of a Benchmark 1 concentration triggers specific actions under O.Reg. 419/05.
B2 - Benchmark 2 - Exceedance of a Benchmark 2 concentration triggers a toxicological assessment to determine the likelihood of adverse effect.