Summary of Ontario reportable substances (O-REG 455/09) - 2020

Facility Operator
IMPERIAL OIL
Imperial Oil Sarnia Chemicals
602 South Christina Street, P.O. Box 3004
SARNIA, ON, N7T 7M5

Facility Owner
Imperial Oil Limited
505 Quarry Park Blvd. S.E. ,
P.O. Box 2480, Station "M"
Calgary, Alberta T2P 3M9

Additional Facility Information
NPRI ID: 1464 MOE ID: 6840
Number of employees: 263
UTM NAD 83: 17N 385773.59 4756731.82

NAICS 2 Code: 31-33 - Manufacturing
NAICS 4 Code: 3251 - Basic Chemical Mfg.
NAICS 6 Code: 325110 - Petrochemical Mfg.

Provincial regulations set out requirements for business owners to inform Ontarians about the use, creation and emissions of reportable substances in their communities. Under the Toxics Reduction Act (TRA), companies are required to post information quantifying these substances each year.

Substances are identified as "toxic" substances for the purposes of the Act if the substance is listed in the National Pollutant Release Inventory (NPRI). The NPRI is a federal database of emissions (to air, land and water) and waste transfers (on-site and offsite) and is available to the public on Environment Canada site (www.ec.gc.ca/inrp-npri). More information on the TRA is available at the Ontario Ministry of the Environment site (www.ene.gov.on.ca/environment/en/legislation/toxics_reduction_act/index.htm)

The Sarnia chemical plant produces a wide range of petrochemicals using refinery and external feedstocks. These products are then used to manufacture a number of widely used consumer products, such as plastics, in North America and around the world.

The notice below summarizes tracking and quantification of facility-wide quantities:
- **Used**: Amount of substance that enters the process. Includes amounts already present in raw materials or through addition of products required for processing.
- **Created**: Amount of substance produced during the processing stage.
- **Contained in product**: Amount of substance remaining after process is complete.
- **Emissions**: These are releases of substance from the facility to air, surface water or land; and, waste transfers (on-site and offsite).

Starting with the 2011 reporting year, companies are required to report the year-over-year change in these reportable substances. The tables below report the amount of change between the previous year and the reporting year by showing the range and percentage difference. When comparing zero to an amount, the percentage of change is reported as not applicable (n/a). Positive/negative changes for the reporting year indicate an increase/decrease from the previous year.

A summary of reasons behind the change for each reportable substance is provided. The changes fall into the following categories:
- **No reason - no range change**

- **New substance to report**: This substance was not reportable in previous year.

- **System variability**: There are many combined factors that result in system variability. Substances will vary depending on the feedstocks processed. Variability in operation can also affect the results. Analytical results have uncertainty, which can be increased when measuring low/trace levels.

- **Change in production levels**: Change resulted from an overall increase or decrease in production at the facility. This includes changes due to shut-down and maintenance activities.

- **Improvement of data quality**: Change resulted from continuous improvement of the quality of the data used to calculate the amount of substance.

Public Contact:
Kristina Zimmer Public and Government Affairs Advisor 519-339-4015

	Substances (Reported in kilograms)	Chemical Abstract Service CAS Registry Number	Report of Tracking and Quantification of Facility-Wide Quantities									Reason for Change
			USED			CREATED			CONTAINED IN PRODUCT			
			2020 (kilograms)	DELTA vs. 2019 (kilograms)	% CHANGE	2020 (kilograms)	DELTA vs. 2019 (kilograms)	% CHANGE	2020 (kilograms)	DELTA vs. 2019 (kilograms)	% CHANGE	
Metals	Cadmium	**	0	0	n/a	>1 to 10	>0 to 1	0	0	0	n/a	no reasons - quantities approximately the same
Metals	Lead	**	0	0	n/a	>10 to 100	>0 to 1	0	0	0	n/a	no reasons - quantities approximately the same
Metals	Mercury	**	0	0	n/a	>0 to 1	>0 to 1	0	0	0	n/a	no reasons - quantities approximately the same
Metals	Selenium	**	0	0	n/a	>0 to 1	>0 to 1	0	0	0	n/a	no reasons - quantities approximately the same
Metals	Copper	**	0	0	n/a	0	0	n/a	0	0	n/a	no reasons - quantities approximately the same
Polyaromatic Hydrocarbons (PAH)	7H-Dibenzo(c,g)carbazole	194-59-2	0	0	n/a	>0 to 1	0	0%	0	0	n/a	no reasons - quantities approximately the same
Polyaromatic Hydrocarbons (PAH)	Acenaphthene	83-32-9	0	>10,000 to 100,000	-100%	>10,000 to 100,000	>10,000 to 100,000	242%	>10,000 to 100,000	>1000 to 10,000	11%	system variability
Polyaromatic Hydrocarbons (PAH)	Acenaphthylene	208-96-8	>1000 to 10,000	>10,000 to 100,000	-71%	>10,000 to 100,000	>10,000 to 100,000	-28%	>10,000 to 100,000	>10,000 to 100,000	-38%	system variability
Polyaromatic Hydrocarbons (PAH)	Benzo(a)anthracene	56-55-3	0	0	n/a	>1000 to 10,000	>100 to 1000	-24%	>1000 to 10,000	>100 to 1000	-37%	system variability
Polyaromatic Hydrocarbons (PAH)	Benzo(a)phenanthrene, aka chrysene	218-01-9	0	0	n/a	>1000 to 10,000	>100 to 1000	-24%	>100 to 1000	>100 to 1000	-33%	system variability
Polyaromatic Hydrocarbons (PAH)	Benzo(a)pyrene	50-32-8	0	0	n/a	>1000 to 10,000	>100 to 1000	-36%	>100 to 1000	>100 to 1000	-53%	system variability
Polyaromatic Hydrocarbons (PAH)	Benzo(b/j)fluoranthene	205-99-2 / 205-82-3	0	0	n/a	>100 to 1000	0	0%	0	0	n/a	no reasons - quantities approximately the same
Polyaromatic Hydrocarbons (PAH)	Benzo(e)pyrene	192-97-2	0	0	n/a	>1000 to 10,000	>100 to 1000	226%	>100 to 1000	>100 to 1000	n/a	system variability
Polyaromatic Hydrocarbons (PAH)	Benzo(g,h,i)perylene	191-24-2	0	0	n/a	>100 to 1000	0	0%	0	0	n/a	no reasons - quantities approximately the same
Polyaromatic Hydrocarbons (PAH)	Benzo(k)fluoranthene	207-08-9	0	0	n/a	>100 to 1000	0	0%	0	0	n/a	no reasons - quantities approximately the same
Polyaromatic Hydrocarbons (PAH)	Dibenzo(a,h)anthracene	53-70-3	0	0	n/a	>1 to 10	0	0%	0	0	n/a	no reasons - quantities approximately the same
Polyaromatic Hydrocarbons (PAH)	Dibenzo(a,j)acridine	224-42-0	0	0	n/a	>0 to 1	0	0%	0	0	n/a	no reasons - quantities approximately the same
Polyaromatic Hydrocarbons (PAH)	Dibenzo(a,i)pyrene	189-55-9	0	0	n/a	>0 to 1	0	0%	0	0	n/a	no reasons - quantities approximately the same
Polyaromatic Hydrocarbons (PAH)	Fluoranthene	206-44-0	0	0	n/a	>1000 to 10,000	>1000 to 10,000	-37%	>1000 to 10,000	>1000 to 10,000	-55%	system variability
Polyaromatic Hydrocarbons (PAH)	Fluorene	86-73-7	>1000 to 10,000	>1000 to 10,000	-60%	>10,000 to 100,000	>1000 to 10,000	19%	>10,000 to 100,000	>1000 to 10,000	-24%	system variability
Polyaromatic Hydrocarbons (PAH)	Indeno(1,2,3-c,d)pyrene	193-39-5	0	0	n/a	>100 to 1000	0	0%	0	0	n/a	no reasons - quantities approximately the same
Polyaromatic Hydrocarbons (PAH)	Perylene	198-55-0	0	0	n/a	>10 to 100	0	0%	0	0	n/a	no reasons - quantities approximately the same
Polyaromatic Hydrocarbons (PAH)	Phenanthrene	85-01-8	0	>10,000 to 100,000	-100%	>10,000 to 100,000	>1000 to 10,000	-15%	>10,000 to 100,000	>10,000 to 100,000	-41%	system variability
Polyaromatic Hydrocarbons (PAH)	Pyrene	129-00-0	0	0	n/a	>10,000 to 100,000	>1000 to 10,000	-39%	>1000 to 10,000	>1000 to 10,000	-55%	system variability

	Substances (Reported in tonnes)		Chemical Abstract Service CAS Registry Number	Report of Tracking and Quantification of Facility-Wide Quantities									Reason for Change
				Used			Created			Contained in Product			
				2020 (Tonnes)	DELTA vs. 2019 (Tonnes)	% CHANGE	2020 (Tonnes)	DELTA vs. 2019 (Tonnes)	% CHANGE	2020 (Tonnes)	DELTA vs. 2019 (Tonnes)	% CHANGE	
Metals	Nickel		**	0	0	n/a	>0 to 1	>0 to 1	0%	0	0	n/a	no reasons - quantities approximately the same
Metals	Vanadium		7440-62-2	0	0	n/a	>0 to 1	0	0%	0	0	n/a	no reasons - quantities approximately the same
Metals	Zinc		**	>100 to 1000	>10 to 100	24%	>0 to 1	>0 to 1	0%	0	0	n/a	no reasons - quantities approximately the same
PAH	Anthracene		120-12-7	0	>1000 to 10,000	-100%	>10,000 to 100,000	>1000 to 10,000	.	>1000 to 10,000	>1000 to 10,000	.	no reasons - quantities approximately the same
PAH	Naphthalene		91-20-3	>100 to 1000	>100 to 1000	-13%	>100 to 1000	>10 to 100	7%	>1000 to 10,000	>100 to 1000	26%	system variability
Hydrocarbons	1, 2, 4-Trimethylbenzene	*	95-63-6	>1000 to 10,000	>1000 to 10,000	4917%	>1000 to 10,000	>1000 to 10,000	391%	>1000 to 10,000	>1000 to 10,000	743%	system variability
Hydrocarbons	1, 3-Butadiene	*	106-99-0	>1000 to 10,000	>100 to 1000	-23%	>1000 to 10,000	>100 to 1000	14%	>1000 to 10,000	>100 to 1000	3%	system variability
Hydrocarbons	Benzene	*	71-43-2	>10,000 to 100,000	>1000 to 10,000	11%	>1000 to 10,000	>100 to 1000	2%	>10,000 to 100,000	>10,000 to 100,000	21%	system variability
Hydrocarbons	Biphenyl		92-52-4	>100 to 1000	>1 to 10	1%	>0 to 1	0	0%	0	0	n/a	no reasons - quantities approximately the same
Hydrocarbons	Butane	*	**	>10,000 to 100,000	>1000 to 10,000	13%	>100 to 1000	>100 to 1000	-49%	>10,000 to 100,000	>1000 to 10,000	-15%	system variability
Hydrocarbons	Butene	*	25167-67-3	>10,000 to 100,000	>10,000 to 100,000	157%	>100 to 1000	>10,000 to 100,000	-100%	>10,000 to 100,000	>1000 to 10,000	2%	system variability
Hydrocarbons	Cycloheptane	*	**	>1000 to 10,000	>100 to 1000	29%	>100 to 1000	>1000 to 10,000	-73%	>1000 to 10,000	>100 to 1000	-15%	system variability
Hydrocarbons	Cyclohexane		110-82-7	>1000 to 10,000	>100 to 1000	27%	>100 to 1000	>100 to 1000	-55%	>1000 to 10,000	>100 to 1000	-8%	system variability
Hydrocarbons	Cyclooctane	*	**	>1000 to 10,000	>1000 to 10,000	-43%	>1000 to 10,000	>100 to 1000	18%	>1000 to 10,000	>100 to 1000	-11%	system variability
Hydrocarbons	Decane	*	**	>10,000 to 100,000	>100 to 1000	-1%	>1000 to 10,000	>100 to 1000	8%	>10,000 to 100,000	>100 to 1000	4%	system variability
Hydrocarbons	Ethylbenzene		100-41-4	>1000 to 10,000	>100 to 1000	20%	>100 to 1000	>100 to 1000	-48%	>1000 to 10,000	>100 to 1000	-15%	system variability
Hydrocarbons	Ethylene	*	74-85-1	>100,000 to 1,000,000	>10,000 to 100,000	14%	>100,000 to 1,000,000	>10,000 to 100,000	-8%	>1000 to 10,000	>1000 to 10,000	-32%	system variability
Hydrocarbons	Heptane	*	**	>10,000 to 100,000	>100 to 1000	3%	>1000 to 10,000	>100 to 1000	-20%	>10,000 to 100,000	>1000 to 10,000	4%	system variability
Hydrocarbons	Hexane	*	**	>100,000 to 1,000,000	>10,000 to 100,000	14%	>1000 to 10,000	>100 to 1000	-36%	>100,000 to 1,000,000	>10,000 to 100,000	15%	system variability
Hydrocarbons	Hexene	*	25264-93-1	>1000 to 10,000	>1000 to 10,000	16%	>1000 to 10,000	>1000 to 10,000	-53%	>1000 to 10,000	>1000 to 10,000	-19%	system variability
Hydrocarbons	Isoprene		78-79-5	>10 to 100	>10 to 100	n/a	>100 to 1000	>100 to 1000	-18%	>100 to 1000	>100 to 1000	-16%	system variability
Hydrocarbons	n-Hexane	*	110-54-3	>10,000 to 100,000	>1000 to 10,000	13%	>1000 to 10,000	>100 to 1000	-29%	>10,000 to 100,000	>1000 to 10,000	11%	system variability
Hydrocarbons	Nonane	*	**	>1000 to 10,000	>1000 to 10,000	43%	>10,000 to 100,000	>1000 to 10,000	-12%	>10,000 to 100,000	>100 to 1000	-1%	system variability
Hydrocarbons	Octane	*	**	>1000 to 10,000	>1000 to 10,000	27%	>100 to 1000	>1000 to 10,000	-84%	>1000 to 10,000	>1000 to 10,000	-23%	system variability
Hydrocarbons	Pentane	*	**	>100,000 to 1,000,000	>10,000 to 100,000	53%	>100 to 1000	>1000 to 10,000	-97%	>10,000 to 100,000	>10,000 to 100,000	38%	system variability
Hydrocarbons	Pentene	*	**	>1000 to 10,000	>1000 to 10,000	34%	>10,000 to 100,000	>1000 to 10,000	-30%	>10,000 to 100,000	>1000 to 10,000	-18%	system variability
Hydrocarbons	Propane	*	74-98-6	>100,000 to 1,000,000	>10,000 to 100,000	-27%	>1 to 10	0	0%	>1000 to 10,000	>100 to 1000	25%	system variability
Hydrocarbons	Propylene	*	115-07-1	>10,000 to 100,000	>100 to 1000	1%	>1 to 10	>10,000 to 100,000	-100%	>100 to 1000	>10 to 100	-6%	system variability
Hydrocarbons	Toluene	*	108-88-3	>10,000 to 100,000	>10,000 to 100,000	-25%	>1000 to 10,000	>100 to 1000	-28%	>10,000 to 100,000	>1000 to 10,000	-25%	system variability
Hydrocarbons	Xylene	*	1330-20-7	>10,000 to 100,000	>1000 to 10,000	-9%	>1000 to 10,000	>100 to 1000	-14%	>10,000 to 100,000	>100 to 1000	1%	system variability

			Report of Tracking and Quantification of Facility-Wide Quantities								
		Used			Created			Contained in Product			
Substances (Reported in tonnes)	Chemical Abstract Service CAS Registry Number	2020 (Tonnes)	DELTA vs. 2019 (Tonnes)	% CHANGE	2020 (Tonnes)	DELTA vs. 2019 (Tonnes)	% CHANGE	2020 (Tonnes)	DELTA vs. 2019 (Tonnes)	% CHANGE	Reason for Change
Other											
Ammonia	**	0	0	n/a	>100 to 1000	>10 to 100	143%	>100 to 1000	>10 to 100	143%	system variability
Carbon Monoxide	630-08-0	0	0	n/a	>100 to 1000	0	0%	0	0	n/a	system variability
Cresol	1319-77-3	0	0	n/a	>100 to 1000	>10 to 100	23%	>100 to 1000	>10 to 100	23%	system variability
Ethylene Glycol	107-21-1	>1 to 10	>0 to 1	6%	0	0	n/a	0	0	n/a	system variability
Formaldehyde *	50-00-0	0	0	n/a	>0 to 1	>0 to 1	0%	0	0	n/a	no reasons - quantities approximately the same
H2S	7783-06-4	>10,000 to 100,000	>1000 to 10,000	-17%	>1000 to 10,000	>100 to 1000	19%	>10,000 to 100,000	>1000 to 10,000	-12%	system variability
Hydrogen cyanide	74-90-8	0	0	n/a	>0 to 1	>0 to 1	110%	>0 to 1	>0 to 1	110%	system variability
Methanol *	67-56-1	>1 to 10	>10 to 100	-78%	0	0	n/a	0	0	n/a	system variability
Isopropyl alcohol	67-63-0	0	0	n/a	0	0	n/a	0	0	n/a	no reasons - quantities approximately the same
Molybdenum Trioxide	1313-27-5	0	0	n/a	0	0	n/a	0	0	n/a	no reasons - quantities approximately the same
Nitrate Ion	**	0	0	n/a	0	0	n/a	0	0	n/a	no reasons - quantities approximately the same
Nox	11104-93-1	0	0	n/a	>100 to 1000	0	0%	0	0	n/a	no reasons - quantities approximately the same
Particulates	**	0	0	n/a	>10 to 100	0	0%	0	0	n/a	no reasons - quantities approximately the same
Phenol (and its salts)	108-95-2	0	0	n/a	>0 to 1	>0 to 1	502%	>0 to 1	>0 to 1	n/a	system variability
PM10	**	0	0	n/a	>10 to 100	0	0%	0	0	n/a	no reasons - quantities approximately the same
PM2.5	**	0	0	n/a	>1 to 10	0	0%	0	0	n/a	no reasons - quantities approximately the same
Sulphur Dioxide	7446-09-5	0	0	n/a	>10 to 100	0	0%	0	0	n/a	no reasons - quantities approximately the same
Sulphuric acid	7664-93-9	0	0	n/a	>1 to 10	0	0%	0	0	n/a	no reasons - quantities approximately the same
Tetrahydrofuran *	109-99-9	>10 to 100	>10 to 100	28%	0	0	n/a	0	0	n/a	system variability
Total Reduced Sulphur	**	>10,000 to 100,000	>1000 to 10,000	-16%	>1000 to 10,000	>100 to 1000	18%	>10,000 to 100,000	>1000 to 10,000	-11%	system variability
Volatile Organic Compounds	**	>100,000 to 1,000,000	>10,000 to 100,000	9%	>100,000 to 1,000,000	>10,000 to 100,000	-37%	>100,000 to 1,000,000	>10,000 to 100,000	7%	system variability

		Report of Tracking and Quantification of Facility-Wide Quantities															
	Substances (Reported in kilograms)	Releases To Air			Releases to Water			Releases to Land			Onsite / OffsiteDisposal			Transfer for Treatment and Recycling			Reason for Change
		2020 (kilograms)	DELTA vs. 2019 (kilograms)	% CHANGE	2020 (kilograms)	DELTA vs. 2019 (kilograms)	% CHANGE	2020 (kilograms)	DELTA vs. 2019 (kilograms)	% CHANGE	2020 (kilograms)	DELTA vs. 2019 (kilograms)	% CHANGE	2020 (kilograms)	DELTA vs. 2019 (kilograms)	% CHANGE	
Metals	Cadmium	4	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	0	0	0%	system variability
	Lead	9	0	0%	0	0	n/a	0	0	n/a	0	0	0%	8	0	0%	system variability
	Mercury	2	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	0	0	0%	system variability
	Selenium	2	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	0	0	0%	system variability
	Copper	0	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	0	0	0%	system variability
c Hydrocarbons (f	7H-Dibenzo(c,g)carbazole	0	0	0%	0	0	n/a	0	0	n/a	1	0	0%	4	0	0%	system variability
	Acenaphthene	1	0	0%	0	0	n/a	0	0	n/a	467	0	0%	3577	0	0%	system variability
	Acenaphthylene	3	0	0%	0	0	n/a	0	0	n/a	2412	0	0%	18481	0	0%	system variability
	Benzo(a)anthracene	0	0	0%	0	0	n/a	0	0	n/a	117	0	0%	894	0	0%	system variability
	Benzo(a)phenanthrene, aka chrysene	0	0	0%	0	0	n/a	0	0	n/a	57	0	0%	435	0	0%	system variability
	Benzo(a)pyrene	0	0	0%	0	0	n/a	0	0	n/a	79	0	0%	605	0	0%	system variability
	Benzo(b/j)fluoranthene	0	0	0%	0	0	n/a	0	0	n/a	97	0	0%	745	0	0%	system variability
	Benzo(e)pyrene	0	0	0%	0	0	n/a	0	0	n/a	37	0	0%	280	0	0%	system variability
	Benzo(g,h,i)perylene	0	0	0%	0	0	n/a	0	0	n/a	12	0	0%	89	0	0%	system variability
	Dibenzo(a,h)anthracene	0	0	0%	0	0	n/a	0	0	n/a	1	0	0%	4	0	0%	system variability
	Dibenzo(a,i)pyrene	0	0	0%	0	0	n/a	0	0	n/a	1	0	0%	4	0	0%	system variability
	Dibenzo(a,j)acridine	0	0	0%	0	0	n/a	0	0	n/a	1	0	0%	4	0	0%	system variability
	Fluoranthene	0	0	0%	0	0	n/a	0	0	n/a	296	0	0%	2265	0	0%	system variability
	Fluorene	1	0	0%	0	0	n/a	0	0	n/a	1011	0	0%	7750	0	0%	system variability
	Indeno(1,2,3-c,d)pyrene	0	0	0%	0	0	n/a	0	0	n/a	19	0	0%	149	0	0%	system variability
	Perylene	0	0	0%	0	0	n/a	0	0	n/a	9	0	0%	67	0	0%	system variability
	Phenanthrene	2	0	0%	0	0	n/a	0	0	n/a	1789	0	0%	13712	0	0%	system variability
	Pyrene	0	0	0%	0	0	n/a	0	0	n/a	626	0	0%	4799	0	0%	system variability

	Substances (Reported in tonnes)	Report of Tracking and Quantification of Facility-Wide Quantities															Reason for Change
		Releases To Air			Releases to Water			Releases to Land			Onsite / OffsiteDisposal			Transfer for Treatment and Recycling			
		2020 (Tonnes)	DELTA vs. 2019 (Tonnes)	% CHANGE	2020 (Tonnes)	DELTA vs. 2019 (Tonnes)	% CHANGE	2020 (Tonnes)	DELTA vs. 2019 (Tonnes)	% CHANGE	2020 (Tonnes)	DELTA vs. 2019 (Tonnes)	% CHANGE	2020 (Tonnes)	DELTA vs. 2019 (Tonnes)	% CHANGE	
Metals	Nickel	0	0	0%	0	0	n/a	0	0	n/a	1	0	0%	0	0	0%	system variability
Metals	Vanadium	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	0	0	0%	system variability
PAH	Anthracene	0	-	0%	0	-	n/a	0	-	n/a	0	-	0%	4	-	0%	system variability
PAH	Naphthalene	0	0	0%	0	0	n/a	0	0	n/a	11	0	0%	80	0	0%	system variability
Hydrocarbons	1, 2, 4-Trimethylbenzene *	4	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	system variability
Hydrocarbons	1, 3-Butadiene *	1	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	system variability
Hydrocarbons	Benzene *	9	0	0%	0	0	n/a	0	0	n/a	9	0	0%	0	0	n/a	system variability
Hydrocarbons	Biphenyl	0	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	system variability
Hydrocarbons	Butane *	5	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	system variability
Hydrocarbons	Butene *	4	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	no reasons - quantities approximately the same
Hydrocarbons	Cycloheptane *	0	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	no reasons - quantities approximately the same
Hydrocarbons	Cyclooctane *	0	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	system variability
Hydrocarbons	Ethylbenzene	1	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	no reasons - quantities approximately the same
Hydrocarbons	Ethylene *	41	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	no reasons - quantities approximately the same
Hydrocarbons	Heptane *	1	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	system variability
Hydrocarbons	Hexane *	5	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	no reasons - quantities approximately the same
Hydrocarbons	Hexene *	3	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	no reasons - quantities approximately the same
Hydrocarbons	Isoprene	0	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	system variability
Hydrocarbons	n-Hexane *	5	0	0%	0	0	n/a	0	0	n/a	11	0	0%	0	0	n/a	system variability
Hydrocarbons	Nonane *	2	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	no reasons - quantities approximately the same
Hydrocarbons	Octane *	1	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	no reasons - quantities approximately the same
Hydrocarbons	Pentane *	7	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	no reasons - quantities approximately the same
Hydrocarbons	Pentene *	2	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	no reasons - quantities approximately the same
Hydrocarbons	Propane *	32	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	no reasons - quantities approximately the same
Hydrocarbons	Trimethylbenzene *	0	0	0%	0	0	n/a	0	0	n/a	0	0	0%	0	0	n/a	no reasons - quantities approximately the same
Hydrocarbons	Toluene *	6	0	0%	0	0	n/a	0	0	n/a	27	0	0%	0	0	n/a	no reasons - quantities approximately the same
Hydrocarbons	Xylene *	3	0	0%	0	0	n/a	0	0	n/a	1	0	0%	6	0	0%	system variability
Other	Ammonia	0	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	no reasons - quantities approximately the same
Other	Carbon Monoxide	370	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	system variability
Other	Cresol	0	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	no reasons - quantities approximately the same
Other	Ethylene Glycol	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	no reasons - quantities approximately the same
Other	Formaldehyde *	0	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	no reasons - quantities approximately the same
Other	Hydrogen cyanide	0	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	no reasons - quantities approximately the same
Other	Methanol *	0	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	no reasons - quantities approximately the same
Other	Isopropyl alcohol	0	-	n/a	0	-	n/a	0	-	n/a	0	-	n/a	0	-	n/a	no reasons - quantities approximately the same
Other	Molybdenum Trioxide	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	no reasons - quantities approximately the same
Other	Nitrate Ion	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	no reasons - quantities approximately the same
Other	Nox	437	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	no reasons - quantities approximately the same
Other	Particulates	19	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	no reasons - quantities approximately the same
Other	Phenol (and its salts)	0	0	0%	0	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	system variability
Other	PM10	12	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	no reasons - quantities approximately the same
Other	PM2.5	9	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	no reasons - quantities approximately the same
Other	Sulphur Dioxide	36	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	system variability
Other	Sulphuric acid	2	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	system variability
Other	Tetrahydrofuran *	2	0	0%	0	0	n/a	0	0	n/a	0	0	n/a	0	0	n/a	system variability
Other	Total Reduced Sulphur	1	0	0%	0	0	n/a	0	0	n/a	0	0	0%	0	0	n/a	system variability
Other	Volatile Organic Compounds	144	0	0%	0	0	n/a	0	0	n/a	37	0	0%	6	0	0%	system variability

** No single CAS number applies to this substance

* also included in Volatile Organic Compounds

Toxic Reduction Plan Stewardship - 2020 Reporting Year

	Substances	Plan Objectives and Targets	Summary of steps taken during the previous calendar year (2019) to implement the toxics reduction options identified in the plan and the reduction amount resulting from these steps	Comparison of steps taken during the previous calendar year (2019) to steps included in the plan	Indication of whether timeline(s) set out in plan will be met	Additional actions taken during the previous calendar year (2019) to achieve the plan's objectives and the reduction amount resulting from the additional actions	Amendments made to the plan during the previous calendar year (2019)
Metals	Cadmium	Cadmium (and its compounds) enters the facility at concentrations in the chemcial plant feedstock that are below the measurement detection limit and is not created at the facility. No reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Lead	Lead enters the facility at concentrations in the chemcial plant feedstock that are below the measurement detection limit and is not created at the facility. No reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Mercury	Mercury enters the facility at concentrations in the chemcial plant feedstock that are below the measurement detection limit and is not created at the facility. No reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Selenium	Selenium enters the facility at concentrations in the chemcial plant feedstock that are below the measurement detection limit and is not created at the facility. No reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Copper	Copper enters the facility at concentrations in the chemcial plant feedstock that are below the measurement detection limit and is not created at the facility. No reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Nickel	Nickel enters the facility at concentrations in the chemcial plant feedstock that are below the measurement detection limit and is not created at the facility. No reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Vanadium	Vanadium enters the facility at concentrations in the chemcial plant feedstock that are below the measurement detection limit and is not created at the facility. No reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Zinc	Zinc enters the facility at concentrations in the chemcial plant feedstock that are below the measurement detection limit and is not created at the facility. No reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	7H-Dibenzo(c,g)carbazole	7H-Dibenzo(c,g)carbazole is created at the facility in small concentrations in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Acenaphthene	Acenaphthene enters the chemical plant in various feedstocks and is created at the facility in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Acenaphthylene	Acenaphthylene enters the chemical plant in various feedstocks and is created at the facility in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Benzo(a)anthracene	Benzo(a)anthracene is created at the facility in small concentrations in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Benzo(a)phenanthrene, aka chrysene	Benzo(a)phenanthrene is created at the facility in small concentrations in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Benzo(a)pyrene	Benzo(a)pyrene is created at the facility in small concentrations in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Benzo(b/j)fluoranthene	Benzo(b/j)fluoranthene is created at the facility in small concentrations in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Benzo(e)pyrene	Benzo(e)pyrene is created at the facility in small concentrations in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Benzo(g,h,i)perylene	Benzo(g,h,i)perylene is created at the facility in small concentrations in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Benzo(k)fluoranthene	Benzo(k)fluoranthene is created at the facility in the conversion units through cracking processes. Sarnia chemical plant is targeting to reduce the amount of Benzo(k)fluoranthene byproduct leaving the site for treatment / recyling by approximately 33 kg.	Facility upgrades in the chemical plant are progressing but completion of the upgrades have been delayed beyond the original reduction plan timeline. Reductions will be achieved when the facility upgrades are complete.	No change	Reduction plan timeline will not be met	No additional actions	No amendments
	Dibenzo(a,h)anthracene	Dibenzo(a,h)anthracene is created at the facility in the conversion units through cracking processes. Sarnia chemical plant is targeting to reduce the amount of Dibenzo(a,h)anthracene byproduct leaving the site for treatment / recyling by approximately 15 kg.	Facility upgrades in the chemical plant are progressing but completion of the upgrades have been delayed beyond the original reduction plan timeline. Reductions will be achieved when the facility upgrades are complete.	No change	Reduction plan timeline will not be met	No additional actions	No amendments
	Dibenzo(a,i)pyrene	Benzo(a,i)pyrene is created at the facility in small concentrations in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments

Dibenzo(a,j)acridine	Benzo(a,i)pyrene is created at the facility in small concentrations in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
Fluoranthene	Fluoranthene is created at the facility in small concentrations in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
Fluorene	Fluorene enters the chemical plant in various feedstocks and is created at the facility in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
Indeno(1,2,3-c,d)pyrene	Indeno(1,2,3-c,d)pyrene is created at the facility in small concentrations in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
Naphthalene	Naphthalene is a component of the chemical plant feedstocks. There is both creation and destruction of naphthalene occurring in the chemical plant conversion processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
Perylene	Perylene is created at the facility in the conversion units through cracking processes. Sarnia chemical plant is targeting to reduce the amount of Perylene byproduct leaving the site for treatment / recyling by approximately 20 kg.	Facility upgrades in the chemical plant are progressing but completion of the upgrades have been delayed beyond the original reduction plan timeline. Reductions will be achieved when the facility upgrades are complete.	No change	Reduction plan timeline will not be met	No additional actions	No amendments
Phenanthrene	Phenanthrene enters the chemical plant in various feedstocks and is created at the facility in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
Pyrene	Pyrene is created at the facility in small concentrations in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments

Toxic Reduction Plan Stewardship - 2020 Reporting Year

	Substances	Plan Objectives and Targets	Summary of steps taken during the previous calendar year (2019) to implement the toxics reduction options identified in the plan and the reduction amount resulting from these steps	Comparison of steps taken during the previous calendar year (2019) to steps included in the plan	Indication of whether timeline(s) set out in plan will be met	Additional actions taken during the previous calendar year (2019) to achieve the plan's objectives and the reduction amount resulting from the additional actions	Amendments made to the plan during the previous calendar year (2019)
Hydrocarbons	1, 2, 4-Trimethylbenzene	1,2,4-Trimethylbenzene enters the chemical plant in various feedstocks and is created at the facility in the conversion units through cracking processes. Sarnia Chemcial plant is targeting to reduce the use of 1,2,4 Trimethylbenzene in unit feedstock by approximately 1.4 tonne.	Reduced the use of a 1,2,4 Trimethylbenzene containing feedstock to one chemical plant unit per the documented reduction plan.	No change	Reduction plan timeline met.	No additional actions	No amendments
	1, 3-Butadiene	1,3-Butadiene enters the chemical plant in various feedstocks and is created at the facility in the conversion units through cracking processes. No feasible reduction options were identified. However, various projects at Sarnia Chemical Plant are expected to reduce the fugitive emissions of 1, 3-Butadiene in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Benzene	Benzene is integral to the chemical plant operation and is contained in desired chemical feedstock and/or products, therefore no options to reduce the use or creation of benzene were identified. However, various projects at Sarnia Chemical Plant are expected to reduce the fugitive emissions of benzene in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Biphenyl	Biphenyl enters the chemical plant in unit feedstock and is destroyed at the facility in the conversion unit through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Butane	Butane enters the chemical plant in various feedstocks and is created at the facility in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Butene	Butene enters the chemical plant in various feedstocks and is created at the facility in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Cycloheptane	Cycloheptane enters the chemical plant in various feedstocks and is created at the facility in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Cyclohexane	Cyclohexane enters the chemical plant in various feedstocks and is created at the facility in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Cyclohexene	Cyclohexene enters the chemical plant in various feedstocks and is created at the facility in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Cyclooctane	Cyclooctane enters the chemical plant in various feedstocks and is created at the facility in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Decane	Decane enters the chemical plant in various feedstocks and is created at the facility in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Dicyclopentadiene	Dicyclopentadiene enters the chemical plant in desired feedstock. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Ethylbenzene	Ethylbenzene enters the chemical plant in various feedstocks and is created at the facility in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Ethylene	Ethylene enters the chemical plant in various feedstocks and is created at the facility in the conversion units through cracking processes. Sarnia Chemical plant is targeting to reduce the amount of ethylene released to the air in one of its operating units by approximately 2.8 tonnes.	Option #1: Facilities upgrades completed, procedure changes and operator training completed per documented reduction plan. Planned reduction was achieved. Option #2: Procedure changes and operator training completed per documented reduction plan and planned reduction was achieved.	No change	Reduction plan timeline met.	No additional actions	No amendments
	Heptane	Heptane enters the chemical plant in various feedstocks and is created at the facility in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Hexane	Hexane enters the chemical plant in various feedstocks and is created at the facility in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments

Hexene	Hexene enters the chemical plant in various feedstocks and is created at the facility in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
Isoprene	Isoprene enters the chemical plant in various feedstocks and is created at the facility in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
n-Hexane	n-Hexane enters the chemical plant in various feedstocks and is created at the facility in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
Nonane	Nonane enters the chemical plant in various feedstocks and is created at the facility in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
Octane	Octane enters the chemical plant in various feedstocks and is created at the facility in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
Pentane	Pentane enters the chemical plant in various feedstocks and is created & destroyed at the facility in the conversion units through cracking processes. Sarnia Chemical plant is targeting to reduce the amount of pentane used at one of its operating units by approximately 135 tonnes. Sarnia Chemical plant is targeting to reduce the amount of pentane released to the air in one of its operating units by approximately 0.7 tonnes.	Option #1: Facility upgrades in the chemical plant are progressing but completion of the upgrades have been delayed beyond the original reduction plan timeline. Reductions will be achieved when the facility upgrades are complete. Option #2: Procedure changes and operator training completed per documented reduction plan and planned reduction was achieved.	No change	Reduction plan timeline will not be met.	No additional actions	No amendments
Pentene	Pentene enters the chemical plant in various feedstocks and is created at the facility in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
Propane	Propane enters the chemical plant in various feedstocks and is created at the facility in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
Propylene	Propylene enters the chemical plant in various feedstocks and is created at the facility in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
Trimethylbenzene	Not applicable - first plan due December 31, 2013	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

Toxic Reduction Plan Stewardship - 2020 Reporting Year

	Substances	Plan Objectives and Targets	Summary of steps taken during the previous calendar year (2019) to implement the toxics reduction options identified in the plan and the reduction amount resulting from these steps	Comparison of steps taken during the previous calendar year (2019) to steps included in the plan	Indication of whether timeline(s) set out in plan will be met	Additional actions taken during the previous calendar year (2019) to achieve the plan's objectives and the reduction amount resulting from the additional actions	Amendments made to the plan during the previous calendar year (2019)
Hydrocarbons	Toluene	Toluene is integral to the chemical plant operation and is contained in desired chemical feedstock and/or products, therefore no options to reduce the use or creation of toluene were identified. However, various projects at Sarnia Chemical Plant are expected to reduce the fugitive emissions of toluene in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Xylene	Xylene is integral to the chemical plant operation and is contained in desired chemical feedstock and/or products, therefore no options to reduce the use or creation of xylene were identified. However, various projects at Sarnia Chemical Plant are expected to reduce the fugitive emissions of xylene in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Ammonia	Ammonia is created at the facility in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Asbestos	Asbestos (friable form only) currently exists at the facility as a result of historical use and no new asbestos (friable form only) enters the chemical plant. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Carbon Monoxide	Carbon Monoxide may be created as a byproduct of fuel combustion. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Cresol	Cresol is created at the facility in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Ethylene Glycol	Ethylene Glycol is used at the Sarnia Chemical plant in purchased additive. The additive is optimized for the facility's operating envelope and product market demand. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Formaldehyde	Formaldehyde may be created as a byproduct of fuel combustion and was not detected in measurable concentrations in any of the chemcial plant inputs or outputs. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments

Other	H2S	H2S enters the chemical plant in various feedstocks and is created at the facility in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Hydrogen cyanide	Hydrogen Cyanide is created at the facility in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Methanol	Methanol is used as an antifreeze for the chemical plant process equipment. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Isopropyl alcohol	Isopropyl alcohol may be found in process chemical additives. It is not contained in any chemical plant feedstocks and is not created at the facility. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Molybdenum Trioxide	Molybdenum Trioxide may be found in catalyst. It is not contained in any chemical plant feedstocks and is not created at the facility. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Nitrate Ion	Nitrate Ion may be a byproduct of biological oxidation of ammonia containing streams at wastewater treatment plant. It is not contained in any chemical plant feedstocks and is not created at the facility. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Nox	Nox (mono-nitrogen oxides) are produced from the reaction of nitrogen and oxygen gases in the air during combustion at thigh temperatures. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Particulates	Particulates are fines that are not fully combused or recovered in the process. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Phenol (and its salts)	Phenol (and its salts) is contained in an additive that is used within the polyethylene plant and is transformed during processing. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	PM10	PM10 are fines that are not fully combused or recovered in the process. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	PM2.5	PM2.5 are fines that are not fully combused or recovered in the process. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Sulphur Dioxide	Sulphur Dioxide is created in the combustion of fuel containing sulphur. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Sulphuric acid	Sulphuric acid is used as an additive to the facility's clean water impounding basin and is transformed into a neutral salt. Sulphuric acid is also created as a byproduct from combustion of fuel containing traces of sulphur. Sarnia chemical plant is targeting to reduce the use of sulphuric acid by 1.0 tonnes.	Reduced the use of this toxin at the chemical plant, reduction was achieved per documented plan.	No change	Reduction plan timeline met.	No additional actions	No amendments
	Tetrahydrofuran	Tetrahydrofuran is used as a feedstock in the preparation of chemical plant catalyst and is detroyed through unit processing. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Total Reduced Sulphur	Totatl Reduced Sulphur enters the chemical plant in various feedstocks and is created at the facility in the conversion units through cracking processes. No feasible reduction options were identified.	No steps	No change	Not applicable - no timeline in plan	No additional actions	No amendments
	Volatile Organic Compounds	Not applicable - no plans required for VOC's as a group (O. Reg 455/09 S.11)	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable