



2014 TOXICS REDUCTION ACT

**Report on Toxic Substance
Accounting Requirements**

Suncor Energy Products Inc.
Sarnia Refinery
1900 River Road
Sarnia, Ontario
N7T 7J3

July 2015



Version Control

Version	Date Issued	Modifications
Original	July 2015	Original version made available to the public and employees



Table of Contents

L1.0 INTRODUCTION	1
2.0 REPORTING CRITERIA.....	2
2.1 Class of Facility	2
2.2 Number of Persons.....	2
2.3 Amounts of Toxic Substance Used or Created.....	2
2.4 Other Criteria.....	3
3.0 GENERAL FACILITY INFORMATION	5
4.0 SUBSTANCE REPORTING	6
4.1 1,2,4 Trimethylbenzene (CAS# 95-63-6)	7
4.2 Ammonia (CAS# NA - 16)	8
4.3 Asbestos (CAS# 1332-21-4).....	8
4.4 Benzene (CAS# 71-43-2)	9
4.5 Cadmium and its compounds (CAS# NA-03)	9
4.6 Cyclohexane (CAS# 110-82-7).....	10
4.7 Cumene (CAS# 98-82-8).....	10
4.8 Dicyclopentadiene (CAS# 77-73-6)	11
4.9 Ethylbenzene (CAS# 100-41-4).....	11
4.10 Hydrofluoric Acid (CAS# 7664-39-3)	12
4.11 Hydrogen Sulfide (CAS# 7783-06-4).....	12
4.12 Methanol (CAS# 67-56-1).....	13
4.13 Molybdenum Trioxide (CAS# 1313-27-5)	13
4.14 Naphthalene (CAS# 91-20-3).....	14
4.15 N-Hexane (CAS# 110-54-3)	14
4.16 Nickel and its compounds (CAS# NA-11).....	15
4.17 Styrene (CAS# 100-42-5).....	15
4.18 Sulphuric Acid (CAS# 7664-93-9).....	16
4.19 Toluene (CAS# 108-88-3)	16
4.20 Xylene, all isomers (CAS# 1330-20-7)	17
4.21 Total Reduced Sulfur (CAS# NA-M14).....	17
4.22 Tetrachloroethylene (CAS# NA-M14).....	18
4.23 Oxides of Nitrogen (CAS# 11104-93-1).....	18
4.24 Carbon Monoxide (CAS# 630-08-0)	19
4.25 Sulfur Dioxide (CAS# 7446-09-5)	19
4.26 Total Particulate Matter (CAS# NA - M08).....	19
4.27 PM10 - Particulate Matter <10 microns (CAS# NA – M09).....	20
4.28 PM2.5 - Particulate Matter < 2.5 microns (CAS# NA – M10).....	20
4.29 Propane (CAS# 74-98-6).....	20
4.30 Butane, all isomers (CAS# NA-24)	21
4.31 Butene, all isomers (CAS# 25167-67-3).....	21
4.32 Heptane, all isomers (CAS# NA-31)	21
4.33 Hexane, all isomers excluding n-hexane (CAS# NA-32)	22
4.34 Nonane, all isomers (CAS# NA-33).....	22
4.35 Octane, all isomers (CAS# NA-34)	22
4.36 Pentane, all isomers (CAS# NA-35)	23
4.37 Propylene (CAS# 115-07-1)	23
5.0 TOXIC SUBSTANCE REDUCTION PLAN SUMMARY	24



6.0 ANNUAL CERTIFICATION STATEMENT 25

LIST OF ATTACHMENTS

ATTACHMENT 1: COPY OF ELECTRONIC CERTIFICATION

1.0 INTRODUCTION

Suncor Energy Products Inc. Sarnia Refinery is a crude oil refinery that produces a number of fuel products including gasoline, kerosene, home heating oils, jet and diesel fuels, residual oils for industrial use, as well as chemical feedstocks.

Protection of the environment is a fundamental Suncor value. It is our responsibility to determine and manage the impacts of our business through programs like the Toxics Reduction Act.

This annual toxics substance accounting report has been prepared to meet the regulatory obligations specified in Section 10 of the Act and has been prepared in accordance with the requirements of Section 27(1) of Ontario Regulation 455/09, as amended from time to time. It summarizes the relevant reporting requirements and will be updated, as required by the Act and O. Reg. 455/09.

For more information on the Toxics Reduction Act and O. Reg. 455/09 visit: <http://www.ontario.ca/environment-and-energy/toxic-substance-reduction-planner-licence>



2.0 REPORTING CRITERIA

Section 3(1) of the Act specifies the criteria requiring the preparation of a toxic substance plan. These criteria are as follows:

3. (1) The owner and the operator of a facility shall ensure that a toxic substance reduction plan is prepared for a toxic substance in accordance with this Act and the regulations if all of the following criteria are met:

1. The facility belongs to a class of facilities prescribed by the regulations.

2. The number of persons employed at the facility exceeds the number of persons prescribed by the regulations.

3. The toxic substance is used or created at the facility and the amounts of the substance that are used or created meet the criteria prescribed by the regulations.

4. Such other criteria as are prescribed by the regulations. 2009, c. 19, s. 3 (1).

Specific criteria are outlined in O. Reg. 455/09. The following sections detail the criteria and applicability to the Suncor facility.

2.1 Class of Facility

Section 4(1) of O. Reg. 455/09 specifies the types of facilities subject to toxic substance reduction planning and includes facilities that begin in North American Industry Classification System code "31", "32" or "33" and "212".

The Suncor Sarnia Refinery carries out processes and activities related to "Petroleum and Coal Product Manufacturing", which begins in NAICS code "32", which is a code identified in O. Reg. 455/09.

2.2 Number of Persons

Section 5 of O. Reg. 455/09 specifies the numbers of persons at a facility must be greater than zero. In 2014, the Sarnia Refinery employed 856 full-time equivalent employees.

2.3 Amounts of Toxic Substance Used or Created

Section 6 of O. Reg. 455/09 specifies that amounts of a toxic substance used or created must exceed zero. In 2014, the use or creation of toxic substances for which accounting is required is greater than zero (refer to Section 4).



2.4 Other Criteria

Section 7(1) of O. Reg. 455/09 requires the owner and operator of a facility provide information on National Pollutant Release Inventory (TRA) substances if reporting to the TRA is required; or if the substance is acetone and reporting under Ontario Regulation 127/01 (Airborne Contaminant Discharge Monitoring and Reporting) made under the Environmental Protection Act applies.

In 2014, Suncor Sarnia Refinery was required to report to the TRA. Specifically, the Suncor Sarnia Refinery met the reporting requirements for the following substances listed in Schedule A of O. Reg. 455/09:

TRA Part 1A Substances:

- 1,2,4-Trimethylbenzene
- Ammonia
- Asbestos
- Benzene
- Cadmium
- Cyclohexane
- Dicyclopentadiene
- Ethylbenzene
- Hydrofluoric acid
- Hydrogen Sulfide
- Cumene
- Methanol
- Molybdenum Trioxide
- Naphthalene
- N-hexane
- Nickel compounds
- Styrene
- Sulphuric acid
- Toluene
- Xylene
- Total Reduced Sulfur

TRA Part 4 Substances:

- Oxides of Nitrogen
- Carbon Monoxide
- Sulfur Dioxide
- Total Particulate Matter
- PM 10
- PM 2.5



TRA Part 5 Substances:

- 1,2,4-Trimethylbenzene (also reported as a Part 1A Substance)
- Benzene (also reported as a Part 1A substance)
- N-hexane (also reported as a Part 1A Substance)
- Propane
- Styrene (also reported as a Part 1A Substance)
- Toluene (also reported as a Part 1A Substance)
- Xylene (also reported as a Part 1A Substance)
- Butane (all isomers)
- Butene (all isomers)
- Heptane (all isomers)
- Hexane (all isomers)
- Nonane (all isomers)
- Octane (all isomers)
- Pentane (all isomers)
- Propylene



3.0 GENERAL FACILITY INFORMATION

Table 3-1 summarizes the general facility information with reference to the Act and/or O. Reg. 455/09.

Table 3-1: General Facility Information

Reporting Requirement	Facility Information	Reference to Act and/or O. Reg. 455/09
Parent Company Name	Suncor Energy Inc.	O. Reg. 455/09 s.18(2) subparagraph 14
Parent Company Address	150 6 th Avenue SW Calgary, Alberta T2P 3E3	O. Reg. 455/09 s.18(2) subparagraph 14
Facility Name	Suncor Energy Sarnia Refinery	O. Reg. 455/09 s.18(2) subparagraph 4
Facility Address	1900 River Road Sarnia, Ontario N7T 7J3	O. Reg. 455/09 s.18(2) subparagraph 4
Universal Transverse Mercator (UTM) in North American Datum (NAD83)	Latitude: 42.93060 Longitude: -82.44330	O. Reg. 455/09 s.18(2) subparagraph 13
National Pollutant Release Inventory Identification Number	3071	O. Reg. 455/09 s.18(2) subparagraph 2
Ontario Regulation 127/01 Identification Number	Not applicable	O. Reg. 455/09 s.18(2) subparagraph 3
Two Digit North American Industry Classification System (NAICS) Code	32 – Manufacturing	O. Reg. 455/09 s.18(2) subparagraph 6
Four Digit North American Industry Classification System (NAICS) Code	3241 – Petroleum and Coal Product Manufacturing	O. Reg. 455/09 s.18(2) subparagraph 6
Six Digit North American Industry Classification System (NAICS) Code	324110 – Petroleum Refineries	O. Reg. 455/09 s.18(2) subparagraph 6
Number of Full-time Employee Equivalents at the Facility	856 (as of December 31, 2014)	O. Reg. 455/09 s.18(2) subparagraph 5
Facility Public Contact	Jennifer Johnson Communications & Stakeholder Relations Advisor 1900 River Road Sarnia, Ontario N7T 7J3 Email: jnjohnson@suncor.com	O. Reg. 455/09 s.18(2) subparagraph 7



4.0 SUBSTANCE REPORTING

In accordance with s. 26(1) subparagraphs 2 and 7, the Suncor Sarnia Refinery made determinations for each substance reportable under the Act as follows:

- 1) The amount of the substance that enters a process as the substance itself or as a constituent of another substance.
- 2) The amount of the substance that is created.
- 3) If the substance is a TRA substance,
 - i. quantifications relating to its release, disposal and transfer that,
 - A. are required to be provided under the TRA Notice, or
 - B. are determined through mass balance, published emission factors, site specific emission factors or engineering estimates, if no quantifications were required to be provided under the TRA Notice, and
 - ii. the amount of the substance that is contained in product, other than a substance that is identified as a criteria air contaminant or a volatile organic compound in the TRA Notice.
- 4) If the toxic substance is acetone, the calculations mentioned in subsection 4 (3) of Ontario Regulation 127/01 (Airborne Contaminant Discharge Monitoring and Reporting) made under the Environmental Protection Act.

For the purposes of maintaining confidentiality, the Suncor Sarnia Refinery has reported 'Use', 'Created' and 'Contained in Product' quantities in the bands and ranges prescribed by the Ontario Ministry of the Environment. The band and ranges specified by the Ontario Ministry of the Environment are summarized as follows:

- >0 to 1
- >1 to 10
- >10 to 100
- >100 to 1,000
- >1,000 to 10,000
- >10,000 to 100,000
- >100,000 to 1,000,000

The units of measure depend upon the substance being reported under the TRA and O. Reg. 127/01. Generally, release, disposal and recycling quantities are reported in tonnes. However, for substances with alternate reporting thresholds, these quantities are reported in kilograms or grams.

- TRA Part 1A – Substances listed at the original TRA threshold [tonnes]
- TRA Part 1B – Metals listed at an alternate threshold [kilograms]
- TRA Part 2 – Polycyclic aromatic compounds (PAHs), [kilograms]
- TRA Part 3 – Hexachlorobenzene (HCB), Dioxins/furans (toxic equivalent), [grams]
- TRA Part 4 – Criteria Air Contaminants (CACs) [tonnes]
- TRA Part 5 – Speciated volatile organic compounds [tonnes]
- O. Reg. 127/01 – Acetone [tonnes]



The following sections summarize the information outlined above for each substance.

Note:

'—' is equal to zero in the tables below

'0.0000' is a value greater than zero but greater than four (4) decimal places

n/a is not applicable

4.1 1,2,4 Trimethylbenzene (CAS# 95-63-6)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 1,000 to 10,000	> 1,000 to 10,000	21%	1032.2724	Feedstock variability
Created (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	1%	549.8367	No significant change
Contained in Product (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	11%	5458.8663	Variability in analytical data in product streams
Air Releases (tonnes)	1.2940	1.1432	13%	0.1508	Updated LDAR speciation
Water Releases (tonnes)	—	—	—	—	n/a
On-site Disposal (tonnes)	—	—	—	—	n/a
Transferred for Disposal (tonnes)	—	—	—	—	n/a
Transferred for Recycling (tonnes)	—	—	—	—	n/a



4.2 Ammonia (CAS# NA - 16)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 10 to 100	> 10 to 100	7%	1.2995	No significant change
Created (tonnes)	> 1,000 to 10,000	> 1,000 to 10,000	-12%	-476.8118	Change in production levels
Contained in Product (tonnes)	—	—	—	—	n/a
Air Releases (tonnes)	7.0043	5.8461	20%	1.1582	Change in production levels
Water Releases (tonnes)	10.6801	7.3583	45%	3.3218	Change in production levels and no cooling water outage activities in 2014
On-site Disposal (tonnes)	—	—	—	—	n/a
Transferred for Disposal (tonnes)	—	—	—	—	n/a
Transferred for Recycling (tonnes)	—	—	—	—	n/a

4.3 Asbestos (CAS# 1332-21-4)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	—	—	—	—	n/a
Created (tonnes)	—	—	—	—	n/a
Contained in Product (tonnes)	—	—	—	—	n/a
Air Releases (tonnes)	—	—	—	—	n/a
Water Releases (tonnes)	—	—	—	—	n/a
On-site Disposal (tonnes)	—	—	—	—	n/a
Transferred for Disposal (tonnes)	3.8900	28.8700	-87%	-24.9800	Decreased maintenance work requiring asbestos removal
Transferred for Recycling (tonnes)	—	—	—	—	n/a



4.4 Benzene (CAS# 71-43-2)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	>1,000 to 10,000	>1,000 to 10,000	5%	319.6201	No significant change
Created(tonnes)	>10,000 to 100,000	>10,000 to 100,000	3%	1059.9964	No significant change
Contained in Product (tonnes)	>10,000 to 100,000	>10,000 to 100,000	4%	1379.6165	No significant change
Air Releases (tonnes)	5.8138	5.8117	0%	0.0021	No significant change
Water Releases (tonnes)	0.0016	0.0013	23%	0.0003	Higher loading due to no cooling water outage activities in 2014
On-site Disposal (tonnes)	—	—	—	—	n/a
Transferred for Disposal (tonnes)	0.0074	0.0391	-81%	-0.0317	Less benzene containing waste generated in 2014
Transferred for Recycling (tonnes)	0.1138	—	100%	0.1138	Tank bottom sludge was fuel blended

4.5 Cadmium and its compounds (CAS# NA-03)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (kg)	Rationale For Change (if >10%)
Use (kg)	> 1 to 10	> 1 to 10	3%	0.1647	No significant change
Created (kg)	—	—	—	—	n/a
Contained in Product (kg)	—	—	—	—	n/a
Air Releases (kg)	6.2133	6.0486	3%	0.1647	No significant change
Water Releases (kg)	—	—	—	—	n/a
On-site Disposal (kg)	—	—	—	—	n/a
Transferred for Disposal (kg)	—	—	—	—	n/a
Transferred for Recycling (kg)	—	—	—	—	n/a



4.6 Cyclohexane (CAS# 110-82-7)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	-9%	-1224.6067	No significant change
Created (tonnes)	> 1,000 to 10,000	> 1,000 to 10,000	-10%	-658.9809	No significant change
Contained in Product (tonnes)	> 1,000 to 10,000	> 1,000 to 10,000	-23%	-2000.6571	Variability in analytical data in product streams
Air Releases (tonnes)	4.7525	4.8567	-2%	-0.1042	No significant change
Water Releases (tonnes)	—	—	—	—	n/a
On-site Disposal (tonnes)	—	—	—	—	n/a
Transferred for Disposal (tonnes)	—	—	—	—	n/a
Transferred for Recycling (tonnes)	—	—	—	—	n/a

4.7 Cumene (CAS# 98-82-8)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 100 to 1,000	> 100 to 1,000	-16%	-142.5319	Feedstock variability
Created (tonnes)	> 1,000 to 10,000	> 1,000 to 10,000	3%	41.1408	No significant change
Contained in Product (tonnes)	> 1,000 to 10,000	> 1,000 to 10,000	-4%	-101.3911	No significant change
Air Releases (tonnes)	0.4263	0.5302	-20%	-0.1039	Less marine loading of naphtha
Water Releases (tonnes)	—	—	—	—	n/a
On-site Disposal (tonnes)	—	—	—	—	n/a
Transferred for Disposal (tonnes)	—	—	—	—	n/a
Transferred for Recycling (tonnes)	—	—	—	—	n/a



4.8 Dicyclopentadiene (CAS# 77-73-6)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 1,000 to 10,000	n/a	n/a	n/a	1 st year reporting
Created (tonnes)	—	n/a	—	—	1 st year reporting
Contained in Product (tonnes)	> 1,000 to 10,000	n/a	n/a	n/a	1 st year reporting
Air Releases (tonnes)	0.0023	n/a	n/a	n/a	1 st year reporting
Water Releases (tonnes)	—	n/a	—	—	1 st year reporting
On-site Disposal (tonnes)	—	n/a	—	—	1 st year reporting
Transferred for Disposal (tonnes)	—	n/a	—	—	1 st year reporting
Transferred for Recycling (tonnes)	—	n/a	—	—	1 st year reporting

4.9 Ethylbenzene (CAS# 100-41-4)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	>10,000 to 100,000	>10,000 to 100,000	-17%	-3095.3245	Feedstock variability
Created (tonnes)	>10,000 to 100,000	>10,000 to 100,000	3%	642.9892	No significant change
Contained in Product (tonnes)	>10,000 to 100,000	>10,000 to 100,000	-0.5%	-206.7362	No significant change
Air Releases (tonnes)	2.1224	2.1078	1%	0.0146	No significant change
Water Releases (tonnes)	—	—	—	—	n/a
On-site Disposal (tonnes)	—	—	—	—	n/a
Transferred for Disposal (tonnes)	—	0.2025	-100%	-0.2025	No ethylbenzene containing waste disposal in 2014
Transferred for Recycling (tonnes)	—	0.0064	-100%	-0.0064	No ethylbenzene containing waste recycled in 2014



4.10 Hydrofluoric Acid (CAS# 7664-39-3)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 10 to 100	> 10 to 100	5%	2.6708	No significant change
Created (tonnes)	—	—	—	—	n/a
Contained in Product (tonnes)	—	—	—	—	n/a
Air Releases (tonnes)	1.5073	1.6978	-11%	-0.1905	Analyzer variation
Water Releases (tonnes)	—	—	—	—	n/a
On-site Disposal (tonnes)	—	—	—	—	n/a
Transferred for Disposal (tonnes)	—	—	—	—	n/a
Transferred for Recycling (tonnes)	—	—	—	—	n/a

4.11 Hydrogen Sulfide (CAS# 7783-06-4)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 1 to 10	> 10 to 100	-6%	-0.6316	No significant change
Created (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	-21%	-10215.2100	Change in production levels
Contained in Product (tonnes)	—	—	—	—	n/a
Air Releases (tonnes)	5.9512	1.0986	441%	4.8526	Tank vent release
Water Releases (tonnes)	—	—	—	—	n/a
On-site Disposal (tonnes)	—	—	—	—	n/a
Transferred for Disposal (tonnes)	—	—	—	—	n/a
Transferred for Recycling (tonnes)	—	—	—	—	n/a



4.12 Methanol (CAS# 67-56-1)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	>100 to 1,000	>100 to 1,000	-17%	-32.0800	Decreased methanol purchased/used in 2014
Created (tonnes)	—	—	—	—	n/a
Contained in Product (tonnes)	—	—	—	—	n/a
Air Releases (tonnes)	0.0562	0.0502	12%	0.0060	Decreased methanol usage in 2014
Water Releases (tonnes)	—	—	—	—	n/a
On-site Disposal (tonnes)	—	—	—	—	n/a
Transferred for Disposal (tonnes)	—	—	—	—	n/a
Transferred for Recycling (tonnes)	—	—	—	—	n/a

4.13 Molybdenum Trioxide (CAS# 1313-27-5)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 10 to 100	n/a	n/a	n/a	1 st year reporting
Created (tonnes)	—	n/a	—	—	1 st year reporting
Contained in Product (tonnes)	—	n/a	—	—	1 st year reporting
Air Releases (tonnes)	—	n/a	—	—	1 st year reporting
Water Releases (tonnes)	—	n/a	—	—	1 st year reporting
On-site Disposal (tonnes)	—	n/a	—	—	1 st year reporting
Transferred for Disposal (tonnes)	—	n/a	—	—	1 st year reporting
Transferred for Recycling (tonnes)	—	n/a	—	—	1 st year reporting



4.14 Naphthalene (CAS# 91-20-3)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	-14%	-8878.4820	Feedstock variability
Created (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	19%	3671.6249	Change in production levels
Contained in Product (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	-5%	-1480.8010	No significant change
Air Releases (tonnes)	0.2574	0.2649	-3%	-0.0075	No significant change
Water Releases (tonnes)	—	—	—	—	n/a
On-site Disposal (tonnes)	—	—	—	—	n/a
Transferred for Disposal (tonnes)	—	0.0012	-100%	-0.0012	No tank cleaning and sludge containing naphthalene disposal in 2014
Transferred for Recycling (tonnes)	—	—	—	—	No significant change

4.15 N-Hexane (CAS# 110-54-3)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	-2%	-896.0320	No significant change
Created (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	0.5%	43.5174	No significant change
Contained in Product (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	2%	860.2606	No significant change
Air Releases (tonnes)	14.3914	15.4959	-7%	-1.1045	No significant change
Water Releases (tonnes)	—	—	—	—	n/a
On-site Disposal (tonnes)	—	—	—	—	n/a
Transferred for Disposal (tonnes)	—	—	—	—	n/a
Transferred for Recycling (tonnes)	—	—	—	—	n/a



4.16 Nickel and its compounds (CAS# NA-11)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 10 to 100	> 0 to 1	49380%	12.8921	New catalyst loaded during 2014
Created (tonnes)	—	—	—	—	n/a
Contained in Product (tonnes)	—	—	—	—	n/a
Air Releases (tonnes)	0.0293	0.0261	12%	0.0032	Change in production levels
Water Releases (tonnes)	—	—	—	—	n/a
On-site Disposal (tonnes)	—	—	—	—	n/a
Transferred for Disposal (tonnes)	—	—	—	—	n/a
Transferred for Recycling (tonnes)	7.5809	—	100%	7.5809	Catalyst change-out in 2014

4.17 Styrene (CAS# 100-42-5)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 100 to 1,000	n/a	n/a	n/a	1 st year reporting
Created (tonnes)	—	n/a	—	—	1 st year reporting
Contained in Product (tonnes)	> 100 to 1,000	n/a	n/a	n/a	1 st year reporting
Air Releases (tonnes)	0.0019	n/a	n/a	n/a	1 st year reporting
Water Releases (tonnes)	—	n/a	—	—	1 st year reporting
On-site Disposal (tonnes)	—	n/a	—	—	1 st year reporting
Transferred for Disposal (tonnes)	—	n/a	—	—	1 st year reporting
Transferred for Recycling (tonnes)	—	n/a	—	—	1 st year reporting



4.18 Sulphuric Acid (CAS# 7664-93-9)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 10 to 100	> 10 to 100	62%	23.0700	Change in usage levels
Created (tonnes)	> 1 to 10	> 1 to 10	-0.4%	-0.0215	No significant change
Contained in Product (tonnes)	—	—	—	—	n/a
Air Releases (tonnes)	5.4047	5.3921	0.2%	0.0126	No significant change
Water Releases (tonnes)	—	—	—	—	n/a
On-site Disposal (tonnes)	—	—	—	—	n/a
Transferred for Disposal (tonnes)	—	—	—	—	n/a
Transferred for Recycling (tonnes)	—	—	—	—	n/a

4.19 Toluene (CAS# 108-88-3)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	-18%	-9869.8770	Feedstock variability
Created (tonnes)	> 100,000 to 1,000,000	> 100,000 to 1,000,000	3%	2951.4753	No significant change
Contained in Product (tonnes)	> 100,000 to 1,000,000	> 100,000 to 1,000,000	3%	4463.3519	No significant change
Air Releases (tonnes)	34.4321	28.9628	19%	5.4693	Increased tank throughput & truck loading
Water Releases (tonnes)	0.0013	0.0013	0%	—	No significant change
On-site Disposal (tonnes)	—	—	—	—	n/a
Transferred for Disposal (tonnes)	—	0.0379	-100%	-0.0379	No tank cleaning and sludge containing toluene disposal in 2014
Transferred for Recycling (tonnes)	—	—	—	—	n/a



4.20 Xylene, all isomers (CAS# 1330-20-7)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	-8%	-2049.1897	No significant change
Created (tonnes)	> 100,000 to 1,000,000	> 100,000 to 1,000,000	1%	1505.3526	No significant change
Contained in Product (tonnes)	> 100,000 to 1,000,000	> 100,000 to 1,000,000	7%	11198.8471	No significant change
Air Releases (tonnes)	19.6948	20.2420	-3%	-0.5472	No significant change
Water Releases (tonnes)	—	—	—	—	n/a
On-site Disposal (tonnes)	—	—	—	—	n/a
Transferred for Disposal (tonnes)	—	0.9222	-100%	-0.9222	No xylene contaminated soil disposal in 2014
Transferred for Recycling (tonnes)	—	0.0263	-100%	-0.0263	No fuel blending of xylene waste in 2014

4.21 Total Reduced Sulfur (CAS# NA-M14)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 100 to 1,000	> 100 to 1,000	-4%	-15.1147	No significant change
Created (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	-21%	-10215.2100	Change in production levels
Contained in Product (tonnes)	> 10 to 100	> 10 to 100	-7%	-3.1019	No significant change
Air Releases (tonnes)	5.9512	1.0986	441%	4.8526	Tank vent release
Water Releases (tonnes)	—	—	—	—	n/a
On-site Disposal (tonnes)	—	—	—	—	n/a
Transferred for Disposal (tonnes)	—	—	—	—	n/a
Transferred for Recycling (tonnes)	—	—	—	—	n/a



4.22 Tetrachloroethylene (CAS# NA-M14)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 10 to 100	n/a	n/a	n/a	1 st year reporting
Created (tonnes)	—	n/a	—	—	1 st year reporting
Contained in Product (tonnes)	—	n/a	—	—	1 st year reporting
Air Releases (tonnes)	—	n/a	—	—	1 st year reporting
Water Releases (tonnes)	—	n/a	—	—	1 st year reporting
On-site Disposal (tonnes)	—	n/a	—	—	1 st year reporting
Transferred for Disposal (tonnes)	—	n/a	—	—	1 st year reporting
Transferred for Recycling (tonnes)	—	n/a	—	—	1 st year reporting

4.23 Oxides of Nitrogen (CAS# 11104-93-1)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	—	—	—	—	n/a
Created (tonnes)	> 100 to 1,000	> 100 to 1,000	5%	38.1273	No significant change
Air Releases (tonnes)	789.3648	751.2375	5%	38.1273	No significant change



4.24 Carbon Monoxide (CAS# 630-08-0)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	—	—	—	—	n/a
Created (tonnes)	> 1,000 to 10,000	> 1,000 to 10,000	17%	756.2670	Change in production levels
Air Releases (tonnes)	5077.3076	4321.0406	17%	756.2670	Change in production levels

4.25 Sulfur Dioxide (CAS# 7446-09-5)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	—	—	—	—	n/a
Created (tonnes)	> 100 to 1,000	> 100 to 1,000	190%	411.1074	Start up and shut down of Sulfur plant in 2014
Air Releases (tonnes)	626.9462	215.8388	190%	411.1074	Start up and shut down of Sulfur plant in 2014

4.26 Total Particulate Matter (CAS# NA - M08)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	—	—	—	—	n/a
Created (tonnes)	> 100 to 1,000	> 10 to 100	115%	79.3475	Change in production levels and revised stack testing data
Air Releases (tonnes)	148.2979	68.9504	115%	79.3475	Change in production levels and revised stack testing data



4.27 PM10 - Particulate Matter <10 microns (CAS# NA – M09)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	—	—	—	—	n/a
Created (tonnes)	> 10 to 100	> 10 to 100	104%	39.9241	Change in production levels and revised stack testing data
Air Releases (tonnes)	78.2734	38.3493	104%	39.9241	Change in production levels and revised stack testing data

4.28 PM2.5 - Particulate Matter < 2.5 microns (CAS# NA – M10)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	—	—	—	—	n/a
Created (tonnes)	> 10 to 100	> 10 to 100	60%	9.9810	Change in production levels and revised stack testing data
Air Releases (tonnes)	26.6305	16.6495	60%	9.9810	Change in production levels and revised stack testing data

4.29 Propane (CAS# 74-98-6)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	27%	4349.8946	Feedstock variability
Created (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	3%	1565.9071	No significant change
Air Releases (tonnes)	16.2109	4.6632	248%	11.5477	Reduced flare gas recovery efficiency so more gas flared in 2014



4.30 Butane, all isomers (CAS# NA-24)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 100,000 to 1,000,000	> 100,000 to 1,000,000	14%	15531.8156	Feedstock variability
Created (tonnes)	> 100,000 to 1,000,000	> 100,000 to 1,000,000	19%	28558.2304	Change in production levels
Air Releases (tonnes)	48.4006	31.1720	55%	17.2286	Reduced flare gas recovery efficiency so more gas flared in 2014

4.31 Butene, all isomers (CAS# 25167-67-3)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	58%	16714.0355	More butene feedstock purchased in 2014
Created (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	12%	2121.2414	Changes in production levels
Air Releases (tonnes)	6.0003	15.2544	-61%	-9.2541	Decreased brine degassing emissions

4.32 Heptane, all isomers (CAS# NA-31)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	-8%	-5223.6023	No significant change
Created (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	-12%	-9840.2216	Changes in production levels
Air Releases (tonnes)	2.3424	2.8692	-18%	-0.5268	Tank composition change



4.33 Hexane, all isomers excluding n-hexane (CAS# NA-32)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	9%	4029.2742	No significant change
Created (tonnes)	> 100,000 to 1,000,000	> 100,000 to 1,000,000	-3%	-3277.2144	No significant change
Air Releases (tonnes)	5.1450	3.1152	65%	2.0298	Reduced flare gas recovery efficiency so more gas flared in 2014

4.34 Nonane, all isomers (CAS# NA-33)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	-8%	-4680.1838	No significant change
Created (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	-11%	-7895.4907	Changes in production levels
Air Releases (tonnes)	0.6846	0.8635	-21%	-0.1789	Updated LDAR speciation

4.35 Octane, all isomers (CAS# NA-34)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	-7%	-4460.4480	No significant change
Created (tonnes)	> 100,000 to 1,000,000	> 100,000 to 1,000,000	8%	15073.5684	No significant change
Air Releases (tonnes)	3.3225	3.1731	5%	0.1494	No significant change



4.36 Pentane, all isomers (CAS# NA-35)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	1%	1193.5378	No significant change
Created (tonnes)	> 100,000 to 1,000,000	> 100,000 to 1,000,000	-13%	-17063.6528	Change in production levels
Air Releases (tonnes)	10.4207	7.5330	38%	2.8877	Reduced flare gas recovery efficiency so more gas flared in 2014

4.37 Propylene (CAS# 115-07-1)

Required Information	2014 Reporting Year	2013 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 100 to 1,000	n/a	n/a	n/a	1 st year reporting
Created (tonnes)	> 100 to 1,000	n/a	n/a	n/a	1 st year reporting
Air Releases (tonnes)	1.9505	n/a	n/a	n/a	1 st year reporting



5.0 TOXIC SUBSTANCE REDUCTION PLAN SUMMARY

As described in the Toxic Substance Reduction Plan Summaries dated [December 14, 2012](#) and [December 14, 2013](#), there were no options identified for implementation, above and beyond the actions the Sarnia Refinery has already taken, at this time. The plan will be reviewed in accordance with the Act and regulation, at which time new options may be identified and considered for implementation.

Finally, there have been no amendments to the Toxic Substance Reduction Plan Summaries dated December 14, 2012 and December 14, 2013.



6.0 ANNUAL CERTIFICATION STATEMENT

In accordance with s.19 of O. Reg. 455/09, the highest ranking employee at the facility electronically certified the toxic substance plan. A copy of the electronic certification is provided in Attachment 1.



Attachment 1: Copy of Electronic Certification

Report Submission and Electronic Certification

NPRI - Electronic Statement of Certification

Specify the language of correspondence

Comments (optional)

I hereby certify that I have exercised due diligence to ensure that the submitted information is true and complete. The amounts and values for the facility(ies) identified below are accurate, based on reasonable estimates using available data. The data for the facility(ies) that I represent are hereby submitted to the programs identified below using the Single Window Reporting Application.

I also acknowledge that the data will be made public.

Note: Only the person identified as the Certifying Official or the authorized delegate should submit the report(s) identified below.

Company Name

Certifying Official (or authorized delegate)

Report Submitted by

I, the Certifying Official or authorized delegate, agree with the statements above and acknowledge that by pressing the "Submit Report(s)" button, I am electronically certifying and submitting the facility report(s) for the identified company to its affiliated programs.

ON MOE TRA - Electronic Certification Statement

Annual Report Certification Statement

TRA Substance List

CAS RN

Substance Name

110-54-3	n-Hexane
110-82-7	Cyclohexane
11104-93-1	Nitrogen oxides (expressed as NO ₂)
127-18-4	Tetrachloroethylene
1313-27-5	Molybdenum trioxide
1330-20-7	Xylene (all isomers)
1332-21-4	Asbestos (friable form only)
630-08-0	Carbon monoxide
67-56-1	Methanol
71-43-2	Benzene
7446-09-5	Sulphur dioxide
7664-39-3	Hydrogen fluoride
7664-93-9	Sulphuric acid
77-73-6	Dicyclopentadiene
7783-06-4	Hydrogen sulphide
91-20-3	Naphthalene
98-82-8	Cumene

NA - 03	Cadmium (and its compounds)
NA - 11	Nickel (and its compounds)
NA - 16	Ammonia (total)
NA - M16	Volatile Organic Compounds (VOCs)
NA - M14	Total reduced sulphur (expressed as hydrogen sulphide)
NA - M10	PM2.5 - Particulate Matter
NA - M09	PM10 - Particulate Matter
NA - M08	Total Particulate Matter
95-63-6	1,2,4-Trimethylbenzene

Company Name

Suncor Energy Products Partnership

Highest Ranking Employee

Mark Hiseler

Report Submitted by

Mark Hiseler

I, the highest ranking employee, agree with the certification statement(s) above and acknowledge that by checking the box I am electronically signing the statement(s). I also acknowledge that by pressing the 'Submit Report(s)' button I am submitting the facility record(s)/report(s) for the identified facility to the Director under the Toxics Reduction Act, 2009. I also acknowledge that the Toxics Reduction Act, 2009 and Ontario Regulation 455/09 provide the authority to the Director under the Act to make certain information as specified in subsection 27(5) of Ontario Regulation 455/09 available to the public.

Submitted Report

Period	Submission	Facility Name	Province	City	Programs
--------	------------	---------------	----------	------	----------

Date

2014	31/05/2015	Sarnia Refinery	Ontario	Sarnia	NPRI, ON MOE TRA, NFPRER
------	------------	-----------------	---------	--------	--------------------------

Note: If there is a change in the contact information for the facility, a change in the owner or operator of the facility, if operations at the facility are terminated, or if information submitted for any previous year was mistaken or inaccurate, please update this information through SWIM or by contacting the National Pollutant Release Inventory directly.