2015 TOXICS REDUCTION ACT

Report on Toxic Substance Accounting Requirements

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

July 2016

Version Control

Version	Date Issued	Modifications
Original	July 2016	Original version made available to the public and employees

Table of Contents

LIST OF ATTACHMENTS

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 2015, the Sarnia Refinery employed 601 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 2015, 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 2015, 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 6th 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	601 (as of December 31, 2015)	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	2015 Reporting Year	2014 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 1,000 to 10,000	> 1,000 to 10,000	9%	548.8442	No significant change
Created (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	9%	3944.2232	No significant change
Contained in Product (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	6%	3395.3790	No significant change
Air Releases (tonnes)	1.3169	1.2940	2%	0.0229	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

4.2 Ammonia (CAS# NA - 16)

Required Information	2015 Reporting Year	2014 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 10 to 100	> 10 to 100	-23%	-4.7499	Change in production levels
Created (tonnes)	> 1,000 to 10,000	> 1,000 to 10,000	0%	0	No significant change
Contained in Product (tonnes)	—	—	—	—	n/a
Air Releases (tonnes)	6.6734	7.0043	-5%	-0.3309	No significant change
Water Releases (tonnes)	9.1957	10.6801	-14%	-1.4844	Decreased discharges
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	2015 Reporting Year	2014 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)	22.0400	3.8900	467%	18.1500	More maintenance completed requiring asbestos insulation removal
Transferred for Recycling (tonnes)	—	—	—	—	n/a

4.4 Benzene (CAS# 71-43-2)

Required Information	2015 Reporting Year	2014 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	>1,000 to 10,000	>1,000 to 10,000	-18%	-1201.2729	Pretreater outage in 2015 resulting in less benzene sent to the pretreater
Created(tonnes)	>10,000 to 100,000	>10,000 to 100,000	13%	4385.7556	Increase in octane levels in 2015 due to higher levels of benzene in reformate
Contained in Product (tonnes)	>10,000 to 100,000	>10,000 to 100,000	8%	3184.4827	No significant change
Air Releases (tonnes)	5.7404	5.8138	-1%	-0.0734	No significant change
Water Releases (tonnes)	0.0016	0.0016	3%	0.0000	No significant change
On-site Disposal (tonnes)	—	—	—	—	n/a
Transferred for Disposal (tonnes)	0.22919	0.0074	2993%	0.22178	Tank 28 (slop) cleanout in 2015
Transferred for Recycling (tonnes)	0.0000	0.1138	-469804%	-0.1138	Tank 28 (slop) cleanout in 2015

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

Required Information	2015 Reporting Year	2014 Reporting Year	Change (%)	Change (kg)	Rationale For Change (if >10%)
Use (kg)	> 1 to 10	> 1 to 10	1%	0.0355	No significant change
Created (kg)	—	—	—	—	n/a
Contained in Product (kg)	—	—	—	—	n/a
Air Releases (kg)	6.5362	6.2133	5%	0.3229	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	2015 Reporting Year	2014 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 1,000 to 10,000	> 10,000 to 100,000	-22%	-2699.1383	Less cyclohexane in crude charge
Created (tonnes)	> 1,000 to 10,000	> 1,000 to 10,000	27%	1688.5807	More cyclohexane produced in HYC
Contained in Product (tonnes)	> 1,000 to 10,000	> 1,000 to 10,000	2%	159.8914	No significant change
Air Releases (tonnes)	4.2120	4.7525	-11%	-0.5404	03-TK-12 changed to “Basestock” from “Regular”
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	2015 Reporting Year	2014 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 100 to 1,000	> 100 to 1,000	9%	71.2646	No significant change
Created (tonnes)	> 1,000 to 10,000	> 1,000 to 10,000	16%	224.8399	Increase of amount created in HYC unit
Contained in Product (tonnes)	> 1,000 to 10,000	> 1,000 to 10,000	7%	153.5753	No significant change
Air Releases (tonnes)	0.5792	0.4263	36%	0.1528	Increased dock loading of Naptha
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	2015 Reporting Year	2014 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if>10%)
Use (tonnes)	> 100 to 1,000	> 1,000 to 10,000	-84%	-1651.7458	Significantly less C9-200 was purchased from NOVA in 2015
Created (tonnes)	—	—	—	—	n/a
Contained in Product (tonnes)	> 1,000 to 10,000	> 1,000 to 10,000	0%	0.000	No significant change
Air Releases (tonnes)	0.00073	0.0023	-68%	-0.0016	<1 kg - insignificant
Water Releases (tonnes)	—	—	—	—	n/a
On-site Disposal (tonnes)	—	—	—	—	n/a
Transferred for Disposal (tonnes)	—	—	—	—	n/a
Transferred for Recycling (tonnes)	—	—	—	—	n/a

4.9 Ethylbenzene (CAS# 100-41-4)

Required Information	2015 Reporting Year	2014 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 1,000 to 10,000	>10,000 to 100,000	-35%	-5096.7796	Amount purchased decreased
Created (tonnes)	>10,000 to 100,000	>10,000 to 100,000	18%	4190.8200	Similar composition to 2014 but higher flow rates
Contained in Product (tonnes)	>10,000 to 100,000	>10,000 to 100,000	-4%	-1615.8134	No significant change
Air Releases (tonnes)	2.2973	2.1224	8%	0.1749	No significant change
Water Releases (tonnes)	—	—	—	—	n/a
On-site Disposal (tonnes)	—	—	—	—	n/a
Transferred for Disposal (tonnes)	0.0021	0.0000	100%	0.0021	Only 2kg difference (insignificant)
Transferred for Recycling (tonnes)	—	—	—	—	—

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

Required Information	2015 Reporting Year	2014 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 10 to 100	> 10 to 100	19%	11.7018	More purchased in 2015
Created (tonnes)	—	—	—	—	n/a
Contained in Product (tonnes)	—	—	—	—	n/a
Air Releases (tonnes)	0.4040	1.5073	-73%	-1.1033	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	2015 Reporting Year	2014 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 10 to 1000	> 1 to 10	8%	0.7720	No significant change
Created (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	21%	8203.7277	More produced in HYC due to turnaround in 2014
Contained in Product (tonnes)	—	—	—	—	n/a
Air Releases (tonnes)	1.6917	5.9512	-72%	-4.2595	Reduction in flaring emissions from all main plant flares
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	2015 Reporting Year	2014 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	>100 to 1,000	>100 to 1,000	-7%	-10.9100	No significant change
Created (tonnes)	—	—	—	—	n/a
Contained in Product (tonnes)	—	—	—	—	n/a
Air Releases (tonnes)	0.0495	0.0562	-12%	-0.0067	LDAR increased number of accessible sources
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	2015 Reporting Year	2014 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	0.0000	> 10 to 100	100%	-56.034	No Molybdenum was loaded as there was no turnaround in 2015 where it was required
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)	—	—	—	—	n/a
Transferred for Recycling (tonnes)	—	—	—	—	n/a

4.14 Naphthalene (CAS# 91-20-3)

Required Information	2015 Reporting Year	2014 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	28%	15189.1783	Naphtha is DHT feed increased
Created (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	-24%	-5485.5446	Naphtha created in HCC and reformer decreased
Contained in Product (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	-1%	-220.5504	No significant change
Air Releases (tonnes)	0.3087	0.2574	20%	0.0514	Increased naphtha loading
Water Releases (tonnes)	—	—	—	—	n/a
On-site Disposal (tonnes)	—	—	—	—	n/a
Transferred for Disposal (tonnes)	0.0378	—	100%	0.0378	Only 37 kg – insignificant
Transferred for Recycling (tonnes)	—	—	—	—	n/a

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

Required Information	2015 Reporting Year	2014 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	-1%	-488.3175	No significant change
Created (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	6%	556.7196	No significant change
Contained in Product (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	5%	2326.9620	No significant change
Air Releases (tonnes)	14.4824	14.3914	1%	0.0919	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	2015 Reporting Year	2014 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	0 to 1	> 10 to 100	-100%	-12.8891	No catalyst with nickel loading in 2015
Created (tonnes)	—	—	—	—	n/a
Contained in Product (tonnes)	—	—	—	—	n/a
Air Releases (tonnes)	0.0291	0.0293	-1%	-0.0002	No significant change
Water Releases (tonnes)	—	—	—	—	n/a
On-site Disposal (tonnes)	—	—	—	—	n/a
Transferred for Disposal (tonnes)	—	—	—	—	n/a
Transferred for Recycling (tonnes)	0.000	7.5809	-100%	-7.5809	No nickel recycling in 2015

4.17 Styrene (CAS# 100-42-5)

Required Information	2015 Reporting Year	2014 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if>10%)
Use (tonnes)	> 10 to 100	> 100 to 1,000	-84%	-408.0784	Significant C9-200 was purchased in 2015
Created (tonnes)	—	—	—	—	n/a
Contained in Product (tonnes)	> 10 to 100	> 100 to 1,000	-84%	-408.0784	Significant C9-200 was purchased in 2015
Air Releases (tonnes)	0.0018	0.0019	-5%	-0.0001	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

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

Required Information	2015 Reporting Year	2014 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 10 to 100	> 10 to 100	15%	8.8200	More purchased in 2015 then 2014
Created (tonnes)	> 1 to 10	> 1 to 10	8%	0.4325	More purchased in 2015 then 2014
Contained in Product (tonnes)	—	—	—	—	n/a
Air Releases (tonnes)	5.3872	5.4047	8%	0.4325	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	2015 Reporting Year	2014 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	-28%	-12599.7298	Decrease in the amount of TX purchased in 2015
Created (tonnes)	> 100,000 to 1,000,000	> 100,000 to 1,000,000	19%	22849.7669	Higher flow rate of reformer stabilizer bottoms in 2015
Contained in Product (tonnes)	> 100,000 to 1,000,000	> 100,000 to 1,000,000	4%	7050.0701	No significant change
Air Releases (tonnes)	32.9591	34.4321	-4%	-1.4730	No significant change
Water Releases (tonnes)	0.0024	0.0013	86%	0.0011	<2 kg – insignificant
On-site Disposal (tonnes)	—	—	—	—	n/a
Transferred for Disposal (tonnes)	—	—	—	—	n/a
Transferred for Recycling (tonnes)	—	—	—	—	n/a

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

Required Information	2015 Reporting Year	2014 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	-28%	-6565.9513	Decrease in the amount of TX purchased in 2015
Created (tonnes)	> 100,000 to 1,000,000	> 100,000 to 1,000,000	22%	29142.9067	More xylene made in reformer unit
Contained in Product (tonnes)	> 100,000 to 1,000,000	> 100,000 to 1,000,000	12%	19301.0677	More xylene made in reformer unit
Air Releases (tonnes)	21.4159	19.6948	9%	1.7212	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

4.21 Total Reduced Sulfur (CAS# NA-M14)

Required Information	2015 Reporting Year	2014 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 100 to 1,000	> 100 to 1,000	7%	23.6255	No significant change
Created (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	21%	8203.7277	More produced in HYC and DHT because of turnaround in 2014 which depressed the values
Contained in Product (tonnes)	> 10 to 100	> 10 to 100	-7%	-2.8898	No significant change
Air Releases (tonnes)	1.6917	5.9512	-72%	-4.2595	Reduction in flaring emissions from all plant main flares
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	2015 Reporting Year	2014 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	0 to 1	> 10 to 100	-97%	-14.4448	Less purchased in 2015 as none was needed for the reformer
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)	—	—	—	—	n/a
Transferred for Recycling (tonnes)	—	—	—	—	n/a

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

Required Information	2015 Reporting Year	2014 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	—	—	—	—	n/a
Created (tonnes)	> 100 to 1,000	> 100 to 1,000	4%	34.1334	No significant change
Air Releases (tonnes)	823.4982	789.3648	4%	34.1335	No significant change

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

Required Information	2015 Reporting Year	2014 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	-5%	-234.2756	No significant change
Air Releases (tonnes)	4843.0319	5077.3076	-5%	-234.2756	No significant change

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

Required Information	2015 Reporting Year	2014 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	—	—	—	—	n/a
Created (tonnes)	> 100 to 1,000	> 100 to 1,000	-64%	-402.7430	Less flaring as no turnarounds in 2015
Air Releases (tonnes)	224.2032	626.9462	-64%	-402.7430	Less flaring as no turnarounds in 2015

4.26 Total Particulate Matter (CAS# NA - M08)

Required Information	2015 Reporting Year	2014 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	—	—	—	—	n/a
Created (tonnes)	> 100 to 1,000	> 100 to 1,000	-4%	-6.1191	No significant change
Air Releases (tonnes)	142.1789	148.2979	-4%	-6.1191	No significant change

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

Required Information	2015 Reporting Year	2014 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	—	—	—	—	n/a
Created (tonnes)	> 10 to 100	> 10 to 100	-3%	-2.9199	No significant change
Air Releases (tonnes)	75.3535	78.2734	-3%	-2.9199	No significant change

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

Required Information	2015 Reporting Year	2014 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	—	—	—	—	n/a
Created (tonnes)	> 10 to 100	> 10 to 100	-2%	-0.4785	No significant change
Air Releases (tonnes)	26.1520	26.6305	-2%	-0.4785	No significant change

4.29 Propane (CAS# 74-98-6)

Required Information	2015 Reporting Year	2014 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	-11%	-2142.2069	Less propane coming in with crude
Created (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	8%	4737.8272	No significant change
Air Releases (tonnes)	5.2108	16.2109	-68%	-11.0000	Reduction in flaring emissions from all main plant flares

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

Required Information	2015 Reporting Year	2014 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 100,000 to 1,000,000	> 100,000 to 1,000,000	-8%	-9263.9957	No significant change
Created (tonnes)	> 100,000 to 1,000,000	> 100,000 to 1,000,000	-6%	-10227.7836	No significant change
Air Releases (tonnes)	27.1534	48.4006	-44%	-27.2471	Reduction in flaring emissions from all main plant flares

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

Required Information	2015 Reporting Year	2014 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	2%	1001.7905	No significant change
Created (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	-3%	-586.5255	No significant change
Air Releases (tonnes)	4.0697	6.0003	-32%	-1.9306	Reduction in flaring emissions from all main plant flares

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

Required Information	2015 Reporting Year	2014 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	-8%	-4701.6151	No significant change
Created (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	22%	15820.5109	More created in HYC in 2015
Air Releases (tonnes)	2.4082	2.3424	3%	0.0658	No significant change

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

Required Information	2015 Reporting Year	2014 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	-7%	-3395.9953	No significant change
Created (tonnes)	> 100,000 to 1,000,000	> 100,000 to 1,000,000	-2%	-2367.8620	No significant change
Air Releases (tonnes)	2.0672	5.1450	-60%	-3.0078	Reduction in flaring emissions from all main plant flares

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

Required Information	2015 Reporting Year	2014 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	1%	444.0079	No significant change
Created (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	25%	15708.3925	More was made in HYC than 2014
Air Releases (tonnes)	0.6462	0.6846	-6%	-0.0384	No significant change

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

Required Information	2015 Reporting Year	2014 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	-6%	-3710.6606	No significant change
Created (tonnes)	> 100,000 to 1,000,000	> 100,000 to 1,000,000	9%	18893.6631	No significant change
Air Releases (tonnes)	3.0755	3.3225	-7%	-0.2470	No significant change

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

Required Information	2015 Reporting Year	2014 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 10,000 to 100,000	> 10,000 to 100,000	5%	4049.2981	No significant change
Created (tonnes)	> 100,000 to 1,000,000	> 100,000 to 1,000,000	16%	18780.5706	Increase in flowrate in HYC and increase in composition in HCC
Air Releases (tonnes)	5.8394	10.4207	-44%	-4.5814	Reduction in flaring emissions from all main plant flares

4.37 Propylene (CAS# 115-07-1)

Required Information	2015 Reporting Year	2014 Reporting Year	Change (%)	Change (tonnes)	Rationale For Change (if >10%)
Use (tonnes)	> 10 to 100	> 100 to 1,000	-60%	-80.7855	Change in production levels
Created (tonnes)	> 100 to 1,000	> 100 to 1,000	-1%	-2.1684	No significant change
Air Releases (tonnes)	1.8083	1.9505	-7%	-0.1422	No significant change

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

English

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

Suncor Energy Products Partnership

Certifying Official (or authorized delegate)

Ken Bisgrove

Report Submitted by

Mark Hiseler

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
100-41-4	Ethylbenzene
100-42-5	Styrene
108-88-3	Toluene

110-54-3	n-Hexane
110-82-7	Cyclohexane
11104-93-1	Nitrogen oxides (expressed as NO2)
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

Website address

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 Date	Facility Name	Province	City	Programs
2015	31/05/2016	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.