

TRA ANNUAL SUMMARY REPORT
OPERATIONAL COMPARISON 2017-2018

BASIC FACILITY INFORMATION

Company Name: Rothsay, a Division of Darling International Canada Inc.
880 Highway #5
Dundas, ON N9H 5E2

Contact Information: John Bayliss
Environmental Manager
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Certifying Official: Greg Cooper
Plant Manager
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Plant Location (UTM): Zone 17
580111E; 4793426N

Canadian Head Office: Darling International Canada Inc.
485 Pinebush Road, Unit 101
Cambridge, ON
519-780-3342

Parent Company: Darling Ingredients Inc.
5601 N MacArthur Boulevard
Irving, TX 75038

The facility's NPRI ID: 5987

NAICS Code: 311614

In 2018, the Rothsay Dundas plant ("Rothsay – Dundas") employed approximately 168 full time employees (equivalent).

Rothsay – Dundas reported on the use and creation of six (6) toxic substances including:

- Total Particulate Matter (TPM);
- Particulate Matter \leq 10 microns (PM₁₀);
- Particulate Matter \leq 2.5 microns (PM_{2.5});
- Ammonia;
- Sulphuric Acid; and
- Phosphorous.

The Statement of Intent, Reduction Objectives and Plan Summary Statements are provided below for each of the reportable toxic substances.

PARTICULATE MATTER (TPM, PM₁₀, PM_{2.5})

All forms of Particulate Matter are a by-product created during the supporting operations of combustion. Additional particulate matter is created from activities associated with road dust and vehicle traffic.

As all three (3) of these substances follow a similar process, one collective TRA plan has been developed for TPM, PM₁₀ and PM_{2.5}.

Toxic Reduction Policy Statement of Intent

Rothsay – Dundas does not intend to reduce the creation of Particulate Matter as it is a product of the combustion of natural gas. Combustion is the key heating source in Rothsay – Dundas operations and natural gas is the most efficient environmentally responsible fuel source with currently no technically feasible alternative. Rothsay – Dundas is committed to reducing the use, creation, or transfer of toxic substances in its process wherever it is found to be technically and economically feasible.

Reduction Objectives

Rothsay – Dundas is committed to having all employees be actively involved in the reduction of toxic substance use, creation and releases. Particulate Matter (TPM, PM₁₀, PM_{2.5}) are all by-products from the combustion of natural gas to generate steam, which is an essential processing requirement for operations. The boiler system is operated with natural gas, one of the most efficient fuel sources. The system is optimized to achieve the greatest efficiency to reduce the natural gas requirements but still maintaining production steam demand. Currently, there is no technically and economically feasible alternative for the boiler system or the use of natural gas.

Plan Summary Statement

This plan summary accurately reflects the content of the toxic substance reduction plan for Particulate Matter (TPM, PM₁₀ and PM_{2.5}) prepared on behalf of Rothsay – Dundas, dated 31 December 2014. There is no technically feasible option to reduce the creation of Particulate Matter (TPM, PM₁₀, PM_{2.5}) from the combustion of natural gas and there are no technically feasible options to reduce the creation of Particulate Matter (TPM, PM₁₀, PM_{2.5}) associated with vehicular traffic for Rothsay – Dundas operations.

AMMONIA

Ammonia is a toxic substance that is a by-product created on-site as a result of processing animal by-products through the rendering process. The number associated with the TRA reporting through NPRI for Ammonia is NA-16.

Toxic Reduction Policy Statement of Intent

Rothsay – Dundas does not intend to reduce the creation of Ammonia as it is created from the organic content in the wastewater process and dependent on the feed materials. Rendering is an environmental responsible process to transform raw material (inedible animal by-products) into useable feed and fuel ingredients. The organic nature of the raw material results in the transfer and generation of Ammonia to the wastewater stream. There has been a significant investment in the wastewater system, where technically feasible, to optimize the wastewater handling and treatment system to ensure the Ammonia is not released into the natural environment beyond regulated concentrations. Rothsay – Dundas is committed to reducing the use, creation, or transfer of toxic substances in its process wherever it is found to be technically and economically feasible.

Reduction Objective

Rothsay – Dundas is committed to having all employees be actively involved in the reduction of toxic substance use, creation and releases. Ammonia is created as a result of the processing of organic, animal by-product materials. Currently, there is no technically feasible technology or technique that would remove, reduce or limit the Ammonia content within the animal by-products prior to the matter being received at the Rothsay – Dundas facility.

Plan Summary Statement

This plan summary accurately reflects the content of the toxic substance reduction plan for Ammonia prepared on behalf of Rothsay – Dundas dated 31 December 2014. There is currently no technically feasible option for Rothsay – Dundas to reduce the creation of Ammonia in the wastewater stream as it is inherent to the raw materials being processed and transferred to the wastewater for on-site treatment.

SULPHURIC ACID

Sulphuric Acid is a toxic substance that is used as a process aid within the wastewater treatment system. The CAS number associated with the TRA reporting through NPRI for Sulphuric Acid is 7764-93-9.

Toxic Reduction Policy Statement of Intent

Rothsay – Dundas does not intend to reduce the use of Sulphuric Acid in its process due to the lack of a technically feasible alternative. There has been a significant investment in the improvement of the wastewater treatment system to implement advance treatment technology. Sulphuric Acid is used within the wastewater treatment process as a processing aid and it has been determined to be the most efficient and environmentally responsible substance to be used for its purpose. Rothsay – Dundas is committed to reducing the use, creation, or transfer of toxic substances in its process wherever it is found to be technically and economically feasible.

Reduction Objective

Rothsay – Dundas is committed to having all employees be actively involved in the reduction of toxic substance use, creation and releases. Sulphuric Acid is a processing aid required by the wastewater treatment system. The operation is optimized to ensure minimal quantities of Sulphuric Acid are used. Currently, there is no technically feasible technology or technique that would remove, reduce or limit the amount of Sulphuric Acid required to operate the wastewater system in an environmentally responsible manner.

Plan Summary Statement

This plan summary accurately reflects the content of the toxic substance reduction plan for Sulphuric Acid prepared on behalf of Rothsay – Dundas dated 31 December 2014. There are no technically feasible options to implement at Rothsay – Dundas to reduce the use of Sulphuric Acid as a wastewater processing aid.

PHOSPHOROUS

Phosphorous is a toxic substance that is a by-product created on-site as a result of processing animal by-products through the rendering process. The number associated with the TRA reporting through NPRI for Phosphorous is NA-22.

Toxic Reduction Policy Statement of Intent

Rothsay – Dundas does not intend to reduce the creation of Phosphorous as it is created from the organic content in the wastewater process and dependent on the feed materials. Rendering is an environmental responsible process to transform raw material (inedible animal by-products) into useable feed and fuel ingredients. The organic nature of the raw material results in the transfer and generation of Phosphorous to the wastewater stream. There has been a significant

investment in the wastewater system, where technically feasible, to optimize the wastewater handling and treatment system to ensure the Phosphorous is not released into the natural environment beyond regulated concentrations. Rothsay – Dundas is committed to reducing the use, creation, or transfer of toxic substances in its process wherever it is found to be technically and economically feasible.

Reduction Objective

Rothsay – Dundas is committed to having all employees be actively involved in the reduction of toxic substance use, creation and releases. Phosphorous is created as a result of the processing of organic, animal by-product materials. Currently, there is no technically feasible technology or technique that would remove, reduce or limit the Phosphorous content within the animal by-products prior to the matter being received at the Rothsay – Dundas facility.

Plan Summary Statement

This plan summary accurately reflects the content of the toxic substance reduction plan for Phosphorous prepared on behalf of Rothsay – Dundas dated 17 September 2018. There is currently no technically feasible option for Rothsay – Dundas to reduce the creation of Phosphorous in the wastewater stream as it is inherent to the raw materials being processed and transferred to the wastewater for on-site treatment.

TRACKING AND QUANTIFICATIONS

The method used to calculate the TRA quantifications was a mass balance approach based on purchase records and emission estimates were based on published AP-42 emission factors. This is the best available method as there is no site-specific monitoring data available.

Table 1 is a summary of reported TRA quantities for the 2018 operational year. There were significant changes in some of the substances reported from the 2017 operational year.

In the 2018 operational year, there were no incidents out of the ordinary and no significant process changes at Rothsay – Dundas.

COMPARISON OF TRACKING & QUANTIFICATION

No changes were made in the quantification and tracking methodology from 2017 to 2018.

DESCRIPTION OF STEPS TAKEN TO ACHIEVE OBJECTIVE & ASSESS EFFECTIVENESS

There were no technologically feasible reduction strategy objectives identified for the Rothsay – Dundas facility; therefore, no economic feasibility study was completed for any of the prescribed substances.

Table 1: Comparison of Quantities Reported

CAS	Substance	Description of Processes that Use or Create Substance	Reporting under NPRI Part	NPRI Threshold (tonnes)	Used			Created			Contained in Product			Reason for Changes
					2018 (tonnes)	2017 (tonnes)	% Change	2018 (tonnes)	2017 (tonnes)	% Change	2018 (tonnes)	2017 (tonnes)	% Change	
NA-M08	TPM - Total Particulate Matter	Supporting Operations	Part 4	20 (MPO)	0	0	0%	>1 - 10	>1 - 10	54%	0	0	0%	Addressed error in 2017 calculation.
NA-M09	PM ₁₀ - Particulate Matter	Supporting Operations	Part 4	0.5 (Release)	0	0	0%	>1 - 10	>1 - 10	8%	0	0	0%	No significant change.
NA-M10	PM _{2.5} - Particulate Matter	Supporting Operations	Part 4	0.3 (Release)	0	0	0%	>1 - 10	>1 - 10	8%	0	0	0%	No significant change.
NA - 16	Ammonia	Created	Part 1	10 (MPO)	0	0	0%	>100-1000	>100-1000	17%	0	0	0%	Increased wastewater loadings.
7764-93-9	Sulphuric Acid	Supporting Operations	Part 1	10 (MPO)	>10-100	>10-100	-0.5%	0	0	0%	0	0	0%	No significant change.
7664-93-9	Phosphorous	Created	Part 1	10 (MPO)	0	0	0%	>10-100	>10-100	-8.9%	0	0	N/A	No significant change.

There are no objectives to track or reduction targets to evaluate.

Table 2 provides a summary of the facility TRA changes and updates which took place in 2018.

Table 2: Comparison in Quantification, Quantities and Plan Updates

CAS	Substance	Quantification Method(s) Used	Change in Quantification Method Used	Rationale for Using Selected Method(s)	Incidents out of the Ordinary	Significant Process Change	Objectives, Descriptions, Targets	Actions	Amendments
NA-M08	TPM - Total Particulate Matter	Mass Balance/ Emission Factors	No change	No site specific monitoring data available	No	No	No reduction options were identified to be both technically and economically feasible. Therefore, no options were chosen for implementation.	None	None
NA-M09	PM ₁₀ - Particulate Matter	Mass Balance/ Emission Factors	No change	No site specific monitoring data available	No	No	No reduction options were identified to be both technically and economically feasible. Therefore, no options were chosen for implementation.	None	None
NA-M10	PM _{2.5} - Particulate Matter	Mass Balance/ Emission Factors	No change	No site specific monitoring data available	No	No	No reduction options were identified to be both technically and economically feasible. Therefore, no options were chosen for implementation.	None	None
NA - 16	Ammonia	Mass Balance/ Emission Factors	No change	No site specific monitoring data available	No	No	No reduction options were identified to be both technically and economically feasible. Therefore, no options were chosen for implementation.	None	None
7764-93-0	Sulphuric Acid	Mass Balance/ Emission Factors	No change	No site specific monitoring data available	No	No	No reduction options were identified to be both technically and economically feasible. Therefore, no options were chosen for implementation.	None	None
7664-93-9	Phosphorous	Mass Balance/ Emission Factors	No change	No site specific monitoring data available	No	No	No reduction options were identified to be both technically and economically feasible. Therefore, no options were chosen for implementation.	None	None

Certification by Highest Ranking Employee

As of 31 December 2014, I, Arlen Bolan, certify that I have read the toxic substance reduction plan for sulphuric acid and am familiar with its content, and to my knowledge the plan is factually accurate and complies with the **Toxic Reduction Act, 2009** and **Ontario Regulation 455/09 (General)** made under that Act.

Sulphuric Acid (CAS # 7664-93-9)



Date 31 December 2014

Arlen Bolan, P.Eng, Plant Manager
Rothsay, Darling International

Certification by Highest Ranking Employee

As of 31 December 2014, I, Arlen Bolan, P.Eng., certify that I have read the toxic substance reduction plan for ammonia and am familiar with its content, and to my knowledge the plan is factually accurate and complies with the **Toxic Reduction Act, 2009** and **Ontario Regulation 455/09 (General)** made under that Act.

Ammonia (NH₃) NA-16



31 December 2014
Date

Arlen Bolan, P.Eng, Plant Manager
Rothsay, Darling International

Certification by Highest Ranking Employee

As of 31 December 2014, I, Arlen Bolan, certify that I have read the toxic substance reduction plan for toxic substances referred to below and am familiar with its content, and to my knowledge the plan is factually accurate and complies with the **Toxic Reduction Act, 2009** and **Ontario Regulation 455/09 (General)** made under that Act.

Particulate Matter – total	NA-M08
Particulate Matter <= 10 microns (PM10)	NA-M09
Particulate Matter <= 2.5 microns (PM2.5)	NA-M10



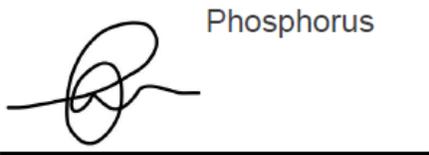
Date 31 December 2014

Arlen Bolan, P.Eng, Plant Manager
Rothsay, Darling International

Although there have been no changes to the operations at Rothsay – Dundas, the manufacture, process, or otherwise use of the toxic substance, there has been a change in the Rothsay – Dundas plant management. Therefore, to ensure continuity with the Toxic Reduction Plan and the substances under which this site is required to manage and report the following is a certification by the Highest-Ranking Employee as of 30 May 2018.

Certification by Highest Ranking Employee

As of 17 September 2018, I, Greg Cooper, certify that I have read the Toxic Substance Reduction Plan for toxic substances referred to below and am familiar with its content, and to my knowledge the plan is factually accurate and complies with the Toxic Reduction Act, 2009 and Ontario Regulation 455/09 (General) made under the Act.



Phosphorus NA-22

17 September 2018

Greg Cooper
Plant Manager

Date

Certification by Highest Ranking Employee

As of 30 May 2019, I, Greg Cooper, certify that I have read the toxic substance reduction plan for toxic substances referred to below and am familiar with its content, and to my knowledge the plan is factually accurate and complies with the **Toxics Reduction Act, 2009** and **Ontario Regulation 455/09 (General)** made under that Act.

7664-93-9	Sulphuric Acid
NA-16	Ammonia (NH ₃)
NA-M08	Particulate Matter – Total
NA-M09	Particulate Matter <= 10 microns (PM ₁₀)
NA-M10	Particulate Matter <= 2.5 microns (PM _{2.5})
NA-22	Phosphorous



Greg Cooper, Plant Manager
Rothsay, Dundas Plant

30 May 2019

Date: