
Imperial Oil
Products and Chemicals Division
P.O. Box 3004
Sarnia ON N7T 7M5

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Sarnia Refinery – Toxic substance reduction plan summary

Provincial legislation sets out requirements for business owners to inform Ontarians about the use and creation of reportable substances in their communities. Under the Toxics Reduction Act 2009 (TRA), companies are required to develop reduction plans for prescribed substances.

Petroleum refineries process crude oil to manufacture finished products, such as gasoline and heating oil, that are used and valued by our society. Crude oil may contain varying quantities of the substances covered under the TRA. Through the tightly controlled multi-step refinery operation, a variety of substances are used and modified within contained piping and vessels. Finished products are regulated for both content (sulphur levels, for example) and use (pollution controls and higher mileage vehicles). In addition, Imperial Oil has comprehensive programs in place at all of its facilities to reduce waste, to prevent spills and leaks, to reduce fugitive emissions, and to train personnel on the environmental responsibilities of their role.

The following summary of the reduction plans has been prepared in accordance with Section 8 of the TRA and the requirements of Section 24 of Ontario Regulation 455/09, as amended from time to time.

Plan Summary Preview

Company Details

Company Legal Name:

Imperial Oil

Company Address:

237 4th Avenue Southwest, Calgary (Alberta)

Report Details

Facility:

Sarnia Refinery Plant

Facility Address:

602 Christina Street South, Sarnia (Ontario)

Update Comments:

Activities

Facility Contacts

Facility Contacts

Public Contact:*

Jon Harding

Highest Ranking Employee:

Brian Fairley

Person responsible for preparing the toxic substance reduction plan:

Charles Mortley-Wood

Organization Validation

Company and Parent Company Information

Company Details

Company Legal Name:*

Imperial Oil

Company Trade Name:*

Imperial Oil

Business Number:*

Mailing Address

Delivery Mode:

PO Box

Rural Route Number

Address Line 1

City*

Province/Territory**

Postal Code:**

Physical Address

Address Line 1

City

Province/Territory

Postal Code

Additional Information

Land Survey Description

National Topographical Description

Parent Companies

Facility Validation

Facility Information

Facility:*

NAICS Id:*

NPRI Id:*

ON Reg 127/01 Id:

Mailing Address

Delivery Mode:	Post Office Box
PO Box	3004
Rural Route Number	
Address Line 1	602 Christina Street South
City*	Sarnia
Province/Territory**	Ontario
Postal Code:**	N7T7M5

Physical Address

Address Line 1	602 Christina Street South
City	Sarnia
Province/Territory	Ontario
Postal Code	N7T7M5
Additional Information	Values entered for TRA and NPRI are reported to the first decimal place to represent their estimated accuracies while SWIM is designed to show the fourth decimal place.
Land Survey Description	
National Topographical Description	

Geographical Address

Latitude	42.95420
Longitude	-82.41580
UTM Zone**	17
UTM Easting**	385773.59
UTM Northing**	4756731.82

Contact Validation

Contacts

Public Contact:

First Name:*	<input type="text" value="Jon"/>
Last Name:*	<input type="text" value="Harding"/>
Position:*	<input type="text" value="Public Contact"/>
Telephone:*	<input type="text" value="5193394015"/>
Ext:	<input type="text"/>
Fax:	<input type="text" value="5193394491"/>
Email:*	<input type="text" value="jon.s.harding@esso.ca"/>

Mailing Address

Delivery Mode:	<input type="text" value="General Delivery"/>
PO Box	<input type="text"/>
Rural Route Number	<input type="text"/>
Address Line 1	<input type="text" value="602 Christina Street South"/>
City*	<input type="text" value="Sarnia"/>
Province/Territory**	<input type="text" value="Ontario"/>
Postal Code:**	<input type="text" value="N7T 7M5"/>

Highest Ranking Employee:

First Name:*	<input type="text" value="Brian"/>
Last Name:*	<input type="text" value="Fairley"/>
Position:*	<input type="text" value="Refinery Manager"/>
Telephone:*	<input type="text" value="5193392401"/>
Ext:	<input type="text"/>

Fax:

Email:*

Mailing Address

Delivery Mode:

PO Box

Rural Route Number

Address Line 1

City*

Province/Territory**

Postal Code:**

Person responsible for the Toxic Substance Reduction Plan preparation:

First Name:*

Last Name:*

Position:*

Telephone:*

Ext:

Fax:

Email:*

Mailing Address

Delivery Mode:

PO Box

Rural Route Number

Address Line 1

City*

Sarnia

Province/Territory**

Ontario

Postal Code:**

N7T7M5

Employees

Employees

Number of Full-time Employees:*

331

Substances

109-99-9, Tetrahydrofuran

109-99-9, Tetrahydrofuran

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance?:**

Tetrahydrofuran is not currently used at the facility

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?:**

Tetrahydrofuran is not created at the facility

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Tetrahydrofuran was not detected at measurable concentrations in any of the Refinery inputs or outputs and is not created. As such, no technically and economically feasible options to reduce use and/or creation were identified

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input style="width: 100%;" type="text"/>	<input style="width: 100%;" type="text"/>

Timeframe target:*

No target or years

Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input style="width: 100%;" type="text"/>	<input style="width: 100%;" type="text"/>

Timeframe target:*

No target or years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

This substance is not used at the facility

Summarize why this substance is used at the facility:**

Tetrahydrofuran is not currently used at the facility

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

This substance is not created at the facility

Summarize why this substance is created at the facility:**

Tetrahydrofuran is not created at the facility

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

Yes

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented.**

No reduction options were identified that are expected to reduce the use or creation of Tetrahydrofuran at Imperial Oil's Sarnia refinery. Tetrahydrofuran was not detected in measureable concentrations in any inputs, outputs and is not created at the Refinery. As such, Imperial Oil does not intend to implement any options to reduce the use or creation of Tetrahydrofuran at the Sarnia Refinery

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

TSRP0071

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

TSRP0071

Which version of the plan is reflected in this summary?*

New Plan

110-54-3, n-Hexane

110-54-3, n-Hexane

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance?:**

Sarnia refinery is in the business of extracting and producing N-Hexane from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?:**

Sarnia refinery is in the business of extracting and producing N-Hexane from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

While Imperial Oil has not identified any options to reduce the use or creation of N-Hexane at the Sarnia refinery, various projects at Sarnia refinery are expected to reduce fugitive emissions of N-Hexane in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

<input checked="" type="checkbox"/> No target	or	<input type="text"/> years
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Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

<input checked="" type="checkbox"/> No target	or	<input type="text"/> years
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Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

Summarize why this substance is used at the facility:**

N-Hexane is currently used at the facility and enters the refinery in various feedstock including crude oil. Sarnia refinery is in the business of extracting and producing N-Hexane from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

As a by-product

Summarize why this substance is created at the facility:**

N-Hexane is created at the facility through the complex chemical reactions occurring in the refineries conversion units.

Sarnia refinery is in the business of extracting and producing N-Hexane from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

Yes

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented.**

Sarnia refinery is in the business of producing finished products that utilize N-Hexane from crude oil to achieve finished product specifications. No reduction options were identified to reduce the use or creation of N-Hexane at Imperial Oil's Sarnia refinery.

Various projects at Sarnia refinery are expected to reduce fugitive emissions of N-Hexane in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this

substance (format TSRPXXXX):*

TSRP0071

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

TSRP0071

Which version of the plan is reflected in this summary?*

New Plan

115-07-1, Propylene

115-07-1, Propylene

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance?:**

Propylene is currently used at the facility and enters the refinery in various feedstock including crude oil.

Sarnia refinery is in the business of extracting and producing Propylene from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?:**

Propylene is created at the facility through the complex chemical reactions occurring in the refineries conversion units.

Sarnia refinery is in the business of extracting and producing Propylene from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

While Imperial Oil has not identified any options to reduce the use or creation of Propylene at the Sarnia refinery, various projects at Sarnia refinery are expected to reduce fugitive emissions of Propylene in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input style="width: 100%;" type="text"/>	<input style="width: 100%;" type="text"/>

Timeframe target:*

No target or years

Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input style="width: 100%;" type="text"/>	<input style="width: 100%;" type="text"/>

Timeframe target:*

No target or years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

Summarize why this substance is used at the facility:**

Propylene is currently used at the facility and enters the refinery in various feedstock including crude oil. Sarnia refinery is in the business of extracting and producing Propylene from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

As a by-product

Summarize why this substance is created at the facility:**

Propylene is created at the facility through the complex chemical reactions occurring in the refineries conversion units. Sarnia refinery is in the business of extracting and producing Propylene from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

Yes

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented:**

Sarnia refinery is in the business of producing finished products that utilize Propylene from crude oil to achieve finished product specifications. No reduction options were identified to reduce the use or creation of Propylene at Imperial Oil's Sarnia refinery. Various projects at Sarnia refinery are expected to reduce fugitive emissions of Propylene in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

Which version of the plan is reflected in this summary?*

25167-67-3, Butene (all isomers)

25167-67-3, Butene (all isomers)

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance?**

Butene (all isomers) is currently used at the facility and enters the refinery in various feedstock including crude oil.

Sarnia refinery is in the business of extracting and producing Butene (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?:**

Butene (all isomers) is created at the facility through the complex chemical reactions occurring in the refineries conversion units.

Sarnia refinery is in the business of extracting and producing Butene (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

While Imperial Oil has not identified any options to reduce the use or creation of Butene (all isomers) at the Sarnia refinery, various projects at Sarnia refinery are expected to reduce fugitive emissions of Butene (all isomers) in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

No target or years

Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

No target or years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

As a by-product

Summarize why this substance is used at the facility:**

Butene (all isomers) is currently used at the facility and enters the refinery in various feedstock including crude oil.

Sarnia refinery is in the business of extracting and producing Butene (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

As a by-product

Summarize why this substance is created at the facility:**

Butene (all isomers) is created at the facility through the complex chemical reactions occurring in the refineries conversion units.

Sarnia refinery is in the business of extracting and producing Butene (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

Yes

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented:**

Sarnia refinery is in the business of producing finished products that utilize Butene (all isomers) from crude oil to achieve finished product specifications. No reduction options were identified to reduce the use or creation of Butene (all isomers) at Imperial Oil's Sarnia refinery.

Various projects at Sarnia refinery are expected to reduce fugitive emissions of Butene (all isomers) in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

TSRP0071

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

TSRP0071

Which version of the plan is reflected in this summary?*

New Plan

25264-93-1, Hexene (all isomers)

25264-93-1, Hexene (all isomers)

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance?***

Hexene (all isomers) is currently used at the facility and enters the refinery in various feedstock including crude oil.

Sarnia refinery is in the business of extracting and producing Hexene (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?:**

Hexene (all isomers) is created at the facility through the complex chemical reactions occurring in the refineries conversion units.

Sarnia refinery is in the business of extracting and producing Hexene (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

While Imperial Oil has not identified any options to reduce the use or creation of Hexene (all isomers) at the Sarnia refinery, various projects at Sarnia refinery are expected to reduce fugitive emissions of Hexene (all isomers) in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

No target or years

Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

	Quantity	Unit

No target

or

Timeframe target:*

No target

or

years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

As a by-product

Summarize why this substance is used at the facility:**

Hexene (all isomers) is currently used at the facility and enters the refinery in various feedstock including crude oil.

Sarnia refinery is in the business of extracting and producing Hexene (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

As a by-product

Summarize why this substance is created at the facility:**

Hexene (all isomers) is created at the facility through the complex chemical reactions occurring in the refineries conversion units.

Sarnia refinery is in the business of extracting and producing Hexene (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

Yes

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented.**

Sarnia refinery is in the business of producing finished products that utilize Hexene (all isomers) from crude oil to achieve finished product specifications. No reduction options were identified to reduce the use or creation of Hexene (all isomers) at Imperial Oil's Sarnia refinery.

Various projects at Sarnia refinery are expected to reduce fugitive emissions of Hexene (all isomers) in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

TSRP0071

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

TSRP0071

Which version of the plan is reflected in this summary?*

New Plan

25551-13-7, Trimethylbenzene (all isomers excluding 1,2,4-Trimethylbenzene)

25551-13-7, Trimethylbenzene (all isomers excluding 1,2,4-Trimethylbenzene)

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance?***

Trimethylbenzene (all isomers excluding 1, 2, 4-Trimethylbenzene) is currently used at the facility and enters the refinery in various feedstock including crude oil.

Sarnia refinery is in the business of extracting and producing Trimethylbenzene (all isomers excluding 1, 2, 4-Trimethylbenzene) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?***

Trimethylbenzene (all isomers excluding 1, 2, 4-Trimethylbenzene) is created at the facility through the complex chemical reactions occurring in the refineries conversion units.

Sarnia refinery is in the business of extracting and producing Trimethylbenzene (all isomers excluding 1, 2, 4-Trimethylbenzene) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

While Imperial Oil has not identified any options to reduce the use or creation of Trimethylbenzene (all isomers excluding 1, 2, 4-Trimethylbenzene) at the Sarnia refinery, various projects at Sarnia refinery are expected to reduce fugitive emissions of Trimethylbenzene (all isomers excluding 1, 2, 4-Trimethylbenzene) in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Toxic Substance Use Targets

Reduction target:*

Quantity

Unit

No target

or

Timeframe target:*

No target

or

years

Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

Quantity

Unit

No target

or

Timeframe target:*

No target

or

years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

As a by-product

Summarize why this substance is used at the facility:**

Trimethylbenzene (all isomers excluding 1, 2, 4-Trimethylbenzene) is currently used at the facility and enters the refinery in various feedstock including crude oil.

Sarnia refinery is in the business of extracting and producing Trimethylbenzene (all isomers excluding 1, 2, 4-Trimethylbenzene) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

As a by-product

Summarize why this substance is created at the facility:**

Trimethylbenzene (all isomers excluding 1, 2, 4-Trimethylbenzene) is created at the facility through the complex chemical reactions occurring in the refineries conversion units.

Sarnia refinery is in the business of extracting and producing Trimethylbenzene (all isomers excluding 1, 2, 4-Trimethylbenzene) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

Yes

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented:**

Sarnia refinery is in the business of producing finished products that utilize Trimethylbenzene (all isomers excluding 1, 2, 4-Trimethylbenzene) from crude oil to achieve finished product specifications. No reduction options were identified to reduce the use or creation of Trimethylbenzene (all isomers excluding 1, 2, 4-Trimethylbenzene) at Imperial Oil's Sarnia refinery.

Various projects at Sarnia refinery are expected to reduce fugitive emissions of Trimethylbenzene (all isomers excluding 1, 2, 4-Trimethylbenzene) in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

TSRP0071

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

TSRP0071

Which version of the plan is reflected in this summary?*

New Plan

74-85-1, Ethylene

74-85-1, Ethylene

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance? **

Ethylene is currently used at the facility and enters the refinery in various feedstock including crude oil.

Sarnia refinery is in the business of extracting and producing Ethylene from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?:**

Ethylene is created at the facility through the complex chemical reactions occurring in the refineries conversion units.

Sarnia refinery is in the business of extracting and producing Ethylene from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

While Imperial Oil has not identified any options to reduce the use or creation of Ethylene at the Sarnia refinery, various projects at Sarnia refinery are expected to reduce fugitive emissions of Ethylene in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

No target or years

Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

No target or years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

As a by-product

Summarize why this substance is used at the facility:**

Ethylene is currently used at the facility and enters the refinery in various feedstock including crude oil. Sarnia refinery is in the business of extracting and producing Ethylene from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

As a by-product

Summarize why this substance is created at the facility:**

Ethylene is created at the facility through the complex chemical reactions occurring in the refineries conversion units.

Sarnia refinery is in the business of extracting and producing Ethylene from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

Yes

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented.**

Sarnia refinery is in the business of producing finished products that utilize Ethylene from crude oil to achieve finished product specifications. No reduction options were identified to reduce the use or creation of Ethylene at Imperial Oil's Sarnia refinery.

Various projects at Sarnia refinery are expected to reduce fugitive emissions of Ethylene in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this

substance (format TSRPXXXX):*

TSRP0071

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

TSRP0071

Which version of the plan is reflected in this summary?*

New Plan

74-98-6, Propane

74-98-6, Propane

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance?:**

Propane is currently used at the facility and enters the refinery in various feedstock including crude oil. Sarnia refinery is in the business of extracting and producing Propane from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?:**

Propane is created at the facility through the complex chemical reactions occurring in the refineries conversion units. Sarnia refinery is in the business of extracting and producing Propane from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

While Imperial Oil has not identified any options to reduce the use or creation of Propane at the Sarnia refinery, various projects at Sarnia refinery are expected to reduce fugitive emissions of Propane in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	<input style="width: 100%; height: 20px;" type="text"/>

Timeframe target:*

No target or years

Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	<input style="width: 100%; height: 20px;" type="text"/>

Timeframe target:*

No target or years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

Summarize why this substance is used at the facility:**

Propane is currently used at the facility and enters the refinery in various feedstock including crude oil. Sarnia refinery is in the business of extracting and producing Propane from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

As a by-product

Summarize why this substance is created at the facility:**

Propane is created at the facility through the complex chemical reactions occurring in the refineries conversion units. Sarnia refinery is in the business of extracting and producing Propane from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

Yes

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented:**

Sarnia refinery is in the business of producing finished products that utilize Propane from crude oil to achieve finished product specifications. No reduction options were identified to reduce the use or creation of Propane at Imperial Oil's Sarnia refinery. Various projects at Sarnia refinery are expected to reduce fugitive emissions of Propane in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

Which version of the plan is reflected in this summary?*

95-63-6, 1,2,4-Trimethylbenzene

95-63-6, 1,2,4-Trimethylbenzene

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance?**

1, 2, 4-Trimethylbenzene is currently used at the facility and enters the refinery in purchased feed, chemicals and additives.

1, 2, 4-Trimethylbenzene used at the facility is a component of the purchased feedstock that is required to meet market and contractual demands for the refinery's products. Additionally, because of its solubility characteristics and accepted presence in motor gasoline, it is utilized by chemical vendors as a carrier fluid for many different refinery chemicals and additives that end up in refinery streams and products.

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

If 'yes', provide the exact statement of intent:**

[Empty text box]

If 'no', what rationale is specified in the plan for not creating less of this substance?:**

The 1, 2, 4-Trimethylbenzene created onsite is a byproduct of the complex chemical reactions occurring during thermal cracking, and its creation is minimized

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

1, 2, 4-Trimethylbenzene enters the facility in purchased feedstock and additives, and is created as a byproduct from thermal cracking. No options to reduce the use or creation of 1, 2, 4-Trimethylbenzene were identified

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	[Empty text box]	[Empty text box]

Timeframe target:*

No target or [Empty text box] years

Description of use targets:

[Empty text box]

Toxic Substance Creation Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	[Empty text box]	[Empty text box]

Timeframe target:*

No target or [Empty text box] years

Description of creation targets:

[Empty text box]

Reasons for Using this Toxic Substance

This substance is used at the facility:*

As a by-product

Summarize why this substance is used at the facility:**

1, 2, 4-Trimethylbenzene is currently used at the facility and enters the refinery in purchased feed, chemicals and additives.

1, 2, 4-Trimethylbenzene used at the facility is a component of the purchased feedstock that is required to meet market and contractual demands for the refinery's products. Additionally, because of its solubility characteristics and accepted presence in motor gasoline, it is utilized by chemical vendors as a carrier fluid for many different refinery chemicals and additives that end up in refinery streams and products.

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

As a by-product

Summarize why this substance is created at the facility:**

1, 2, 4-Trimethylbenzene is created at the facility in the conversion units where thermal cracking occurs like the fluid catalytic cracking unit and the coker reactor.

The 1, 2, 4-Trimethylbenzene created onsite is a byproduct of the complex chemical reactions occurring during thermal cracking, and its creation is minimized

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

Yes

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented:**

No reduction options were identified that are expected to reduce the use or creation of 1, 2, 4-Trimethylbenzene at Imperial Oil's Sarnia refinery. As such, Imperial Oil does not intend to implement any options to reduce the use or creation of 1, 2, 4-Trimethylbenzene at the Sarnia Refinery.

1, 2, 4-Trimethylbenzene used at the facility is a component of the purchased feedstock and additives that are required by the facility to meet market and contractual demands for the refinery's products. The 1, 2, 4-Trimethylbenzene created at the facility is minimized

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

TSRP0071

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

TSRP0071

Which version of the plan is reflected in this summary?*

New Plan

NA - 24, Butane (all isomers)

NA - 24, Butane (all isomers)

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance?***

Butane (all isomers) is currently used at the facility and enters the refinery in various feedstock including crude oil.

Sarnia refinery is in the business of extracting and producing Butane (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?:**

Butane (all isomers) is created at the facility through the complex chemical reactions occurring in the refineries conversion units.

Sarnia refinery is in the business of extracting and producing Butane (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

While Imperial Oil has not identified any options to reduce the use or creation of Butane (all isomers) at the Sarnia refinery, various projects at Sarnia refinery are expected to reduce fugitive emissions of Butane (all isomers) in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

No target or years

Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

	Quantity	Unit

No target

or

Timeframe target:*

No target

or

years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

As a by-product

Summarize why this substance is used at the facility:**

Butane (all isomers) is currently used at the facility and enters the refinery in various feedstock including crude oil.

Sarnia refinery is in the business of extracting and producing Butane (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

As a by-product

Summarize why this substance is created at the facility:**

Butane (all isomers) is created at the facility through the complex chemical reactions occurring in the refineries conversion units.

Sarnia refinery is in the business of extracting and producing Butane (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

Yes

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented.**

Sarnia refinery is in the business of producing finished products that utilize Butane (all isomers) from crude oil to achieve finished product specifications. No reduction options were identified to reduce the use or creation of Butane (all isomers) at Imperial Oil's Sarnia refinery.

Various projects at Sarnia refinery are expected to reduce fugitive emissions of Butane (all isomers) in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

TSRP0071

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

TSRP0071

Which version of the plan is reflected in this summary?*

New Plan

NA - 25, Cycloheptane (all isomers)

NA - 25, Cycloheptane (all isomers)

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance?**:**

Cycloheptane (all isomers) is currently used at the facility and enters the refinery in various feedstock including crude oil.

Sarnia refinery is in the business of extracting and producing Cycloheptane (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?:**

Cycloheptane (all isomers) is created at the facility through the complex chemical reactions occurring in the refineries conversion units.

Sarnia refinery is in the business of extracting and producing Cycloheptane (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

While Imperial Oil has not identified any options to reduce the use or creation of Cycloheptane (all isomers) at the Sarnia refinery, various projects at Sarnia refinery are expected to reduce fugitive emissions of Cycloheptane (all isomers) in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

No target

or

years

Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

Quantity

Unit

No target

or

Timeframe target:*

No target

or

years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

As a by-product

Summarize why this substance is used at the facility:**

Cycloheptane (all isomers) is currently used at the facility and enters the refinery in various feedstock including crude oil.

Sarnia refinery is in the business of extracting and producing Cycloheptane (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

As a by-product

Summarize why this substance is created at the facility:**

Cycloheptane (all isomers) is created at the facility through the complex chemical reactions occurring in the refineries conversion units.

Sarnia refinery is in the business of extracting and producing Cycloheptane (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

Yes

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented.**

Sarnia refinery is in the business of producing finished products that utilize Cycloheptane (all isomers) from crude oil to achieve finished product specifications. No reduction options were identified to reduce the use or creation of Cycloheptane (all isomers) at Imperial Oil's Sarnia refinery.

Various projects at Sarnia refinery are expected to reduce fugitive emissions of Cycloheptane (all isomers) in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

TSRP0071

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

TSRP0071

Which version of the plan is reflected in this summary?*

New Plan

NA - 26, Cyclohexene (all isomers)

NA - 26, Cyclohexene (all isomers)

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance?***

Cyclohexene (all isomers) is currently used at the facility and enters the refinery in various feedstock including crude oil.

Sarnia refinery is in the business of extracting and producing Cyclohexene (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?***

Cyclohexene (all isomers) is created at the facility through the complex chemical reactions occurring in the refineries conversion units.

Sarnia refinery is in the business of extracting and producing Cyclohexene (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

While Imperial Oil has not identified any options to reduce the use or creation of Cyclohexene (all isomers) at the Sarnia refinery, various projects at Sarnia refinery are expected to reduce fugitive emissions of Cyclohexene (all isomers) in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

No target or years

Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

No target or years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

Summarize why this substance is used at the facility:**

Cyclohexene (all isomers) is currently used at the facility and enters the refinery in various feedstock including crude oil.

Sarnia refinery is in the business of extracting and producing Cyclohexene (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

As a by-product

Summarize why this substance is created at the facility:**

Cyclohexene (all isomers) is created at the facility through the complex chemical reactions occurring in the refineries conversion units.

Sarnia refinery is in the business of extracting and producing Cyclohexene (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

Yes

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented:**

Sarnia refinery is in the business of producing finished products that utilize Cyclohexene (all isomers) from crude oil to achieve finished product specifications. No reduction options were identified to reduce the use or creation of Cyclohexene (all isomers) at Imperial Oil's Sarnia refinery.

Various projects at Sarnia refinery are expected to reduce fugitive emissions of Cyclohexene (all isomers) in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

TSRP0071

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

TSRP0071

Which version of the plan is reflected in this summary?*

New Plan

NA - 27, Cyclooctane (all isomers)

NA - 27, Cyclooctane (all isomers)

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance?:**

Cylcooctane (all isomers) is currently used at the facility and enters the refinery in various feedstock including crude oil.

Sarnia refinery is in the business of extracting and producing Cylcooctane (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?:**

Cylcooctane (all isomers) is created at the facility through the complex chemical reactions occurring in the refineries conversion units.

Sarnia refinery is in the business of extracting and producing Cylcooctane (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

While Imperial Oil has not identified any options to reduce the use or creation of Cylcooctane (all isomers) at the Sarnia refinery, various projects at Sarnia refinery are expected to reduce fugitive emissions of Cylcooctane (all isomers) in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	<input style="width: 100px; height: 20px;" type="text"/>

Timeframe target:*

<input checked="" type="checkbox"/> No target	or	<input style="width: 100px; height: 20px;" type="text"/> years
---	----	--

Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	<input style="width: 100px; height: 20px;" type="text"/>

Timeframe target:*

<input checked="" type="checkbox"/> No target	or	<input style="width: 100px; height: 20px;" type="text"/> years
---	----	--

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

Summarize why this substance is used at the facility:**

Cylcooctane (all isomers) is currently used at the facility and enters the refinery in various feedstock including crude oil.

Sarnia refinery is in the business of extracting and producing Cylcooctane (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

As a by-product

Summarize why this substance is created at the facility:**

Cylcooctane (all isomers) is created at the facility through the complex chemical reactions occurring in the refineries conversion units.

Sarnia refinery is in the business of extracting and producing Cylcooctane (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

Yes

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented:**

Sarnia refinery is in the business of producing finished products that utilize Cylcooctane (all isomers) from crude oil to achieve finished product specifications. No reduction options were identified to reduce the use or creation of Cylcooctane (all isomers) at Imperial Oil's Sarnia refinery.

Various projects at Sarnia refinery are expected to reduce fugitive emissions of Cylcooctane (all isomers) in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

Which version of the plan is reflected in this summary?*

NA - 28, Decane (all isomers)

NA - 28, Decane (all isomers)

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance?***

Decane (all isomers) is currently used at the facility and enters the refinery in various feedstock including crude oil.

Sarnia refinery is in the business of extracting and producing Decane (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?:**

Decane (all isomers) is created at the facility through the complex chemical reactions occurring in the refineries conversion units.

Sarnia refinery is in the business of extracting and producing Decane (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

While Imperial Oil has not identified any options to reduce the use or creation of Decane (all isomers) at the Sarnia refinery, various projects at Sarnia refinery are expected to reduce fugitive emissions of Decane (all isomers) in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

No target or years

Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

No target or years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

Summarize why this substance is used at the facility:**

Decane (all isomers) is currently used at the facility and enters the refinery in various feedstock including crude oil.

Sarnia refinery is in the business of extracting and producing Decane (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

Summarize why this substance is created at the facility:**

Decane (all isomers) is created at the facility through the complex chemical reactions occurring in the refineries conversion units.

Sarnia refinery is in the business of extracting and producing Decane (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented:**

Sarnia refinery is in the business of producing finished products that utilize Decane (all isomers) from crude oil to achieve finished product specifications. No reduction options were identified to reduce the use or creation of Decane (all isomers) at Imperial Oil's Sarnia refinery.

Various projects at Sarnia refinery are expected to reduce fugitive emissions of Decane (all isomers) in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

TSRP0071

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

TSRP0071

Which version of the plan is reflected in this summary?*

New Plan

NA - 31, Heptane (all isomers)

NA - 31, Heptane (all isomers)

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance?***

Heptane (all isomers) is currently used at the facility and enters the refinery in various feedstock including crude oil.

Sarnia refinery is in the business of extracting and producing Heptane (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?:**

Heptane (all isomers) is created at the facility through the complex chemical reactions occurring in the refineries conversion units.

Sarnia refinery is in the business of extracting and producing Heptane (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

While Imperial Oil has not identified any options to reduce the use or creation of Heptane (all isomers) at the Sarnia refinery, various projects at Sarnia refinery are expected to reduce fugitive emissions of Heptane (all isomers) in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

No target or years

Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

	Quantity	Unit

No target

or

Timeframe target:*

No target

or

years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

As a by-product

Summarize why this substance is used at the facility:**

Heptane (all isomers) is currently used at the facility and enters the refinery in various feedstock including crude oil.

Sarnia refinery is in the business of extracting and producing Heptane (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

As a by-product

Summarize why this substance is created at the facility:**

Heptane (all isomers) is created at the facility through the complex chemical reactions occurring in the refineries conversion units.

Sarnia refinery is in the business of extracting and producing Heptane (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

Yes

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented.**

Sarnia refinery is in the business of producing finished products that utilize Heptane (all isomers) from crude oil to achieve finished product specifications. No reduction options were identified to reduce the use or creation of Heptane (all isomers) at Imperial Oil's Sarnia refinery.

Various projects at Sarnia refinery are expected to reduce fugitive emissions of Heptane (all isomers) in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

TSRP0071

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

TSRP0071

Which version of the plan is reflected in this summary?*

New Plan

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

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

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance?**:**

Hexane (all isomers excluding n-hexane) is currently used at the facility and enters the refinery in various feedstock including crude oil.

Sarnia refinery is in the business of extracting and producing Hexane (all isomers excluding n-hexane) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?:**

Hexane (all isomers excluding n-hexane) is created at the facility through the complex chemical reactions occurring in the refineries conversion units.

Sarnia refinery is in the business of extracting and producing Hexane (all isomers excluding n-hexane) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

While Imperial Oil has not identified any options to reduce the use or creation of Hexane (all isomers excluding n-hexane) at the Sarnia refinery, various projects at Sarnia refinery are expected to reduce fugitive emissions of Hexane (all isomers excluding n-hexane) in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

No target

or

years

Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

Quantity

Unit

No target

or

Timeframe target:*

No target

or

years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

As a by-product

Summarize why this substance is used at the facility:**

Hexane (all isomers excluding n-hexane) is currently used at the facility and enters the refinery in various feedstock including crude oil.

Sarnia refinery is in the business of extracting and producing Hexane (all isomers excluding n-hexane) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

As a by-product

Summarize why this substance is created at the facility:**

Hexane (all isomers excluding n-hexane) is created at the facility through the complex chemical reactions occurring in the refineries conversion units.

Sarnia refinery is in the business of extracting and producing Hexane (all isomers excluding n-hexane) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

Yes

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented.**

Sarnia refinery is in the business of producing finished products that utilize Hexane (all isomers excluding n-hexane) from crude oil to achieve finished product specifications. No reduction options were identified to reduce the use or creation of Hexane (all isomers excluding n-hexane) at Imperial Oil's Sarnia refinery.

Various projects at Sarnia refinery are expected to reduce fugitive emissions of Hexane (all isomers excluding n-hexane) in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

TSRP0071

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

TSRP0071

Which version of the plan is reflected in this summary?*

New Plan

NA - 33, Nonane (all isomers)

NA - 33, Nonane (all isomers)

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance?***

Nonane (all isomers) is currently used at the facility and enters the refinery in various feedstock including crude oil.

Sarnia refinery is in the business of extracting and producing Nonane (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?***

Nonane (all isomers) is created at the facility through the complex chemical reactions occurring in the refineries conversion units.

Sarnia refinery is in the business of extracting and producing Nonane (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

While Imperial Oil has not identified any options to reduce the use or creation of Nonane (all isomers) at the Sarnia refinery, various projects at Sarnia refinery are expected to reduce fugitive emissions of Nonane (all isomers) in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	<input type="text"/>

Timeframe target:*

No target or years

Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	<input type="text"/>

Timeframe target:*

No target or years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

Summarize why this substance is used at the facility:**

Nonane (all isomers) is currently used at the facility and enters the refinery in various feedstock including crude oil.

Sarnia refinery is in the business of extracting and producing Nonane (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

As a by-product

Summarize why this substance is created at the facility:**

Nonane (all isomers) is created at the facility through the complex chemical reactions occurring in the refineries conversion units.

Sarnia refinery is in the business of extracting and producing Nonane (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

Yes

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented:**

Sarnia refinery is in the business of producing finished products that utilize Nonane (all isomers) from crude oil to achieve finished product specifications. No reduction options were identified to reduce the use or creation of Nonane (all isomers) at Imperial Oil's Sarnia refinery.

Various projects at Sarnia refinery are expected to reduce fugitive emissions of Nonane (all isomers) in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

TSRP0071

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

TSRP0071

Which version of the plan is reflected in this summary?*

New Plan

NA - 34, Octane (all isomers)

NA - 34, Octane (all isomers)

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance?:**

Octane (all isomers) is currently used at the facility and enters the refinery in various feedstock including crude oil.

Sarnia refinery is in the business of extracting and producing Octane (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?:**

Octane (all isomers) is created at the facility through the complex chemical reactions occurring in the refineries conversion units.

Sarnia refinery is in the business of extracting and producing Octane (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

While Imperial Oil has not identified any options to reduce the use or creation of Octane (all isomers) at the Sarnia refinery, various projects at Sarnia refinery are expected to reduce fugitive emissions of Octane (all isomers) in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	<input style="width: 100px; height: 20px;" type="text"/> <input style="width: 100px; height: 20px;" type="text"/>

Timeframe target:*

No target or years

Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	<input style="width: 100px; height: 20px;" type="text"/> <input style="width: 100px; height: 20px;" type="text"/>

Timeframe target:*

No target or years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

As a by-product

Summarize why this substance is used at the facility:**

Octane (all isomers) is currently used at the facility and enters the refinery in various feedstock including crude oil.

Sarnia refinery is in the business of extracting and producing Octane (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

As a by-product

Summarize why this substance is created at the facility:**

Octane (all isomers) is created at the facility through the complex chemical reactions occurring in the refineries conversion units.

Sarnia refinery is in the business of extracting and producing Octane (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

Yes

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented:**

Sarnia refinery is in the business of producing finished products that utilize Octane (all isomers) from crude oil to achieve finished product specifications. No reduction options were identified to reduce the use or creation of Octane (all isomers) at Imperial Oil's Sarnia refinery.

Various projects at Sarnia refinery are expected to reduce fugitive emissions of Octane (all isomers) in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

Which version of the plan is reflected in this summary?*

NA - 35, Pentane (all isomers)

NA - 35, Pentane (all isomers)

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance?***

Pentane (all isomers) is currently used at the facility and enters the refinery in various feedstock including crude oil.

Sarnia refinery is in the business of extracting and producing Pentane (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?:**

Pentane (all isomers) is created at the facility through the complex chemical reactions occurring in the refineries conversion units.

Sarnia refinery is in the business of extracting and producing Pentane (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

While Imperial Oil has not identified any options to reduce the use or creation of Pentane (all isomers) at the Sarnia refinery, various projects at Sarnia refinery are expected to reduce fugitive emissions of Pentane (all isomers) in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

No target or years

Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

No target or years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

Summarize why this substance is used at the facility:**

Pentane (all isomers) is currently used at the facility and enters the refinery in various feedstock including crude oil.

Sarnia refinery is in the business of extracting and producing Pentane (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

Summarize why this substance is created at the facility:**

Pentane (all isomers) is created at the facility through the complex chemical reactions occurring in the refineries conversion units.

Sarnia refinery is in the business of extracting and producing Pentane (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented:**

Sarnia refinery is in the business of producing finished products that utilize Pentane (all isomers) from crude oil to achieve finished product specifications. No reduction options were identified to reduce the use or creation of Pentane (all isomers) at Imperial Oil's Sarnia refinery.

Various projects at Sarnia refinery are expected to reduce fugitive emissions of Pentane (all isomers) in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

TSRP0071

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

TSRP0071

Which version of the plan is reflected in this summary?*

New Plan

NA - 36, Pentene (all isomers)

NA - 36, Pentene (all isomers)

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance?***

Pentene (all isomers) is currently used at the facility and enters the refinery in various feedstock including crude oil.

Sarnia refinery is in the business of extracting and producing Pentene (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?:**

Pentene (all isomers) is created at the facility through the complex chemical reactions occurring in the refineries conversion units.

Sarnia refinery is in the business of extracting and producing Pentene (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

While Imperial Oil has not identified any options to reduce the use or creation of Pentene (all isomers) at the Sarnia refinery, various projects at Sarnia refinery are expected to reduce fugitive emissions of Pentene (all isomers) in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

No target or years

Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

	Quantity	Unit

No target

or

Timeframe target:*

No target

or

years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

As a by-product

Summarize why this substance is used at the facility:**

Pentene (all isomers) is currently used at the facility and enters the refinery in various feedstock including crude oil.

Sarnia refinery is in the business of extracting and producing Pentene (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

As a by-product

Summarize why this substance is created at the facility:**

Pentene (all isomers) is created at the facility through the complex chemical reactions occurring in the refineries conversion units.

Sarnia refinery is in the business of extracting and producing Pentene (all isomers) from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

Yes

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented.**

Sarnia refinery is in the business of producing finished products that utilize Pentene (all isomers) from crude oil to achieve finished product specifications. No reduction options were identified to reduce the use or creation of Pentene (all isomers) at Imperial Oil's Sarnia refinery.

Various projects at Sarnia refinery are expected to reduce fugitive emissions of Pentene (all isomers) in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

TSRP0071

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

TSRP0071

Which version of the plan is reflected in this summary?*

New Plan

NA - 16, Ammonia (total)

NA - 16, Ammonia (total)

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance? **

Ammonia (total) is used as ammonium hydroxide to neutralize acids in atmospheric and vacuum tower overhead circuits.

No economically feasible options to reduce the use or creation of Ammonia (total) were identified at this time

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?:**

Ammonia (total) created onsite is a byproduct of the complex chemical reactions occurring in conversion units onsite which cannot be controlled for individual substance creation.

No economically feasible options to reduce the use or creation of Ammonia (total) were identified at this time

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

While Imperial Oil has not identified any feasible options to reduce the use or creation of Ammonia (total) at the Sarnia refinery, various projects at Sarnia refinery are expected to reduce fugitive emissions of Ammonia (total) in the coming years. These projects include but are not limited to improvements to the fugitive emission monitoring program

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

No target

or

years

Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

Quantity

Unit

No target

or

Timeframe target:*

No target

or

years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

As a physical or chemical processing aid

Summarize why this substance is used at the facility:**

Ammonia (total) is used as ammonium hydroxide to neutralize acids in atmospheric and vacuum tower overhead circuits.

No economically feasible options to reduce the use or creation of Ammonia (total) were identified at this time

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

As a by-product

Summarize why this substance is created at the facility:**

Ammonia (total) created onsite is a byproduct of the complex chemical reactions occurring in conversion units onsite which cannot be controlled for individual substance creation.

No economically feasible options to reduce the use or creation of Ammonia (total) were identified at this time

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

Yes

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented.**

No technically and economically feasible reduction options were identified that are expected to reduce the use or creation of Ammonia (total) at Imperial Oil's Sarnia refinery. As such, Imperial Oil does not intend to implement any options to reduce the use or creation of Ammonia (total) (total) at the Sarnia Refinery.

Various projects at Sarnia refinery are expected to reduce fugitive emissions of Ammonia (total) in the coming years. These projects include but are not limited to improvements to the fugitive emission monitoring program

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

TSRP0071

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

TSRP0071

Which version of the plan is reflected in this summary?*

New Plan

630-08-0, Carbon monoxide

630-08-0, Carbon monoxide

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance?**:**

Sarnia Refinery does not use Carbon Monoxide

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?:**

Sarnia Refinery has not identified any technically and economically feasible options to reduce creation of Carbon Monoxide at this time

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Refinery has not identified any technically and economically feasible options to reduce creation of Carbon Monoxide at this time

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	<input type="text"/>

Timeframe target:*

No target

or

years

Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

No target

or

Unit

Timeframe target:*

No target

or

years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

Summarize why this substance is used at the facility:**

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

Summarize why this substance is created at the facility:**

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

Yes

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented.**

No technically or economically feasible options were identified that would be expected to reduce the creation of carbon monoxide at the facility. Therefore, Imperial Oil does not intend to implement any options to reduce the amount of carbon monoxide currently created at Sarnia Refinery

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

TSRP0071

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

TSRP0071

Which version of the plan is reflected in this summary?*

New Plan

1319-77-3, Cresol (all isomers, and their salts)

1319-77-3, Cresol (all isomers, and their salts)

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

Yes

If 'yes', provide the exact statement of intent:**

Cresol (all isomers, and their salts) is primarily used in lube oil as blending additive that works as a antioxidant in engine oil formulations. Imperial Oil plans to stop lube oil blending operations at Sarnia Refinery and in doing so will eliminate the primary use of Cresol (all isomers, and their salts) at Sarnia Refinery

If 'no', what rationale is specified in the plan for not using less of this substance?***

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?:**

Cresol (all isomers, and their salts) is not created on site

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Cresol (all isomers, and their salts) primarily enters the Sarnia Refinery as a blend additive used in lube oil blending. Cresol (all isomers, and their salts) is not created at the Sarnia Refinery. Sarnia Refinery will be reducing the use of Cresol (all isomers, and their salts) with the planned closure of the lube oil blending operations of the refinery

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input type="checkbox"/> No target	or	2 tonnes

Timeframe target:*

No target

or

2

years

Description of use targets:

Cresol (all isomers, and their salts) is primarily used in lube oil as blending additive that works as a antioxidant in engine oil formulations. Imperial Oil plans to stop lube oil blending operations at Sarnia Refinery and in doing so will eliminate the primary use of Cresol (all isomers, and their salts) at Sarnia Refinery

Toxic Substance Creation Targets

Reduction target:*

Quantity

Unit

No target

or

Timeframe target:*

No target

or

years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

As a formulation component

Summarize why this substance is used at the facility:**

Cresol (all isomers, and their salts) is primarily used in lube oil as blending additive that works as a antioxidant in engine oil formulations

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

This substance is not created at the facility

Summarize why this substance is created at the facility:**

Cresol (all isomers, and their salts) is not created on site

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

No

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented.**

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Other

Which activities will be undertaken to implement these reduction options?

Select an option:*

Other

Describe the option:*

Cresol (all isomers, and their salts) is primarily used in lube oil as blending additive that works as a antioxidant in engine oil formulations. Imperial Oil plans to stop lube oil blending operations at Sarnia Refinery and in doing so will eliminate the primary use of Cresol (all isomers, and their salts) at Sarnia Refinery

Estimates

Estimate of the amount by which the **use** of the toxic substance at the facility will be reduced as a result of implementing the option:

N/A 2 tonnes 100 %

Estimate of the amount by which the **creation** of the toxic substance at the facility will be reduced as a result of implementing the option:

N/A _____ tonnes _____ %

Estimate of the amount by which the toxic substance **contained in the product** leaving the facility will be reduced as a result of implementing the option:

N/A 2 tonnes 100 %

Estimate of the amount by which the total releases to air of the toxic substance at the facility will be reduced as a result of implementing the option:

N/A tonnes %

Estimate of the amount by which the total releases to water of the toxic substance at the facility will be reduced as a result of implementing the option:

N/A tonnes %

Estimate of the amount by which the total releases to land of the toxic substance at the facility will be reduced as a result of implementing the option:

N/A tonnes %

Estimate of the amount by which the disposals on-site (including tailing and waste rock) of the toxic substance at the facility will be reduced as a result on implementing this option:

N/A tonnes %

Estimate of the amount by which the disposals off-site of the toxic substance at the facility will be reduced as a result on implementing this option:

N/A tonnes %

Estimate of the amount by which total recycling off-site of the toxic substance at the facility will be reduced as a result on implementing this option:

N/A tonnes %

Timelines

Anticipated timelines for achieving the estimated reduction of the use of the toxic substance:

N/A years

Anticipated timelines for achieving the estimated reduction of the creation of the toxic substance:

N/A years

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

business reasons unrelated to toxic reductions

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

TSRP0071

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

TSRP0071

Which version of the plan is reflected in this summary?*

New Plan

110-82-7, Cyclohexane

110-82-7, Cyclohexane

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance?**

Cyclohexane is currently used at the facility and enters the refinery in various feedstock including crude oil.

Sarnia refinery is in the business of extracting and producing Cyclohexane from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?:**

Cyclohexane is created at the facility through the complex chemical reactions occurring in the refineries conversion units.

Sarnia refinery is in the business of extracting and producing Cyclohexane from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

While Imperial Oil has not identified any options to reduce the use or creation of Cyclohexane at the Sarnia refinery, various projects at Sarnia refinery are expected to reduce fugitive emissions of Cyclohexane in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

<input checked="" type="checkbox"/> No target	or	<input type="text"/>	years
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Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

	Quantity	Unit
	<input type="text"/>	<input type="text"/>

No target

or

Timeframe target:*

No target

or

years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

Summarize why this substance is used at the facility:**

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

Summarize why this substance is created at the facility:**

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented:**

Sarnia refinery is in the business of producing finished products that utilize Cyclohexane from crude oil to achieve finished product specifications. No reduction options were identified to reduce the use or creation of Cyclohexane at Imperial Oil's Sarnia refinery.

Various projects at Sarnia refinery are expected to reduce fugitive emissions of Cyclohexane in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

TSRP0071

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

TSRP0071

Which version of the plan is reflected in this summary?*

New Plan

77-73-6, Dicyclopentadiene

77-73-6, Dicyclopentadiene

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance?:**

Dicyclopentadiene is not currently used at the facility

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?:**

Dicyclopentadiene is not created at the facility

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Dicyclopentadiene was not detected at measurable concentrations in any of the Refinery inputs or outputs and is not created. As such, no technically and economically feasible options to reduce use and/or creation were identified

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

<input checked="" type="checkbox"/> No target	or	<input type="text"/>	years
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Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

No target or years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

Summarize why this substance is used at the facility:**

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

Summarize why this substance is created at the facility:**

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented:**

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

TSRP0071

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

TSRP0071

Which version of the plan is reflected in this summary?*

New Plan

107-21-1, Ethylene glycol

107-21-1, Ethylene glycol

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

Yes

If 'yes', provide the exact statement of intent:**

Ethylene glycol is primarily used in lube oil as blending additive that works as a detergent for cleanliness in engine oil formulations. Imperial Oil plans to stop lube oil blending operations at Sarnia Refinery and in doing so will eliminate the primary use of Ethylene glycol at Sarnia Refinery

If 'no', what rationale is specified in the plan for not using less of this substance? **

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility? *

If 'yes', provide the exact statement of intent: **

If 'no', what rationale is specified in the plan for not creating less of this substance?: **

Objectives, Targets and Description

Plan Objectives

Objectives in plan: *

Toxic Substance Use Targets

Reduction target: *

	Quantity	Unit
<input type="checkbox"/> No target	or	
	<input type="text" value="15"/>	<input type="text" value="tonnes"/>

Timeframe target: *

<input type="checkbox"/> No target	or	
	<input type="text" value="2"/>	years

Description of use targets:

Toxic Substance Creation Targets

Reduction target: *

	Quantity	Unit
--	----------	------

No target

or

Timeframe target:*

No target

or

years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

As a formulation component

Summarize why this substance is used at the facility:**

Ethylene glycol is primarily used in lube oil as blending additive that works as a detergent for cleanliness in engine oil formulations.

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

This substance is not created at the facility

Summarize why this substance is created at the facility:**

Ethylene glycol is not created on site

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

No

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented:**

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Other

Which activities will be undertaken to implement these reduction options?

Select an option:*

Describe the option:*

Ethylene glycol is primarily used in lube oil as blending additive that works as a detergent for cleanliness in engine oil formulations. Imperial Oil plans to stop lube oil blending operations at Sarnia Refinery and in doing so will eliminate the primary use of Ethylene glycol at Sarnia Refinery

Estimates

Estimate of the amount by which the **use** of the toxic substance at the facility will be reduced as a result of implementing the option:

N/A tonnes %

Estimate of the amount by which the **creation** of the toxic substance at the facility will be reduced as a result of implementing the option:

N/A tonnes %

Estimate of the amount by which the toxic substance **contained in the product** leaving the facility will be reduced as a result of implementing the option:

N/A tonnes %

Estimate of the amount by which the total **releases to air** of the toxic substance at the facility will be reduced as a result of implementing the option:

N/A tonnes %

Estimate of the amount by which the total **releases to water** of the toxic substance at the facility will be reduced as a result of implementing the option:

N/A tonnes %

Estimate of the amount by which the total **releases to land** of the toxic substance at the facility will be reduced as a result of implementing the option:

N/A tonnes %

Estimate of the amount by which the **disposals on-site** (including tailing and waste rock) of the toxic substance at the facility will be reduced as a result on implementing this option:

N/A tonnes %

Estimate of the amount by which the **disposals off-site** of the toxic substance at the facility will be reduced as a result on implementing this option:

N/A tonnes %

Estimate of the amount by which total **recycling off-site** of the toxic substance at the facility will be reduced as a result on implementing this option:

N/A tonnes %

Timelines

Anticipated timelines for achieving the estimated reduction of the **use** of the toxic substance:

N/A years

Anticipated timelines for achieving the estimated reduction of the **creation** of the toxic substance:

N/A years

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

business reasons unrelated to toxic reduction

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

TSRP0071

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

TSRP0071

Which version of the plan is reflected in this summary?*

New Plan

7783-06-4, Hydrogen sulphide

7783-06-4, Hydrogen sulphide

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance?*

HYDROGEN SULPHIDE is currently used at the facility and enters the refinery in various feedstock including crude oil.

Sarnia refinery is in the business of extracting HYDROGEN SULPHIDE from crude oil and other hydrocarbons to meet finished product quality requirements. HYDROGEN SULPHIDE in the refinery is then destroyed by converting it to molten sulphur which is used in other commercial and industrial applications

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?*

HYDROGEN SULPHIDE is created at the facility in the conversion units through both cracking and hydrofining processes.

Sarnia refinery is in the business of extracting HYDROGEN SULPHIDE from crude oil and other hydrocarbons to meet finished product quality requirements. HYDROGEN SULPHIDE in the refinery is then destroyed by converting it to molten sulphur which is used in other commercial and industrial applications

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

While Imperial Oil has not identified any feasible options to reduce the use or creation of HYDROGEN SULPHIDE at the Sarnia refinery, various projects at Sarnia refinery are expected to reduce fugitive emissions of HYDROGEN SULPHIDE in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	<input style="width: 100px; height: 20px;" type="text"/>

Timeframe target:*

No target or years

Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	<input style="width: 100px; height: 20px;" type="text"/>

Timeframe target:*

No target or years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

As a by-product

Summarize why this substance is used at the facility:**

HYDROGEN SULPHIDE is currently used at the facility and enters the refinery in various feedstock including crude oil.

Sarnia refinery is in the business of extracting HYDROGEN SULPHIDE from crude oil and other hydrocarbons to meet finished product quality requirements. HYDROGEN SULPHIDE in the refinery is then destroyed by converting it to molten sulphur which is used in other commercial and industrial applications

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

As a by-product

Summarize why this substance is created at the facility:**

HYDROGEN SULPHIDE is created at the facility in the conversion units through both cracking and hydrofining processes.

Sarnia refinery is in the business of extracting HYDROGEN SULPHIDE from crude oil and other hydrocarbons to meet finished product quality requirements. HYDROGEN SULPHIDE in the refinery is then destroyed by converting it to molten sulphur which is used in other commercial and industrial applications

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

Yes

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented:**

Sarnia refinery is in the business of removing HYDROGEN SULPHIDE from crude oil and intermediate products to meet finished product specifications. No reduction options were identified to reduce the use or creation of HYDROGEN SULPHIDE at Imperial Oil's Sarnia refinery.

Various projects at Sarnia refinery are expected to reduce fugitive emissions of HYDROGEN SULPHIDE in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

Which version of the plan is reflected in this summary?*

78-79-5, Isoprene

78-79-5, Isoprene

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance?*

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?:**

Isoprene is created at the facility through the complex chemical reactions occurring in the refineries conversion units.

Sarnia refinery is in the business of extracting and producing Isoprene from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

While Imperial Oil has not identified any options to reduce the use or creation of Isoprene at the Sarnia refinery, various projects at Sarnia refinery are expected to reduce fugitive emissions of Isoprene in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

No target or years

Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

No target

or

years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

As a by-product

Summarize why this substance is used at the facility:**

Isoprene is currently used at the facility and enters the refinery in various feedstock including crude oil. Sarnia refinery is in the business of extracting and producing Isoprene from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

As a by-product

Summarize why this substance is created at the facility:**

Isoprene is created at the facility through the complex chemical reactions occurring in the refineries conversion units. Sarnia refinery is in the business of extracting and producing Isoprene from crude oil and hydrocarbon streams to be used in the finished products marketed by the refinery

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

Yes

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented:**

Sarnia refinery is in the business of producing finished products that utilize Isoprene from crude oil to achieve finished product specifications. No reduction options were identified to reduce the use or creation of Isoprene at Imperial Oil's Sarnia refinery. Various projects at Sarnia refinery are expected to reduce fugitive emissions of Isoprene in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

TSRP0071

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

TSRP0071

Which version of the plan is reflected in this summary?*

New Plan

1313-27-5, Molybdenum trioxide

1313-27-5, Molybdenum trioxide

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance?***

Molybdenum Trioxide is used as a component of solid catalyst in refinery operations.

These types of catalysts are loaded into vessels, used over defined periods of time and then removed for recycling. The use of Molybdenum Trioxide containing catalysts is required in refining operations.

No economically feasible options to reduce the use of Molybdenum Trioxide were identified at this time

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?:**

Molybdenum Trioxide is not created at Sarnia Refinery

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

While Imperial Oil has not identified any feasible options to reduce the use or creation of Molybdenum Trioxide at the Sarnia refinery, Molybdenum Trioxide is not released in products or to the environment from refinery operations. All Molybdenum Trioxide is contained in solid catalysts and recovered through recycling operations

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

<input checked="" type="checkbox"/> No target	or	<input type="text"/>	years
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Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

No target or years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

Summarize why this substance is used at the facility:**

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

Summarize why this substance is created at the facility:**

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented.**

No technically and economically feasible reduction options were identified that are expected to reduce the use or creation of Molybdenum Trioxide at Imperial Oil's Sarnia refinery. As such, Imperial Oil does not intend to implement any options to reduce the use or creation of Molybdenum Trioxide at the Sarnia Refinery

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

TSRP0071

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

TSRP0071

Which version of the plan is reflected in this summary?*

New Plan

NA - 17, Nitrate ion in solution at pH \geq 6.0

NA - 17, Nitrate ion in solution at pH \geq 6.0

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance? **

NITRATE ION IN SOLUTION AT PH >=6.0 is not used at Sarnia Refinery

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?:**

Sarnia Refinery does not use NITRATE ION IN SOLUTION AT PH >=6.0. Sarnia Refinery has not identified any technically and economically feasible options to reduce creation of NITRATE ION IN SOLUTION AT PH >=6.0 at this time

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Refinery has not identified any technically and economically feasible options to reduce creation of NITRATE ION IN SOLUTION AT PH >=6.0 at this time

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or <input type="text"/>	<input type="text"/>

Timeframe target:*

No target or years

Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

No target or years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

Summarize why this substance is used at the facility:**

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

Summarize why this substance is created at the facility:**

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented:**

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

TSRP0071

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

TSRP0071

Which version of the plan is reflected in this summary?*

New Plan

7446-09-5, Sulphur dioxide

7446-09-5, Sulphur dioxide

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance?*

Sarnia Refinery does not use Sulphur Dioxide

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?:**

Sarnia Refinery has not identified any technically and economically feasible options to reduce creation of Sulphur Dioxide at this time

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Refinery has not identified any technically and economically feasible options to reduce creation of Sulphur Dioxide at this time

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	

Timeframe target:*

<input checked="" type="checkbox"/> No target	or		years
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Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

	Quantity	Unit
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No target

or

Timeframe target:*

No target

or

years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

This substance is not used at the facility

Summarize why this substance is used at the facility:**

Sarnia Refinery does not use Sulphur Dioxide

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

As a by-product

Summarize why this substance is created at the facility:**

Sulphur Dioxide is estimated to be released into the air, based on combustion emission factors for the combustion of various fuels in refinery equipment. Sulphur Dioxide emissions are a function of fired equipment throughput. Sarnia refinery relies on combustion within fired equipment for the production of refinery products

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

Yes

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented:**

No technically or economically feasible options were identified that would be expected to reduce the creation of Sulphur Dioxide at the facility. Therefore, Imperial Oil does not intend to implement any options to reduce the amount of Sulphur Dioxide currently created at Sarnia Refinery

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

TSRP0071

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

TSRP0071

Which version of the plan is reflected in this summary?*

New Plan

NA - M09, PM10 - Particulate Matter <= 10 Microns

NA - M09, PM10 - Particulate Matter <= 10 Microns

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance?***

Sarnia Refinery does not use PM10 - PARTICULATE MATTER

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?:**

Sarnia Refinery has not identified any technically and economically feasible options to reduce creation of PM10 - PARTICULATE MATTER

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Refinery has not identified any technically and economically feasible options to reduce creation of PM10 - PARTICULATE MATTER

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	

Timeframe target:*

No target or years

Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	

Timeframe target:*

No target

or

years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

Summarize why this substance is used at the facility:**

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

Summarize why this substance is created at the facility:**

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented:**

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

Which version of the plan is reflected in this summary?*

NA - M10, PM2.5 - Particulate Matter <= 2.5 Microns

NA - M10, PM2.5 - Particulate Matter <= 2.5 Microns

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance?*

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?:**

Sarnia Refinery has not identified any technically and economically feasible options to reduce creation of PM2.5 - PARTICULATE MATTER

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Refinery has not identified any technically and economically feasible options to reduce creation of PM2.5 - PARTICULATE MATTER

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

No target or years

Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

No target or years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

This substance is not used at the facility

Summarize why this substance is used at the facility:**

Sarnia Refinery does not use PM2.5 - PARTICULATE MATTER

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

As a by-product

Summarize why this substance is created at the facility:**

PM2.5 - PARTICULATE MATTER

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

Yes

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented.**

No technically or economically feasible options were identified that would be expected to reduce the creation of PM2.5 - PARTICULATE MATTER

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

TSRP0071

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

TSRP0071

Which version of the plan is reflected in this summary?*

New Plan

NA - M14, Total reduced sulphur (expressed as hydrogen sulphide)

NA - M14, Total reduced sulphur (expressed as hydrogen sulphide)

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance?:**

TOTAL REDUCED SULPHUR (EXPRESSED AS HYDROGEN SULPHIDE) is currently used at the facility and enters the refinery in various feedstock including crude oil.

Sarnia refinery is in the business of extracting TOTAL REDUCED SULPHUR (EXPRESSED AS HYDROGEN SULPHIDE) from crude oil and other hydrocarbons to meet finished product quality requirements. TOTAL REDUCED SULPHUR (EXPRESSED AS HYDROGEN SULPHIDE) in the refinery is then destroyed by converting it to molten sulphur which is used in other commercial and industrial applications

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?:**

TOTAL REDUCED SULPHUR (EXPRESSED AS HYDROGEN SULPHIDE) is created at the facility in the conversion units through both cracking and hydrofining processes.

Sarnia refinery is in the business of extracting TOTAL REDUCED SULPHUR (EXPRESSED AS HYDROGEN SULPHIDE) from crude oil and other hydrocarbons to meet finished product quality requirements. TOTAL REDUCED SULPHUR (EXPRESSED AS HYDROGEN SULPHIDE) in the refinery is then destroyed by converting it to molten sulphur which is used in other commercial and industrial applications

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

While Imperial Oil has not identified any feasible options to reduce the use or creation of TOTAL REDUCED SULPHUR (EXPRESSED AS HYDROGEN SULPHIDE) at the Sarnia refinery, various projects at Sarnia refinery are expected to reduce fugitive emissions of TOTAL REDUCED SULPHUR (EXPRESSED AS HYDROGEN SULPHIDE) in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

<input checked="" type="checkbox"/> No target	or	<input type="text"/>	years
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Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

<input checked="" type="checkbox"/> No target	or	<input type="text"/>	years
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Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

Summarize why this substance is used at the facility:**

TOTAL REDUCED SULPHUR (EXPRESSED AS HYDROGEN SULPHIDE) is currently used at the facility and enters the refinery in various feedstock including crude oil.

Sarnia refinery is in the business of extracting TOTAL REDUCED SULPHUR (EXPRESSED AS HYDROGEN SULPHIDE) from crude oil and other hydrocarbons to meet finished product quality requirements. TOTAL REDUCED SULPHUR (EXPRESSED AS HYDROGEN SULPHIDE) in the refinery is then destroyed by converting it to molten sulphur which is used in other commercial and industrial applications

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

Summarize why this substance is created at the facility:**

TOTAL REDUCED SULPHUR (EXPRESSED AS HYDROGEN SULPHIDE) is created at the facility in the conversion units through both cracking and hydrofining processes.

Sarnia refinery is in the business of extracting TOTAL REDUCED SULPHUR (EXPRESSED AS HYDROGEN SULPHIDE) from crude oil and other hydrocarbons to meet finished product quality requirements. TOTAL REDUCED SULPHUR (EXPRESSED AS HYDROGEN SULPHIDE) in the refinery is then destroyed by converting it to molten sulphur which is used in other commercial and industrial applications

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented:**

Sarnia refinery is in the business of removing TOTAL REDUCED SULPHUR (EXPRESSED AS HYDROGEN SULPHIDE) from crude oil and intermediate products to meet finished product specifications. No reduction options were identified to reduce the use or creation of TOTAL REDUCED SULPHUR (EXPRESSED AS HYDROGEN SULPHIDE) at Imperial Oil's Sarnia refinery.

Various projects at Sarnia refinery are expected to reduce fugitive emissions of TOTAL REDUCED SULPHUR (EXPRESSED AS HYDROGEN SULPHIDE) in the coming years. These projects include but are not limited to tank upgrades and improvements to the fugitive emission monitoring program

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

TSRP0071

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

TSRP0071

Which version of the plan is reflected in this summary?*

New Plan

11104-93-1, Nitrogen oxides (expressed as NO₂)

11104-93-1, Nitrogen oxides (expressed as NO₂)

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance?*

Sarnia Refinery does not use Nitrogen oxides (expressed as NO2)

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?:**

Sarnia Refinery has not identified any technically and economically feasible options to reduce creation of Nitrogen oxides (expressed as NO2) at this time

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Refinery has not identified any technically and economically feasible options to reduce creation of Nitrogen oxides (expressed as NO2) at this time

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

No target or years

Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

	Quantity	Unit

No target

or

Timeframe target:*

No target

or

years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

This substance is not used at the facility

Summarize why this substance is used at the facility:**

Sarnia Refinery does not use Nitrogen oxides (expressed as NO₂)

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

As a by-product

Summarize why this substance is created at the facility:**

Nitrogen oxides (expressed as NO₂) is estimated to be released into the air, based on combustion emission factors for the combustion of various fuels in refinery equipment. Nitrogen oxides (expressed as NO₂) emissions are a function of fired equipment throughput. Sarnia refinery relies on combustion within fired equipment for the production of refinery products

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

Yes

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented:**

No technically or economically feasible options were identified that would be expected to reduce the creation of Nitrogen oxides (expressed as NO₂) at the facility. Therefore, Imperial Oil does not intend to implement any options to reduce the amount of Nitrogen oxides (expressed as NO₂) currently created at Sarnia Refinery

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

TSRP0071

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

TSRP0071

Which version of the plan is reflected in this summary?*

New Plan

NA - M08, Total Particulate Matter

NA - M08, Total Particulate Matter

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance?***

Sarnia Refinery does not use TOTAL PARTICULATE MATTER

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?:**

Sarnia Refinery has not identified any technically and economically feasible options to reduce creation of TOTAL PARTICULATE MATTER at this time

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Refinery has not identified any technically and economically feasible options to reduce creation of TOTAL PARTICULATE MATTER at this time

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

No target or years

Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

No target

or

years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

This substance is not used at the facility

Summarize why this substance is used at the facility:**

Sarnia Refinery does not use TOTAL PARTICULATE MATTER

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

As a by-product

Summarize why this substance is created at the facility:**

TOTAL PARTICULATE MATTER is created in fluid catalytic cracking and coking units, cooling towers, generated during combustion and general refinery operations

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

Yes

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented:**

No technically or economically feasible options were identified that would be expected to reduce the creation of TOTAL PARTICULATE MATTER at the facility. Therefore, Imperial Oil does not intend to implement any options to reduce the amount of TOTAL PARTICULATE MATTER currently created at Sarnia Refinery

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

TSRP0071

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

TSRP0071

Which version of the plan is reflected in this summary?*

New Plan

207-08-9, Benzo(k)fluoranthene

207-08-9, Benzo(k)fluoranthene

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance?***

Benzo(k)fluoranthene is currently used at the facility and enters the refinery in purchased feed.

Benzo(k)fluoranthene used at the facility is a component of the purchased feedstock that is required to meet market and contractual demands for the refinery's products.

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?:**

Benzo(k)fluoranthene is created at the facility in the conversion units where thermal cracking occurs like the fluid catalytic cracking unit and the coker reactor.

The Benzo(k)fluoranthene created onsite is a byproduct of the complex chemical reactions occurring during thermal cracking, and its creation is minimized

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Benzo(k)fluoranthene enters the facility in purchased feedstock, and is created as a byproduct from thermal cracking. No options to reduce the use or creation of Benzo(k)fluoranthene were identified

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

<input checked="" type="checkbox"/> No target	or	<input type="text"/>	years
---	----	----------------------	-------

Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

No target

or

years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

As a by-product

Summarize why this substance is used at the facility:**

Benzo(k)fluoranthene is currently used at the facility and enters the refinery in purchased feed.

Benzo(k)fluoranthene used at the facility is a component of the purchased feedstock that is required to meet market and contractual demands for the refinery's products.

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

As a by-product

Summarize why this substance is created at the facility:**

Benzo(k)fluoranthene is created at the facility in the conversion units where thermal cracking occurs like the fluid catalytic cracking unit and the coker reactor.

The Benzo(k)fluoranthene created onsite is a byproduct of the complex chemical reactions occurring during thermal cracking, and its creation is minimized

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

Yes

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented:**

No reduction options were identified that are expected to reduce the use or creation of Benzo(k)fluoranthene at Imperial Oil's Sarnia refinery. As such, Imperial Oil does not intend to implement any options to reduce the use or creation of Benzo(k)fluoranthene at the Sarnia Refinery.

Benzo(k)fluoranthene used at the facility is a component of the purchased feedstock that is required by the facility to meet market and contractual demands for the refinery's products. The Benzo(k)fluoranthene created at the facility is minimized

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

TSRP0071

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

TSRP0071

Which version of the plan is reflected in this summary?*

New Plan

53-70-3, Dibenzo(a,h)anthracene

53-70-3, Dibenzo(a,h)anthracene

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance?*

Dibenzo(a,h)anthracene is currently used at the facility and enters the refinery in purchased feed.
 Dibenzo(a,h)anthracene used at the facility is a component of the purchased feedstock that is required to meet market and contractual demands for the refinery's products.

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?:**

Dibenzo(a,h)anthracene is created at the facility in the conversion units where thermal cracking occurs like the fluid catalytic cracking unit and the coker reactor.
 The Dibenzo(a,h)anthracene created onsite is a byproduct of the complex chemical reactions occurring during thermal cracking, and its creation is minimized

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Dibenzo(a,h)anthracene enters the facility in purchased feedstock, and is created as a byproduct from thermal cracking. No options to reduce the use or creation of Dibenzo(a,h)anthracene were identified

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input style="width: 100%;" type="text"/>	<input style="width: 100%;" type="text"/>

Timeframe target:*

<input checked="" type="checkbox"/> No target	or	
	<input style="width: 100%;" type="text"/>	years

Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

No target or years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

Summarize why this substance is used at the facility:**

Dibenzo(a,h)anthracene is currently used at the facility and enters the refinery in purchased feed.

Dibenzo(a,h)anthracene used at the facility is a component of the purchased feedstock that is required to meet market and contractual demands for the refinery's products.

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

Summarize why this substance is created at the facility:**

Dibenzo(a,h)anthracene is created at the facility in the conversion units where thermal cracking occurs like the fluid catalytic cracking unit and the coker reactor.

The Dibenzo(a,h)anthracene created onsite is a byproduct of the complex chemical reactions occurring during thermal cracking, and its creation is minimized

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented:**

No reduction options were identified that are expected to reduce the use or creation of Dibenzo(a,h)anthracene at Imperial Oil's Sarnia refinery. As such, Imperial Oil does not intend to implement any options to reduce the use or creation of Dibenzo(a,h)anthracene at the Sarnia Refinery.

Dibenzo(a,h)anthracene used at the facility is a component of the purchased feedstock that is required by the facility to meet market and contractual demands for the refinery's products. The Dibenzo(a,h)anthracene created at the facility is minimized

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

TSRP0071

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

TSRP0071

Which version of the plan is reflected in this summary?*

New Plan

74-90-8, Hydrogen cyanide

74-90-8, Hydrogen cyanide

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance?**:**

Hydrogen cyanide is not used at Sarnia Refinery

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?:**

Hydrogen cyanide created onsite is a byproduct of the complex chemical reactions occurring in conversion units onsite which cannot be controlled for individual substance creation.

No economically feasible options to reduce the use or creation of Hydrogen cyanide were identified at this time

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

While Imperial Oil has not identified any feasible options to reduce the use or creation of Hydrogen cyanide at the Sarnia refinery, various projects at Sarnia refinery are expected to reduce fugitive emissions of Hydrogen cyanide in the coming years. These projects include but are not limited to improvements to the fugitive emission monitoring program

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

No target or years

Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or <input type="text"/>	<input type="text"/>

Timeframe target:*

No target or years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

Summarize why this substance is used at the facility:**

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

Summarize why this substance is created at the facility:**

Hydrogen cyanide created onsite is a byproduct of the complex chemical reactions occurring in conversion units onsite which cannot be controlled for individual substance creation.

No economically feasible options to reduce the use or creation of Hydrogen cyanide were identified at this time

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented.**

No technically and economically feasible reduction options were identified that are expected to reduce the use or creation of Hydrogen cyanide at Imperial Oil's Sarnia refinery. As such, Imperial Oil does not intend to implement any options to reduce the use or creation of Hydrogen cyanide (total) at the Sarnia Refinery.

Various projects at Sarnia refinery are expected to reduce fugitive emissions of Hydrogen cyanide in the coming years. These projects include but are not limited to improvements to the fugitive emission monitoring program

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

TSRP0071

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

TSRP0071

Which version of the plan is reflected in this summary?*

New Plan

198-55-0, Perylene

198-55-0, Perylene

Substances Section Data

Statement of Intent

Use

Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not using less of this substance?**:**

Perylene is currently used at the facility and enters the refinery in purchased feed.
 Perylene used at the facility is a component of the purchased feedstock that is required to meet market and contractual demands for the refinery's products.

Creation

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*

No

If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in the plan for not creating less of this substance?:**

Perylene is created at the facility in the conversion units where thermal cracking occurs like the fluid catalytic cracking unit and the coker reactor.
 The Perylene created onsite is a byproduct of the complex chemical reactions occurring during thermal cracking, and its creation is minimized

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Perylene enters the facility in purchased feedstock, and is created as a byproduct from thermal cracking. No options to reduce the use or creation of Perylene were identified

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or	
	<input type="text"/>	<input type="text"/>

Timeframe target:*

No target or years

Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

	Quantity	Unit
<input checked="" type="checkbox"/> No target	or <input type="text"/>	<input type="text"/>

Timeframe target:*

No target or years

Description of creation targets:

Reasons for Using this Toxic Substance

This substance is used at the facility:*

Summarize why this substance is used at the facility:**

Perylene is currently used at the facility and enters the refinery in purchased feed.
Perylene used at the facility is a component of the purchased feedstock that is required to meet market and contractual demands for the refinery's products.

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

Summarize why this substance is created at the facility:**

Perylene is created at the facility in the conversion units where thermal cracking occurs like the fluid catalytic cracking unit and the coker reactor.
The Perylene created onsite is a byproduct of the complex chemical reactions occurring during thermal cracking, and its creation is minimized

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

Does the plan specify that no toxic reduction option will be implemented?*

Yes

If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented.**

No reduction options were identified that are expected to reduce the use or creation of Perylene at Imperial Oil's Sarnia refinery. As such, Imperial Oil does not intend to implement any options to reduce the use or creation of Perylene at the Sarnia Refinery.

Perylene used at the facility is a component of the purchased feedstock that is required by the facility to meet market and contractual demands for the refinery's products. The Perylene created at the facility is minimized

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

TSRP0071

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*

TSRP0071

Which version of the plan is reflected in this summary?*

New Plan

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of December 17, 2013, I, Brian Fairley, certify that I have read the toxic substance
Date
reduction plan for the toxic substance referred to below and am familiar with its contents, 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.

- 1319-77-3 Cresol (all isomers, and their salts)

Brian Fairley
Brian Fairley
Refinery Manager, Sarnia Refinery

12/17/2013
Date

Toxic Substance Reduction Planner

As of 12/17/2013, I, Scott Manser certify that I am familiar with the processes
Date Planner Name
at Imperial Oil's Sarnia Refinery that use or create the toxic substances referred to below, that I agree
with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the *Toxics Reduction
Act, 2009* that are set out in the plan dated 12/17/2013 and that the plan complies with that
Act and Ontario Regulation 455/09 (General) made under that Act.

- 1319-77-3 Cresol (all isomers, and their salts)

Scott Manser
Scott Manser
Toxic Substance Reduction Planner

TSRPO071
License Number

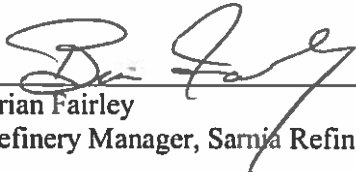
12/17/2013
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of 12/17/2013, I, Brian Fairley, certify that I have read the toxic substance
Date
reduction plan for the toxic substance referred to below and am familiar with its contents, 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.

- 107-21-1 Ethylene glycol



Brian Fairley
Refinery Manager, Sarnia Refinery

12/17/2013
Date

Toxic Substance Reduction Planner

As of 12/17/2013, I, Scott Manser certify that I am familiar with the processes
Date Planner Name
at Imperial Oil's Sarnia Refinery that use or create the toxic substances referred to below, that I agree
with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the *Toxics Reduction
Act, 2009* that are set out in the plan dated 12/17/2013 and that the plan complies with that
Act and Ontario Regulation 455/09 (General) made under that Act.

- 107-21-1 Ethylene glycol



Scott Manser
Toxic Substance Reduction Planner

TSRP0071
License Number

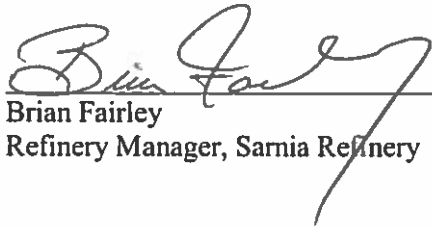
12/17/2013
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of 12/17/2013, I, Brian Fairley, certify that I have read the toxic substance
Date
reduction plan for the toxic substance referred to below and am familiar with its contents, 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.

- 77-73-6 Dicyclopentadiene

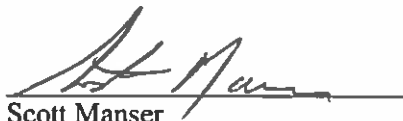

Brian Fairley
Refinery Manager, Sarnia Refinery

12/17/2013
Date

Toxic Substance Reduction Planner

As of 12/17/2013, I, Scott Manser certify that I am familiar with the processes
Date Planner Name
at Imperial Oil's Sarnia Refinery that use or create the toxic substances referred to below, that I agree
with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the *Toxics Reduction
Act, 2009* that are set out in the plan dated 12/17/2013 and that the plan complies with that
Act and Ontario Regulation 455/09 (General) made under that Act.

- 77-73-6 Dicyclopentadiene


Scott Manser
Toxic Substance Reduction Planner

TSRP0071
License Number


12/17/2013
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of 12/17/2013, I, Brian Fairley, certify that I have read the toxic substance
Date
reduction plan for the toxic substance referred to below and am familiar with its contents, 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.

- 109-99-9 Tetrahydrofuran




Brian Fairley
Refinery Manager, Sarnia Refinery

12/17/2013
Date

Toxic Substance Reduction Planner

As of 12/17/2013, I, Scott Manser certify that I am familiar with the processes
Date Planner Name
at Imperial Oil's Sarnia Refinery that use or create the toxic substances referred to below, that I agree
with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the *Toxics Reduction
Act, 2009* that are set out in the plan dated 12/17/2013 and that the plan complies with that
Act and Ontario Regulation 455/09 (General) made under that Act.

- 109-99-9 Tetrahydrofuran



Scott Manser
Toxic Substance Reduction Planner

TSRP0071
License Number

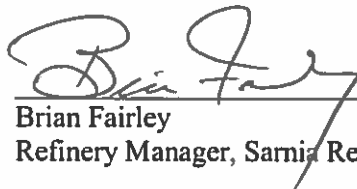
12/17/2013
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of 12 / 17 / 2013, I, Brian Fairley, certify that I have read the toxic substance
Date
reduction plan for the toxic substance referred to below and am familiar with its contents, 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.

- 207-8-9 Benzo(k)fluoranthene

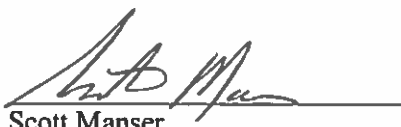

Brian Fairley
Refinery Manager, Sarnia Refinery

12 / 17 / 2013
Date

Toxic Substance Reduction Planner

As of 12 / 17 / 2013, I, Scott Manser certify that I am familiar with the processes
Date Planner Name
at Imperial Oil's Sarnia Refinery that use or create the toxic substances referred to below, that I agree
with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the *Toxics Reduction
Act, 2009* that are set out in the plan dated 12 / 17 / 2013 and that the plan complies with that
Act and Ontario Regulation 455/09 (General) made under that Act.

- 207-8-9 Benzo(k)fluoranthene


Scott Manser
Toxic Substance Reduction Planner

TSRPO071
License Number

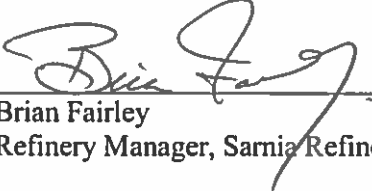
12 / 17 / 2013
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of 12/17/2013, I, Brian Fairley, certify that I have read the toxic substance
Date
reduction plan for the toxic substance referred to below and am familiar with its contents, 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.

- 53-70-3 Dibenzo(a,h)anthracene



Brian Fairley
Refinery Manager, Sarnia Refinery

12/17/2013
Date

Toxic Substance Reduction Planner

As of 12/17/2013, I, Scott Manser certify that I am familiar with the processes
Date Planner Name
at Imperial Oil's Sarnia Refinery that use or create the toxic substances referred to below, that I agree
with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the *Toxics Reduction
Act, 2009* that are set out in the plan dated 12/17/2013 and that the plan complies with that
Act and Ontario Regulation 455/09 (General) made under that Act.

- 53-70-3 Dibenzo(a,h)anthracene



Scott Manser
Toxic Substance Reduction Planner

TSRPO071
License Number

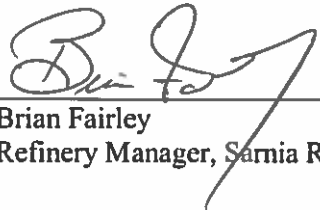
12/17/2013
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of 12/17/2013, I, Brian Fairley, certify that I have read the toxic substance
Date
reduction plan for the toxic substance referred to below and am familiar with its contents, 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.

- 198-55-0 Perylene




Brian Fairley
Refinery Manager, Sarnia Refinery

12/17/2013
Date

Toxic Substance Reduction Planner

As of 12/17/2013, I, Scott Manser certify that I am familiar with the processes
Date Planner Name
at Imperial Oil's Sarnia Refinery that use or create the toxic substances referred to below, that I agree
with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the *Toxics Reduction
Act, 2009* that are set out in the plan dated 12/17/2013 and that the plan complies with that
Act and Ontario Regulation 455/09 (General) made under that Act.

- 198-55-0 Perylene



Scott Manser
Toxic Substance Reduction Planner

TSRPO071
License Number

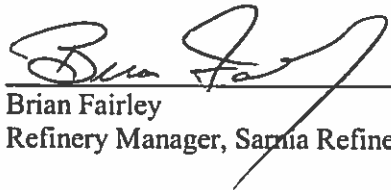
12/17/2013
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of 12/17/2013, I, Brian Fairley, certify that I have read the toxic substance
Date
reduction plan for the toxic substance referred to below and am familiar with its contents, 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.

- 95-63-6 1, 2, 4-Trimethylbenzene



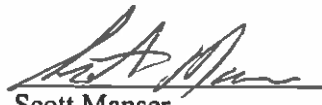
Brian Fairley
Refinery Manager, Sarnia Refinery

12/17/2013
Date

Toxic Substance Reduction Planner

As of 12/17/2013, I, Scott Manser certify that I am familiar with the processes
Date Planner Name
at Imperial Oil's Sarnia Refinery that use or create the toxic substances referred to below, that I agree
with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the *Toxics Reduction
Act, 2009* that are set out in the plan dated 12/17/2013 and that the plan complies with that
Act and Ontario Regulation 455/09 (General) made under that Act.

- 95-63-6 1, 2, 4-Trimethylbenzene



Scott Manser
Toxic Substance Reduction Planner

TSR0071
License Number

12/17/2013
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of 12/17/2013, I, Brian Fairley, certify that I have read the toxic substance
Date
reduction plan for the toxic substance referred to below and am familiar with its contents, 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.

- ** PM2.5 - PARTICULATE MATTER <= 2.5 MICRONS




Brian Fairley
Refinery Manager, Sarnia Refinery

12/17/2013
Date

Toxic Substance Reduction Planner

As of 12/17/2013, I, Scott Manser certify that I am familiar with the processes
Date Planner Name
at Imperial Oil's Sarnia Refinery that use or create the toxic substances referred to below, that I agree
with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the *Toxics Reduction
Act, 2009* that are set out in the plan dated 12/17/2013 and that the plan complies with that
Act and Ontario Regulation 455/09 (General) made under that Act.

- ** PM2.5 - PARTICULATE MATTER <= 2.5 MICRONS



Scott Manser
Toxic Substance Reduction Planner

TSRP0671
License Number

12/17/2013
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of 12/17/2013, I, Brian Fairley, certify that I have read the toxic substance
Date
reduction plan for the toxic substance referred to below and am familiar with its contents, 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.

- ** PM10 - PARTICULATE MATTER <= 10 MICRONS

Brian Fairley
Brian Fairley
Refinery Manager, Sarnia Refinery

12/17/2013
Date

Toxic Substance Reduction Planner

As of 12/17/2013, I, Scott Manser certify that I am familiar with the processes
Date Planner Name
at Imperial Oil's Sarnia Refinery that use or create the toxic substances referred to below, that I agree
with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the *Toxics Reduction
Act, 2009* that are set out in the plan dated 12/17/2013 and that the plan complies with that
Act and Ontario Regulation 455/09 (General) made under that Act.

- ** PM10 - PARTICULATE MATTER <= 10 MICRONS

Scott Manser
Scott Manser
Toxic Substance Reduction Planner

TSRPO071
License Number

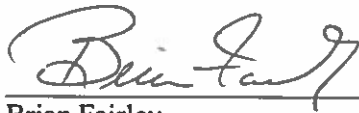
12/17/2013
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of 12/17/2013, I, Brian Fairley, certify that I have read the toxic substance
Date
reduction plan for the toxic substance referred to below and am familiar with its contents, 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.

- ** TOTAL PARTICULATE MATTER



Brian Fairley
Refinery Manager, Sarnia Refinery

12/17/2013
Date

Toxic Substance Reduction Planner

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- ** TOTAL PARTICULATE MATTER



Scott Manser
Toxic Substance Reduction Planner

TSRP0071
License Number


12/17/2013
Date

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Highest Ranking Employee

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knowledge the plan is factually accurate and complies with the *Toxics Reduction Act, 2009* and Ontario
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- 7783-06-4 HYDROGEN SULPHIDE




Brian Fairley
Refinery Manager, Sarnia Refinery

12/17/2013
Date

Toxic Substance Reduction Planner

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- 7783-06-4 HYDROGEN SULPHIDE



Scott Manser
Toxic Substance Reduction Planner

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License Number


12/17/2013
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Highest Ranking Employee

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knowledge the plan is factually accurate and complies with the *Toxics Reduction Act, 2009* and Ontario
Regulation 455/09 (General) made under that Act.

- ** TOTAL REDUCED SULPHUR (EXPRESSED AS HYDROGEN SULPHIDE)




Brian Fairley
Refinery Manager, Sarnia Refinery

12/17/2013
Date

Toxic Substance Reduction Planner

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- ** TOTAL REDUCED SULPHUR (EXPRESSED AS HYDROGEN SULPHIDE)



Scott Manser
Toxic Substance Reduction Planner

TSRP0071
License Number

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- 630-08-0 Carbon Monoxide




Brian Fairley
Refinery Manager, Sarnia Refinery

12/17/2013
Date

Toxic Substance Reduction Planner

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Act and Ontario Regulation 455/09 (General) made under that Act.

- 630-08-0 Carbon Monoxide



Scott Manser
Toxic Substance Reduction Planner

T5RP0071
License Number


12/17/2013
Date

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Highest Ranking Employee

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reduction plan for the toxic substance referred to below and am familiar with its contents, 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.

- 11104-93-1 Nitrogen oxides (expressed as NO₂)




Brian Fairley
Refinery Manager, Sarnia Refinery

12/17/2013
Date

Toxic Substance Reduction Planner

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Act and Ontario Regulation 455/09 (General) made under that Act.

- 11104-93-1 Nitrogen oxides (expressed as NO₂)



Scott Manser
Toxic Substance Reduction Planner

TSRP0071
License Number

12/17/2013
Date

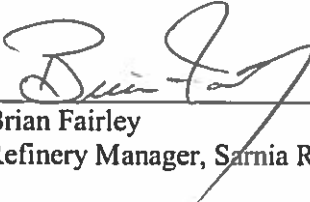
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reduction plan for the toxic substance referred to below and am familiar with its contents, and to my knowledge the plan is factually accurate and complies with the *Toxics Reduction Act, 2009* and Ontario Regulation 455/09 (General) made under that Act.

- 1446-09-5 Sulphur Dioxide



Brian Fairley
Refinery Manager, Sarnia Refinery


12/17/2013
Date

Toxic Substance Reduction Planner

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- 1446-09-5 Sulphur Dioxide



Scott Manser
Toxic Substance Reduction Planner

T.SRP0071
License Number

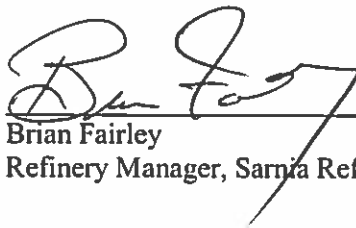
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9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

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reduction plan for the toxic substance referred to below and am familiar with its contents, 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.

- 1313-27-5 Molybdenum Trioxide



Brian Fairley
Refinery Manager, Sarnia Refinery

12/17/2013
Date

Toxic Substance Reduction Planner

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Act and Ontario Regulation 455/09 (General) made under that Act.

- 1313-27-5 Molybdenum Trioxide



Scott Manser
Toxic Substance Reduction Planner

TSRP0071
License Number

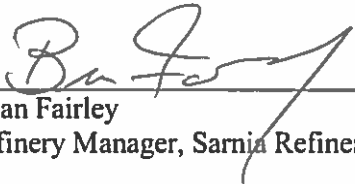
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Highest Ranking Employee

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reduction plan for the toxic substance referred to below and am familiar with its contents, 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.

- ** Ammonia (total)




Brian Fairley
Refinery Manager, Sarnia Refinery

12/17/2013
Date

Toxic Substance Reduction Planner

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Act and Ontario Regulation 455/09 (General) made under that Act.

- ** Ammonia (total)



Scott Manser
Toxic Substance Reduction Planner

TSRPO071
License Number


12/17/2013
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of 12/17/2013, I, Brian Fairley, certify that I have read the toxic substance
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reduction plan for the toxic substance referred to below and am familiar with its contents, 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.

- 74-90-8 Hydrogen cyanide



Brian Fairley
Refinery Manager, Sarnia Refinery


12/17/2013

Date

Toxic Substance Reduction Planner

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Act, 2009* that are set out in the plan dated 12/17/2013 and that the plan complies with that
Act and Ontario Regulation 455/09 (General) made under that Act.

- 74-90-8 Hydrogen cyanide



Scott Manser
Toxic Substance Reduction Planner

15RP0071

License Number

12/17/2013

Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of 2013/17/12, I, Brian Fairley, certify that I have read the toxic substance
Date
reduction plan for the toxic substance referred to below and am familiar with its contents, 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.

- ** NITRATE ION IN SOLUTION AT PH \geq 6.0



Brian Fairley
Refinery Manager, Sarnia Refinery

12/17/2013
Date

Toxic Substance Reduction Planner

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- ** NITRATE ION IN SOLUTION AT PH \geq 6.0



Scott Manser
Toxic Substance Reduction Planner

TSRPO071
License Number

12/17/2013
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of 2013 / 12 / 17, I, Brian Fairley, certify that I have read the toxic substance
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reduction plan for the toxic substance referred to below and am familiar with its contents, 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.

- ** Butane (all isomers)



Brian Fairley
Refinery Manager, Samia Refinery


12 / 17 / 2013

Date

Toxic Substance Reduction Planner

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- ** Butane (all isomers)



Scott Manser
Toxic Substance Reduction Planner

TSRPO071

License Number

12/17/2013


Date

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Highest Ranking Employee

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- ** Cycloheptane (all isomers)




Brian Fairley
Refinery Manager, Sarnia Refinery

2013/12/17
Date

Toxic Substance Reduction Planner

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- ** Cycloheptane (all isomers)



Scott Manser
Toxic Substance Reduction Planner

T5RP0071
License Number

12/17/2013
Date

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Regulation 455/09 (General) made under that Act.

- ** Cyclohexene (all isomers)

Brian Fairley
Brian Fairley
Refinery Manager, Sarnia Refinery

12/17/2013
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Toxic Substance Reduction Planner

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- ** Cyclohexene (all isomers)

Scott Manser
Scott Manser
Toxic Substance Reduction Planner

TSRP6071
License Number


12/17/2013
Date

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Highest Ranking Employee

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- ** Cylcooctane (all isomers)




Brian Fairley
Refinery Manager, Sarnia Refinery

12/17/2013
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Toxic Substance Reduction Planner

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- ** Cylcooctane (all isomers)



Scott Manser
Toxic Substance Reduction Planner

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- ** Decane (all isomers)

Brian Fairley
Brian Fairley
Refinery Manager, Sarnia Refinery

12/17/2013
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- ** Decane (all isomers)

Scott Manser
Scott Manser
Toxic Substance Reduction Planner

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- ** Heptane (all isomers)



Brian Fairley
Refinery Manager, Sarnia Refinery


12/17/2013
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- ** Heptane (all isomers)



Scott Manser
Toxic Substance Reduction Planner

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- ** Hexane (all isomers excluding n-hexane)



Brian Fairley

Refinery Manager, Sarnia Refinery

12/17/2013
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- ** Hexane (all isomers excluding n-hexane)



Scott Manser

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12/17/2013
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- ** Nonane (all isomers)



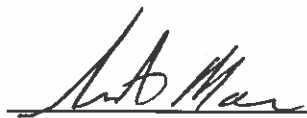
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Refinery Manager, Sarnia Refinery

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- ** Nonane (all isomers)



Scott Manser
Toxic Substance Reduction Planner

TSRP0071
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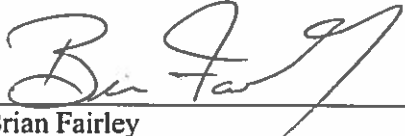
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- ** Octane (all isomers)




Brian Fairley
Refinery Manager, Sarnia Refinery

12/17/2013
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Toxic Substance Reduction Planner

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- ** Octane (all isomers)



Scott Manser
Toxic Substance Reduction Planner

TSR0071
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knowledge the plan is factually accurate and complies with the *Toxics Reduction Act, 2009* and Ontario
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- ** Pentane (all isomers)

Brian Fairley
Brian Fairley
Refinery Manager, Sarnia Refinery

12/17/2013
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- ** Pentane (all isomers)

Scott Manser
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Toxic Substance Reduction Planner

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- ** Pentene (all isomers)



Brian Fairley
Refinery Manager, Sarnia Refinery

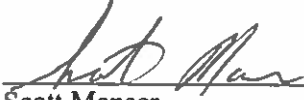
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- ** Pentene (all isomers)



Scott Manser
Toxic Substance Reduction Planner

TSRPO071
License Number

12/17/2013
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Highest Ranking Employee

As of 12/17/2013, I, Brian Fairley, certify that I have read the toxic substance

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reduction plan for the toxic substance referred to below and am familiar with its contents, 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.

- 25167-67-3 Butene (all isomers)



Brian Fairley
Refinery Manager, Sarnia Refinery

12/17/2013

Date

Toxic Substance Reduction Planner

As of 12/17/2013, I, Scott Manser certify that I am familiar with the processes

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Planner Name

at Imperial Oil's Sarnia Refinery that use or create the toxic substances referred to below, that I agree with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the *Toxics Reduction Act, 2009* that are set out in the plan dated 12/17/2013 and that the plan complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- 25167-67-3 Butene (all isomers)



Scott Manser
Toxic Substance Reduction Planner

TSRPG071

License Number

12/17/2013

Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of 12/17/2013, I, Brian Fairley, certify that I have read the toxic substance
Date
reduction plan for the toxic substance referred to below and am familiar with its contents, 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.

- 110-82-7 Cyclohexane




Brian Fairley
Refinery Manager, Sarnia Refinery

12/17/2013
Date

Toxic Substance Reduction Planner

As of 12/17/2013, I, Scott Manser certify that I am familiar with the processes
Date Planner Name
at Imperial Oil's Sarnia Refinery that use or create the toxic substances referred to below, that I agree
with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the *Toxics Reduction
Act, 2009* that are set out in the plan dated 12/17/2013 and that the plan complies with that
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- 110-82-7 Cyclohexane



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TSR0071
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- 74-85-1 Ethylene



Brian Fairley
Refinery Manager, Sarnia Refinery

2013/12/17
Date

Toxic Substance Reduction Planner

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- 74-85-1 Ethylene



Scott Manser
Toxic Substance Reduction Planner

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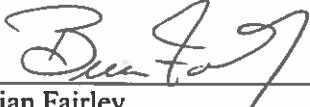
12/17/2013
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Highest Ranking Employee

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knowledge the plan is factually accurate and complies with the *Toxics Reduction Act, 2009* and Ontario
Regulation 455/09 (General) made under that Act.

- 25264-93-1 Hexene (all isomers)




Brian Fairley
Refinery Manager, Sarnia Refinery

12/17/2013
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Toxic Substance Reduction Planner

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- 25264-93-1 Hexene (all isomers)



Scott Manser
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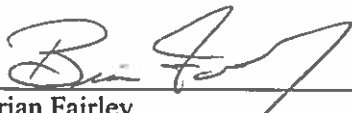
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Highest Ranking Employee

As of 12/17/2013, I, Brian Fairley, certify that I have read the toxic substance
Date

reduction plan for the toxic substance referred to below and am familiar with its contents, 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.

- 78-79-5 Isoprene



Brian Fairley
Refinery Manager, Sarnia Refinery

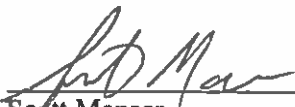
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- 78-79-5 Isoprene



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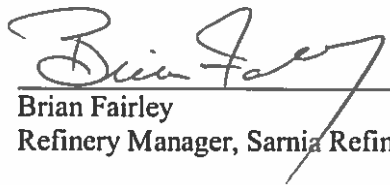
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- 110-54-3 N-Hexane




Brian Fairley
Refinery Manager, Sarnia Refinery

12/17/2013
Date

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- 110-54-3 N-Hexane



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- 74-98-6 Propane



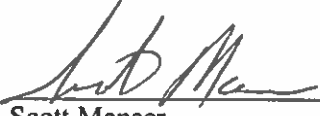
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Refinery Manager, Sarnia Refinery

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- 74-98-6 Propane



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Toxic Substance Reduction Planner

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- 115-07-1 Propylene




Brian Fairley
Refinery Manager, Sarnia Refinery

12/17/2013
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Toxic Substance Reduction Planner

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- 115-07-1 Propylene



Scott Manser
Toxic Substance Reduction Planner

TSR10071
License Number

12/17/2013
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reduction plan for the toxic substance referred to below and am familiar with its contents, 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.

- 25551-13-7 Trimethylbenzene (all isomers excluding 1, 2, 4-Trimethylbenzene)



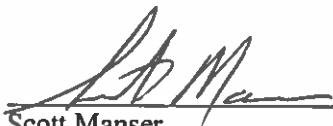
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Act, 2009* that are set out in the plan dated 12/17/2013 and that the plan complies with that
Act and Ontario Regulation 455/09 (General) made under that Act.

- 25551-13-7 Trimethylbenzene (all isomers excluding 1, 2, 4-Trimethylbenzene)



Scott Manser
Toxic Substance Reduction Planner

TSRP6671
License Number

12/17/2013
Date