

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

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Sarnia Chemical Plant – 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.

The Sarnia chemical plant produces a wide range of petrochemicals using refinery and external feedstocks. These products are then used to manufacture a number of widely used consumer products, such as plastics, in North America and around the world. Imperial Oil has comprehensive programs in place at all 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 Chemical Plant

Facility Address:

602 Christina Street South, Sarnia (Ontario)

Update Comments:

Activities

Facility Contacts

Facility Contacts

Public Contact:*

Jon Harding

Highest Ranking Employee:

Frederik Donkers

Person responsible for preparing the toxic substance reduction plan:

Scott Armstrong

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	42.95440
Longitude	-82.41530
UTM Zone**	17
UTM Easting**	385773.59
UTM Northing**	4756731.82

Contact Validation

Contacts

Public Contact:

First Name:*
 Last Name:*
 Position:*
 Telephone:*
 Ext:
 Fax:
 Email:*

Mailing Address

Delivery Mode:
 PO Box
 Rural Route Number
 Address Line 1
 City*
 Province/Territory**
 Postal Code:**

Highest Ranking Employee:

First Name:*
 Last Name:*
 Position:*
 Telephone:*
 Ext:

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:**

N7T 7M5

Employees

Employees

Number of Full-time Employees:*

182

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 currently used at the facility and enters the Chemical Plant as a desired feedstock.

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:*

Sarnia Chemical Plant has not identified any technically and economically feasible options to reduce use of Tetrahydrofuran at this time.

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:*

For on-site use/processing

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

Tetrahydrofuran is currently used at the facility and enters the Chemical Plant as a desired feedstock.

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 technically or economically feasible options were identified that would be expected to reduce the use or creation of Tetrahydrofuran at the facility. Therefore, Imperial Oil does not intend to implement any options to reduce the amount of Tetrahydrofuran currently used or created at Sarnia Chemical Plant.

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?***

N-Hexane is currently used at the facility and enters the Chemical Plant in various feedstocks. N-Hexane leaves the facility as a component of valued product.

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?***

N-Hexane is created at the facility in the conversion units through cracking processes. N-Hexane leaves the facility as a component of valued product.

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Chemical Plant has not identified any technically and economically feasible options to reduce use or creation of N-Hexane 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:**

N-Hexane is currently used at the facility and enters the Chemical Plant in various feedstocks. N-Hexane leaves the facility as a component of valued product.

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

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

N-Hexane is created at the facility in the conversion units through cracking processes. N-Hexane leaves the facility as a component of valued product.

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 use or creation of N-Hexane at the facility. Therefore, Imperial Oil does not intend to implement any options to reduce the amount of N-Hexane currently used or created at Sarnia Chemical Plant

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 Chemical Plant in various feedstocks. Propylene leaves the facility as a component of valued product.

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 in the conversion units through cracking processes. Propylene leaves the facility as a component of valued product.

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Chemical Plant has not identified any technically and economically feasible options to reduce use or creation of Propylene 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:*

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:*

For on-site use/processing

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

Propylene is currently used at the facility and enters the Chemical Plant in various feedstocks. Propylene leaves the facility as a component of valued product.

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

For on-site use/processing

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

Propylene is created at the facility in the conversion units through cracking processes. Propylene leaves the facility as a component of valued product.

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 use or creation of Propylene at the facility. Therefore, Imperial Oil does not intend to implement any options to reduce the amount of Propylene currently used or created at Sarnia Chemical Plant.

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

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?*

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?**:**

Butene is currently used at the facility and enters the Chemical Plant in various feedstocks. Butene leaves the facility as a component of valued product.

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?:**

Butene is created at the facility in the conversion units through cracking processes. Butene leaves the facility as a component of valued product.

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Chemical Plant has not identified any technically and economically feasible options to reduce use or creation of Butene 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:*

For on-site use/processing

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

Butene is currently used at the facility and enters the Chemical Plant in various feedstocks. Butene leaves the facility as a component of valued product.

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

For on-site use/processing

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

Butene is created at the facility in the conversion units through cracking processes. Butene leaves the facility as a component of valued product.

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 use or creation of Butene at the facility. Therefore, Imperial Oil does not intend to implement any options to reduce the amount of Butene currently used or created at Sarnia Chemical Plant.

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 is currently used at the facility and enters the Chemical Plant in various feedstocks. Hexene leaves the facility as a component of valued product.

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 is created at the facility in the conversion units through cracking processes. Hexene leaves the facility as a component of valued product.

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Chemical Plant has not identified any technically and economically feasible options to reduce the use or creation of Hexene 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:**

Hexene is currently used at the facility and enters the Chemical Plant in various feedstocks. Hexene leaves the facility as a component of valued product.

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

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

Hexene is created at the facility in the conversion units through cracking processes. Hexene leaves the facility as a component of valued product.

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 or economically feasible options were identified that would be expected to reduce the use or creation of Hexene at the facility. Therefore, Imperial Oil does not intend to implement any options to reduce the amount of Hexene currently used or created at Sarnia Chemical Plant.

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?*

Yes

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

Sarnia Chemical Plant is targeting to reduce the use of Trimethylbenzene in one of its operating units.

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?: **

Trimethylbenzene is created at the facility in the conversion units through cracking processes. Trimethylbenzene leaves the facility as a component of valued product.

Objectives, Targets and Description

Plan Objectives

Objectives in plan: *

Sarnia Chemical Plant is targeting to reduce the use of 1,2,4 Trimethylbenzene in unit feedstock by approximately 2.4 tonne.

Toxic Substance Use Targets

Reduction target: *

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

Timeframe target: *

<input type="checkbox"/> No target	or	
	1	years

Description of use targets:

Reduced use of a Trimethylbenzene containing feedstock.

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:*

For on-site use/processing

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

Trimethylbenzene is currently used at the facility and enters the Chemical Plant in various feedstocks. Trimethylbenzene leaves the facility as a component of valued product.

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 is created at the facility in the conversion units through cracking processes. Trimethylbenzene leaves the facility as a component of valued product.

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

Other

Which activities will be undertaken to implement these reduction options?

Select an option:*

Other

Describe the option:*

Trimethylbenzene enters the NSIS unit as unit feedstock for the production of valued products. Imperial Oil is targeting to retire a valued NSIS product which will result in the reduced use of the Trimethylbenzene containing feedstock required for this product.

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

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 Chemical Plant in various feedstocks. Ethylene leaves the facility as a component of valued product.

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 in the conversion units through cracking processes. Ethylene leaves the facility as a component of valued product.

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Chemical Plant is implementing equipment modification options and operator procedure upgrades which will result in the reduction of Ethylene released to the air at the SPEP unit.

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:**

Ethylene is currently used at the facility and enters the Chemical Plant in various feedstocks. Ethylene leaves the facility as a component of valued product.

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

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

Ethylene is created at the facility in the conversion units through cracking processes. Ethylene leaves the facility as a component of valued product.

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

Modified equipment, layout or piping

Which activities will be undertaken to implement these reduction options?

Select an option:*

Modified equipment, layout or piping

Describe the option:*

Equipment modifications at SPEP should reduce the amount of Ethylene released to the air by diverting a vent cycle gas output stream to the GCIS as feed vs. sending the material to the flare system.

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

Improved maintenance scheduling, record keeping or procedures

Which activities will be undertaken to implement these reduction options?

Select an option:*

Improved maintenance scheduling, record keeping or procedures

Describe the option:*

Improved operating practice and procedure changes are to be implemented to reduce the amount of SPEP reactor gas sent to the flare during the process for shutting down the reactor. This will result in a reduction in the amount of Ethylene released to the air.

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

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 Chemical Plant in various feedstocks. Propane leaves the facility as a component of valued product.

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 in the conversion units through cracking processes. Propane leaves the facility as a component of valued product.

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Chemical Plant has not identified any technically and economically feasible options to reduce use or creation of Propane 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:**

Propane is currently used at the facility and enters the Chemical Plant in various feedstocks. Propane leaves the facility as a component of valued product.

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

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

Propane is created at the facility in the conversion units through cracking processes. Propane leaves the facility as a component of valued product.

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 use or creation of Propane at the facility. Therefore, Imperial Oil does not intend to implement any options to reduce the amount of Propane currently used or created at Sarnia Chemical Plant.

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

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?***

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="1.4"/>	<input type="text" value="tonnes"/>

Timeframe target:*

No target

or

years

Description of use targets:

Toxic Substance Creation Targets

Reduction target:*

No target

or

Quantity

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?*

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

Other

Which activities will be undertaken to implement these reduction options?

Select an option:*

Other

Describe the option:*

1,2,4 Trimethylbenzene enters the NSIS unit as unit feedstock for the production of valued products. Imperial Oil is targeting to retire a valued NSIS product which will result in the reduced use of the 1,2,4 Trimethylbenzene containing feedstock required for this product.

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 1.4 tonnes 24.6 %

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

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 - 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?*

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?:**

Butane is created at the facility in the conversion units through cracking processes. Butane leaves the facility as a component of valued product.

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Chemical Plant has not identified any technically and economically feasible options to reduce use or creation of Butane 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:*

For on-site use/processing

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

Butane is currently used at the facility and enters the Chemical Plant in various feedstocks. Butane leaves the facility as a component of valued product.

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

For on-site use/processing

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

Butane is created at the facility in the conversion units through cracking processes. Butane leaves the facility as a component of valued product.

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 use or creation of Butane at the facility. Therefore, Imperial Oil does not intend to implement any options to reduce the amount of Butane currently used or created at Sarnia Chemical Plant.

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 - 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?*

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?***

Cycloheptane is created at the facility in the conversion units through cracking processes. Cycloheptane leaves the facility as a component of valued product

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Chemical Plant has not identified any technically and economically feasible options to reduce use or creation of Cycloheptane 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:*

	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:*

For on-site use/processing

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

Cycloheptane is currently used at the facility and enters the Chemical Plant in various feedstocks. Cycloheptane leaves the facility as a component of valued product

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

For on-site use/processing

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

Cycloheptane is created at the facility in the conversion units through cracking processes. Cycloheptane leaves the facility as a component of valued product.

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 use or creation of Cycloheptane at the facility. Therefore, Imperial Oil does not intend to implement any options to reduce the amount of Cycloheptane currently used or created at Sarnia Chemical Plant.

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 is currently used at the facility and enters the Chemical Plant in various feedstocks. Cyclohexene leaves the facility as a component of valued product.

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 is created at the facility in the conversion units through cracking processes. Cyclohexene leaves the facility as a component of valued product.

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Chemical Plant has not identified any technically and economically feasible options to reduce use or creation of Cyclohexene 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:**

Cyclohexene is currently used at the facility and enters the Chemical Plant in various feedstocks. Cyclohexene leaves the facility as a component of valued product.

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

For on-site use/processing

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

Cyclohexene is created at the facility in the conversion units through cracking processes. Cyclohexene leaves the facility as a component of valued product.

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 use or creation of Cyclohexene at the facility. Therefore, Imperial Oil does not intend to implement any options to reduce the amount of Cyclohexene currently used or created at Sarnia Chemical Plant.

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?**:

Cyclooctane is currently used at the facility and enters the Chemical Plant in various feedstocks. Cyclooctane leaves the facility as a component of valued product.

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?:**

Cyclooctane is created at the facility in the conversion units through cracking processes. Cyclooctane leaves the facility as a component of valued product.

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Chemical Plant has not identified any technically and economically feasible options to reduce use or creation of Cyclooctane at this time.

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:*

For on-site use/processing

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

Cyclooctane is currently used at the facility and enters the Chemical Plant in various feedstocks. Cyclooctane leaves the facility as a component of valued product.

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

For on-site use/processing

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

Cyclooctane is created at the facility in the conversion units through cracking processes. Cyclooctane leaves the facility as a component of valued product.

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 use or creation of Cyclooctane at the facility. Therefore, Imperial Oil does not intend to implement any options to reduce the amount of Cyclooctane currently used or created at Sarnia Chemical Plant.

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 - 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?*

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?**:*

Decane is currently used at the facility and enters the Chemical Plant in various feedstocks. Decane leaves the facility as a component of valued product.

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?:**

Decane is created at the facility in the conversion units through cracking processes. Decane leaves the facility as a component of valued product.

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Chemical Plant has not identified any technically and economically feasible options to reduce use or creation of Decane at this time.

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:*

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:*

For on-site use/processing

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

Decane is currently used at the facility and enters the Chemical Plant in various feedstocks. Decane leaves the facility as a component of valued product.

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

For on-site use/processing

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

Decane is created at the facility in the conversion units through cracking processes. Decane leaves the facility as a component of valued product. Decane leaves the facility as a component of valued product.

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 use or creation of Decane at the facility. Therefore, Imperial Oil does not intend to implement any options to reduce the amount of Decane currently used or created at Sarnia Chemical Plant.

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):*

TSRO0071

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 is currently used at the facility and enters the Chemical Plant in various feedstocks. Heptane leaves the facility as a component of valued product.

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 is created at the facility in the conversion units through cracking processes. Heptane leaves the facility as a component of valued product.

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Chemical Plant has not identified any technically and economically feasible options to reduce use or creation of Heptane 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:*

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 or economically feasible options were identified that would be expected to reduce the use or creation of Heptane at the facility. Therefore, Imperial Oil does not intend to implement any options to reduce the amount of Heptane currently used or created at Sarnia Chemical Plant.

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 is currently used at the facility and enters the Chemical Plant in various feedstocks. Hexane leaves the facility as a component of valued product.

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 is created at the facility in the conversion units through cracking processes. Hexane leaves the facility as a component of valued product.

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Chemical Plant has not identified any technically and economically feasible options to reduce use or creation of Hexane 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:**

Hexane is currently used at the facility and enters the Chemical Plant in various feedstocks. Hexane leaves the facility as a component of valued product.

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

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

Hexane is created at the facility in the conversion units through cracking processes. Hexane leaves the facility as a component of valued product.

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 or economically feasible options were identified that would be expected to reduce the use or creation of Hexane at the facility. Therefore, Imperial Oil does not intend to implement any options to reduce the amount of Hexane currently used or created at Sarnia Chemical Plant.

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 is currently used at the facility and enters the Chemical Plant in various feedstocks. Nonane leaves the facility as a component of valued product.

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 is created at the facility in the conversion units through cracking processes. Nonane leaves the facility as a component of valued product.

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Chemical Plant has not identified any technically and economically feasible options to reduce use or creation of Nonane 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 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:*

For on-site use/processing

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

Nonane is currently used at the facility and enters the Chemical Plant in various feedstocks. Nonane leaves the facility as a component of valued product.

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

For on-site use/processing

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

Nonane is created at the facility in the conversion units through cracking processes. Nonane leaves the facility as a component of valued product.

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 use or creation of Nonane at the facility. Therefore, Imperial Oil does not intend to implement any options to reduce the amount of Nonane currently used or created at Sarnia Chemical Plant.

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 is currently used at the facility and enters the Chemical Plant in various feedstocks. Octane leaves the facility as a component of valued product.

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 is created at the facility in the conversion units through cracking processes. Octane leaves the facility as a component of valued product.

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Chemical Plant has not identified any technically and economically feasible options to reduce use or creation of Octane 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):*

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?***

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 is destroyed/transformed at the facility in the conversion units through cracking processes. Pentane leaves the facility as a component of valued product.

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Chemical Plant is targeting to reduce the use of pentane at one of its operating units by approximately 135 tonnes.

Toxic Substance Use Targets

Reduction target:*

	Quantity	Unit
<input type="checkbox"/> No target	or	
	<input type="text" value="135"/>	<input type="text" value="tonnes"/>

Timeframe target:*

<input type="checkbox"/> No target	or	<input type="text" value="3"/> years
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Description of use targets:

Modify a unit exchanger to its intended capacity.

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:*

For on-site use/processing

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

Pentane is currently used at the facility and enters the Chemical Plant in various feedstocks. Pentane leaves the facility as a component of valued product.

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

For on-site use/processing

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

Pentane is created at the facility in the conversion units through cracking processes. Pentane leaves the facility as a component of valued product.

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

Modified equipment, layout or piping

Which activities will be undertaken to implement these reduction options?

Select an option:*

Modified equipment, layout or piping

Describe the option:*

Equipment modifications at SPEP should reduce the amount of Pentane used and released to the air by returning a unit exchanger to its intended capacity.

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

3 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

Improved maintenance scheduling, record keeping or procedures

Which activities will be undertaken to implement these reduction options?

Select an option:*

Improved maintenance scheduling, record keeping or procedures

Describe the option:*

Improved operating practice and procedure changes are to be implemented to reduce the amount of SPEP reactor gas sent to the flare during the process for shutting down the reactor. This will result in a reduction in the amount of Pentane released to the air.

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

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 is currently used at the facility and enters the Chemical Plant in various feedstocks. Pentene leaves the facility as a component of valued product.

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 is created at the facility in the conversion units through cracking processes. Pentene leaves the facility as a component of valued product.

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Chemical Plant has not identified any technically and economically feasible options to reduce the use or creation of Pentene 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:*

For on-site use/processing

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

Pentene is currently used at the facility and enters the Chemical Plant in various feedstocks. Pentene leaves the facility as a component of valued product.

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

For on-site use/processing

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

Pentene is created at the facility in the conversion units through cracking processes. Pentene leaves the facility as a component of valued product.

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 use or creation of Pentene at the facility. Therefore, Imperial Oil does not intend to implement any options to reduce the amount of Pentene currently used or created at Sarnia Chemical Plant.

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 - 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?*

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?***

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Chemical Plant has not identified any technically and economically feasible options to reduce creation of Ammonia at this time.

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:*

This substance is not used at the facility

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

Imperial Oil does not use Ammonia at the facility.

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 is created at the facility in the conversion units through cracking processes.

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 Ammonia at the facility. Therefore, Imperial Oil does not intend to implement any options to reduce the amount of Ammonia currently created at Sarnia Chemical Plant.

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?***

Imperial Oil does not intend to reduce the use Imperial Oil does not use Carbon Monoxide at the Sarnia Chemical Plant.

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 Chemical Plant 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 Chemical Plant 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	

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:**

Carbon Monoxide is estimated to be released into the air, based on EPA combustion emission factors for the combustion of fuel gas heater equipment. The calculated Carbon Monoxide emissions are a function of fuel gas fired heater throughput. Sarnia chemical plant relies on fuel gas fired heater equipment for the production of chemical products 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 Chemical Plant.

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 TSROXXXX):*

TSRO0071

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?*

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?***

Imperial Oil does not use Cresol (mixed isomers and their salts) 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?***

Cresol (mixed isomers and their salts) is created at the facility in the conversion units through cracking processes. Sarnia Chemical Plant has not identified any technically and economically feasible options to reduce creation of Cresol (mixed isomers and their salts) at this time.

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Chemical Plant has not identified any technically and economically feasible options to reduce creation of Cresol (mixed isomers and their salts) at this time.

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:*

This substance is not used at the facility

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

Imperial Oil does not use Cresol (mixed isomers and their salts) at the facility.

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:**

Cresol (mixed isomers and their salts) is created at the GCIS through the cracking process.

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 Cresol (mixed isomers and their salts) at the facility. Therefore, Imperial Oil does not intend to implement any options to reduce the amount of Cresol (mixed isomers and their salts) currently created at Sarnia Chemical Plant.

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

110-82-7, 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 Chemical Plant in various feedstocks. Cyclohexane leaves the facility as a component of valued product.

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 in the conversion units through cracking processes. Cyclohexane leaves the facility as a component of valued product.

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Chemical Plant has not identified any technically and economically feasible options to reduce use or creation of Cyclohexane 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:*

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:*

For on-site use/processing

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

Cyclohexane is currently used at the facility and enters the Chemical Plant in various feedstocks. Cyclohexane leaves the facility as a component of valued product.

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

For on-site use/processing

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

Cyclohexane is created at the facility in the conversion units through cracking processes. Cyclohexane leaves the facility as a component of valued product.

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 use or creation of Cyclohexane at the facility. Therefore, Imperial Oil does not intend to implement any options to reduce the amount of Cyclohexane currently used or created at Sarnia Chemical Plant.

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 currently used at the facility and enters the Chemical Plant as a desired feedstock.

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?***

Imperial Oil does create Dicyclopentadiene at the facility.

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Chemical Plant has not identified any technically and economically feasible options to reduce use of Dicyclopentadiene 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:**

No technically or economically feasible options were identified that would be expected to reduce the use of Dicyclopentadiene at the facility. Therefore, Imperial Oil does not intend to implement any options to reduce the amount of Dicyclopentadiene currently used at Sarnia Chemical Plant.

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?*

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 Glycol is used at the chemical plant in purchased additive. The additive selection is optimized for the facility's operating envelope and product market demand.

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?: **

Imperial Oil does not create Ethylene Glycol at the facility.

Objectives, Targets and Description

Plan Objectives

Objectives in plan: *

Sarnia Chemical Plant has not identified any technically and economically feasible options to reduce the use of Ethylene Glycol 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: *

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

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:*

As a formulation component

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

Ethylene Glycol used at the facility is a component of the purchased additive that is required for the chemical plant's polyethylene product formulation. The additive selection is optimized for the facility's operating envelope and product market demand.

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:**

Imperial Oil does not create Ethylene Glycol 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 use of Ethylene Glycol at the facility. Therefore, Imperial Oil does not intend to implement any options to reduce the amount of Ethylene Glycol currently used at Sarnia Chemical Plant.

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

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?***

H2S is currently used at the facility and enters the chemical plant in various feedstock.

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?:**

H2S is created at the facility in the conversion units through cracking processes.

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 H2S at the Sarnia chemical plant, various projects at Sarnia chemical plant are expected to reduce fugitive emissions of H2S 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:*

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:**

H2S is currently used at the facility and enters the chemical plant in various feedstock.

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:**

H2S is created at the facility in the conversion units through cracking processes.

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 use or creation of H2S at the Sarnia Chemical Plant.

Various projects at Sarnia chemical plant are expected to reduce fugitive emissions of H2S 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

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?*

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?***

Isoprene is currently used at the facility and enters the Chemical Plant in various feedstocks. Isoprene leaves the facility as a component of valued product.

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 in the conversion units through cracking processes. Isoprene leaves the facility as a component of valued product.

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Chemical Plant has not identified any technically and economically feasible options to reduce use or creation of Isoprene 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):*

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?*

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?*

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?:**

Molybdenum Trioxide was not detected in measurable concentrations in any of the chemical plant inputs or products and is not created at the facility.

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Molybdenum Trioxide was not detected in measurable concentrations in any of the chemical plant inputs or products and is not created at the facility. Sarnia Chemical Plant has not identified any technically and economically feasible options to reduce use or creation of Molybdenum Trioxide 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:*

<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:**

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 - 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?*

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?:**

Nitrate Ion was not detected in measurable concentrations in any of the chemical plant inputs or products and is not created at the facility.

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Nitrate Ion was not detected in measurable concentrations in any of the chemical plant inputs or products and is not created at the facility. Sarnia Chemical Plant has not identified any technically and economically feasible options to reduce creation of Nitrate Ion at this time.

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:*

This substance is not used at the facility

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

Nitrate Ion was not detected at measurable concentrations in any of the chemical plant inputs or outputs and is not created.

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:**

Nitrate Ion has not been detected in measurable concentrations in any of the chemical plant inputs or outputs and is not created.

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:**

Nitrate Ion was not detected in measurable concentrations in any inputs, outputs and is not created at the chemical plant. As such, no options were identified to reduce the use or creation of Nitrate Ion at the facility.

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?*

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?*

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?***

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Chemical Plant 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:*

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:*

This substance is not used at the facility

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

Imperial Oil does not use Sulphur Dioxide at the Sarnia Chemical Plant.

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 EPA combustion emission factors for the combustion of fuel gas heater equipment. The calculated Sulphur Dioxide emissions are a function of fuel gas fired heater throughput. Sarnia chemical plant relies on fuel gas fired heater equipment for the production of chemical products 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 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 Chemical Plant.

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?***

Imperial Oil does not use PM 10 - PARTICULATE MATTER at the Sarnia Chemical Plant.

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 Chemical Plant has not identified any technically and economically feasible options to reduce creation of PM 10 - PARTICULATE MATTER at this time.

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Chemical Plant has not identified any technically and economically feasible options to reduce creation of PM 10 - 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:*

<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:**

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:**

PM 10 - PARTICULATE MATTER is created in conversion units, cooling towers, generated during combustion and general chemical plant 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 PM 10 - PARTICULATE MATTER at the facility. Therefore, Imperial Oil does not intend to implement any options to reduce the amount of PM 10 - PARTICULATE MATTER currently created at Sarnia Chemical Plant.

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 - 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?*

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?:**

Imperial Oil does not use PM 2.5 - PARTICULATE MATTER at the Sarnia Chemical Plant.

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 Chemical Plant has not identified any technically and economically feasible options to reduce creation of PM 2.5 - PARTICULATE MATTER at this time.

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Chemical Plant has not identified any technically and economically feasible options to reduce creation of PM 2.5 - PARTICULATE MATTER at this time.

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:**

PM 2.5 - PARTICULATE MATTER is created in conversion units, cooling towers, generated during combustion and general chemical plant 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 PM 2.5 - PARTICULATE MATTER at the facility. Therefore, Imperial Oil does not intend to implement any options to reduce the amount of PM 2.5 - PARTICULATE MATTER currently created at Sarnia Chemical Plant.

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 is currently used at the facility and enters the chemical plant in various feedstock. Sarnia Chemical Plant has not identified any technically and economically feasible options to reduce the use of TOTAL REDUCED SULPHUR 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?*

TOTAL REDUCED SULPHUR is created at the facility in the conversion units through cracking processes. Sarnia Chemical Plant has not identified any technically and economically feasible options to reduce the creation of TOTAL REDUCED SULPHUR 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 TOTAL REDUCED SULPHUR at the Sarnia chemical plant, various projects at Sarnia chemical plant are expected to reduce fugitive emissions of TOTAL REDUCED SULPHUR 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	

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:**

TOTAL REDUCED SULPHUR is created at the facility in the conversion units through cracking processes.

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 use or creation of TOTAL REDUCED SULPHUR at the Sarnia Chemical Plant.

Various projects at Sarnia chemical plant are expected to reduce fugitive emissions of TOTAL REDUCED SULPHUR 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?***

Imperial Oil does not use Nox (oxides of nitrogen) at the Sarnia Chemical Plant.

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 Chemical Plant has not identified any technically and economically feasible options to reduce creation of Nox (oxides of nitrogen) at this time.

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Chemical Plant has not identified any technically and economically feasible options to reduce creation of Nox (oxides of nitrogen) at this time.

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:*

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 Nox (oxides of nitrogen) at the facility. Therefore, Imperial Oil does not intend to implement any options to reduce the amount of Nox (oxides of nitrogen) currently created at Sarnia Chemical Plant.

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?**:**

Imperial Oil does not use TOTAL PARTICULATE MATTER at the Sarnia Chemical Plant.

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 Chemical Plant 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 Chemical Plant 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	

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:**

Imperial Oil does use TOTAL PARTICULATE MATTER at the Sarnia Chemical Plant.

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 conversion units, cooling towers, generated during combustion and general chemical plant 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 Chemical Plant.

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?*

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 not 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?:**

Benzo(k)fluoranthene is created at the facility in the conversion units through cracking processes.

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Chemical Plant is targeting to reduce the amount of Benzo(k)fluoranthene byproduct leaving the facility for treatment / recycling.

Sarnia Chemical Plant does not intend to reduce the use or creation of Benzo(k)fluoranthene at the facility.

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

Modified equipment, layout or piping

Which activities will be undertaken to implement these reduction options?

Select an option:*

Modified equipment, layout or piping

Describe the option:*

Initiate light pyrolysis oil (LPO) solvent injection at the GCIS to reduce HPO make by recycling HPO byproduct back into the GCIS process resulting in the recovery of valued Benzo(k)fluoranthene product that can be transferred to the Refinery, and a reduction in Benzo(k)fluoranthene HPO byproduct leaving the facility for treatment / recycling.

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 kg %

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 kg %

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 kg %

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 kg %

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 kg %

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 kg %

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 kg %

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 kg %

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 kg %

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:

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 not 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?:**

Dibenzo(a,h)anthracene is created at the facility in the conversion units through cracking processes. Sarnia Chemical Plant has not identified any technically and economically feasible options to reduce creation of Dibenzo(a,h)anthracene at this time.

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Chemical Plant is targeting to reduce the amount of Dibenzo(a,h)anthracene byproduct leaving the facility for treatment / recycling.

Sarnia Chemical Plant does not intend to reduce the use or creation of Dibenzo(a,h)anthracene at the facility.

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:**

Dibenzo(a,h)anthracene is not used at the facility

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:**

Dibenzo(a,h)anthracene is created at the GCIS through the cracking process. Dibenzo(a,h)anthracene at the GCIS unit leaves in a heavy pyrolysis oil (HPO) by-product leaving the facility for treatment / recycling.

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

Modified equipment, layout or piping

Which activities will be undertaken to implement these reduction options?

Select an option:*

Modified equipment, layout or piping

Describe the option:*

– Initiate light pyrolysis oil (LPO) solvent injection at the GCIS to reduce HPO make by recycling HPO byproduct back into the GCIS process resulting in the recovery of valued Dibenzo(a,h)anthracene product that can be transferred to the Refinery, and a reduction in Dibenzo(a,h)anthracene HPO byproduct leaving the facility for treatment / recycling.

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 kg %

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 kg %

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 kg %

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 kg %

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 kg %

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 kg %

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 kg %

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 kg %

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 kg %

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:

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?***

Imperial Oil does not use Hydrogen Cyanide 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?***

Hydrogen Cyanide is created at the facility in the conversion units through cracking processes.
Sarnia Chemical Plant has not identified any technically and economically feasible options to reduce creation of Hydrogen Cyanide at this time.

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Chemical Plant has not identified any technically and economically feasible options to reduce creation of Hydrogen Cyanide 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:**

Imperial Oil does not use Hydrogen Cyanide at the facility.

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 Cyanide is created at the GCIS through the cracking process.

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 Hydrogen Cyanide at the facility. Therefore, Imperial Oil does not intend to implement any options to reduce the amount of Hydrogen Cyanide currently created at Sarnia Chemical Plant.

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 not 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?*

Perylene is created at the facility in the conversion units through cracking processes. Sarnia Chemical Plant has not identified any technically and economically feasible options to reduce creation of Perylene at this time.

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

Sarnia Chemical Plant is targeting to reduce the amount of Perylene byproduct leaving the facility for treatment / recycling.

Sarnia Chemical Plant does not intend to reduce the use or creation of Perylene at the facility.

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:**

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

Modified equipment, layout or piping

Which activities will be undertaken to implement these reduction options?

Select an option:*

Modified equipment, layout or piping

Describe the option:*

Initiate light pyrolysis oil (LPO) solvent injection at the GCIS to reduce HPO make by recycling HPO byproduct back into the GCIS process resulting in the recovery of valued Perylene product that can be transferred to the Refinery, and a reduction in Perylene HPO byproduct leaving the facility for treatment / recycling.

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 kg %

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 kg %

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 kg %

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 kg %

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 kg %

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 kg %

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 kg %

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 kg %

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 kg %

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:

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?*

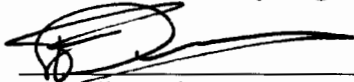
New Plan

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of DEC 17, 2013, I, Frederik Donkers, 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.

- 74-90-8, Hydrogen Cyanide



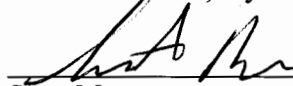
Frederik Donkers
Sarnia Chemical Plant Manager

DEC 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 Chemical Plant 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 12/10/2013 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

TSRP0071
License Number

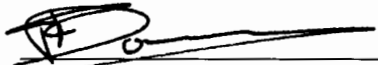
12/17/2013
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of DEC 17, 2013, I, Frederik Donkers, 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.

- CAS# 78-79-5, Isoprene




Frederik Donkers
Sarnia Chemical Plant Manager

DEC 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 Chemical Plant 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 11/01/2013 and that the plan
complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- CAS# 78-79-5, Isoprene



Scott Manser
Toxic Substance Reduction Planner

TSRP0071
License Number

12/17/2013
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of DEC 17, 2013, I, Frederik Donkers, 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.

- CAS# 110-54-3, N-Hexane



Frédéric Donkers
Sarnia Chemical Plant Manager

DEC 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 Chemical Plant 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 12/10/2013 and that the plan
complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- CAS# 110-54-3, N-Hexane



Scott Manser
Toxic Substance Reduction Planner

T5RP0071
License Number

12/17/2013
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of DEC 17, 2013, I, Frederik Donkers, 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.

- Nonane



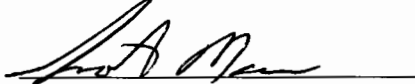
Frederik Donkers
Sarnia Chemical Plant Manager

DEC 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
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Reduction Act, 2009* that are set out in the plan dated 12/11/2013 and that the plan
complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- Nonane



Scott Manser
Toxic Substance Reduction Planner

TSRP0071
License Number

12/17/2013
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of DEC 17, 2013, I, Frederik Donkers, 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
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Regulation 455/09 (General) made under that Act.

- Octane

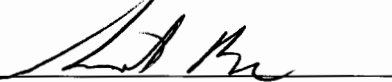

Frederik Donkers
Sarnia Chemical Plant Manager

DEC 17, 2013
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Toxic Substance Reduction Planner

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Reduction Act, 2009* that are set out in the plan dated 12/11/2013 and that the plan
complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- Octane


Scott Manser
Toxic Substance Reduction Planner

TSR0071
License Number


12/17/2013
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of DEC 17, 2013, I, Frederik Donkers, 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
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Regulation 455/09 (General) made under that Act.

- Pentane



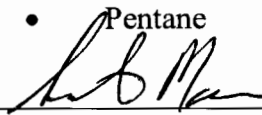
Frederik Donkers
Sarnia Chemical Plant Manager

DEC 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 Chemical Plant 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 12/9/2013 and that the plan
complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- Pentane



Scott Manser
Toxic Substance Reduction Planner

TSRP6071
License Number

12/17/2013
Date

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
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Regulation 455/09 (General) made under that Act.

- Pentene



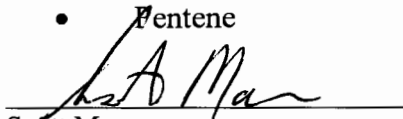
Frederik Donkers
Sarnia Chemical Plant Manager

DEC 17, 2013
Date

Toxic Substance Reduction Planner

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Reduction Act, 2009* that are set out in the plan dated 12/11/2013 and that the plan
complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- Pentene



Scott Manser
Toxic Substance Reduction Planner

TSR20071
License Number

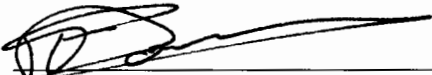
12/17/2013
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of DEC 17, 2013, I, Frederik Donkers, 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.

- CAS# 74-98-6, Propane




Frederik Donkers
Sarnia Chemical Plant Manager

DEC 17, 2013
Date

Toxic Substance Reduction Planner

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Reduction Act, 2009* that are set out in the plan dated 12/11/2013 and that the plan
complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- CAS# 74-98-6, Propane



Scott Manser
Toxic Substance Reduction Planner

TSRP0071
License Number

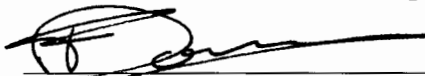
12/17/2013
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of DEC 17, 2013, I, Frederik Donkers, 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.

- CAS# 115-07-1, Propylene



Frederik Donkers
Sarnia Chemical Plant Manager

DEC 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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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 12/11/2013 and that the plan
complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- CAS# 115-07-1, Propylene



Scott Manser
Toxic Substance Reduction Planner

TSR26071
License Number


12/17/2013
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of DEC 17, 2013, I, Frederik Donkers, 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.

- 25551-13-7, Trimethylbenzene



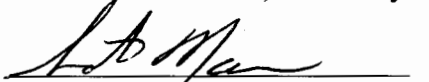
Frederik Donkers
Sarnia Chemical Plant Manager

DEC 17, 2013
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Toxic Substance Reduction Planner

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Reduction Act, 2009* that are set out in the plan dated 12/11/2013 and that the plan
complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- 25551-13-7, Trimethylbenzene



Scott Manser
Toxic Substance Reduction Planner

TSR0071
License Number


12/17/2013
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of DEC 17, 2013, I, Frederik Donkers, 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.

- 1313-27-5, Molybdenum Trioxide




Frederik Donkers
Sarnia Chemical Plant Manager

DEC 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 Chemical Plant 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 12/10/2013 and that the plan
complies with that 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

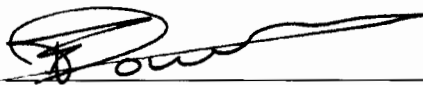
12/17/2013
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of DEC 17, 2013, I, Frederik Donkers, 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.

- **CAS # 630-08-0, Carbon Monoxide**



Frederik Donkers
Chemical Plant Manager, Sarnia Chemical Plant

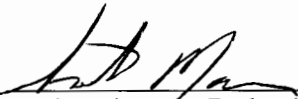
DEC 17, 2013

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 Chemical Plant 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.

- **CAS # 630-08-0, Carbon Monoxide**



Toxic Substance Reduction Planner

TSRPG071

License Number

12/17/2013


Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of DEC 17, 2013, I, Frederik Donkers, 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.

- CAS # 11104-93-1, Nox (oxides of nitrogen)



Frederik Donkers
Chemical Plant Manager, Sarnia Chemical Plant

DEC 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 Chemical Plant 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.

- CAS # 11104-93-1, Nox (oxides of nitrogen)



Toxic Substance Reduction Planner

TSR0071
License Number

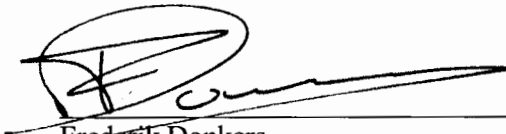
12/17/2013
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of DEC 17, 2013, I, Frederik Donkers, 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.

- **CAS # 1446-09-5, Sulphur Dioxide**

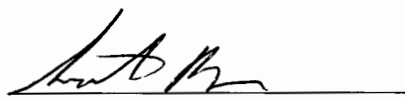

Frederik Donkers
Chemical Plant Manager, Sarnia Chemical Plant

DEC 17, 2013
Date

Toxic Substance Reduction Planner

As of 12/17/2013, I, Scott MANSEER certify that I am familiar with the processes
Date Planner Name
at Imperial Oil's Sarnia Chemical Plant 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 12/3/2013 and that the plan
complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- **CAS # 1446-09-5, Sulphur Dioxide**


Toxic Substance Reduction Planner

TSRP0071
License Number

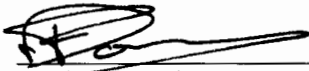
12/17/2013
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of DEC 17, 2013, I, Frederik Donkers, 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.

- CAS# 109-99-9, Tetrahydrofuran



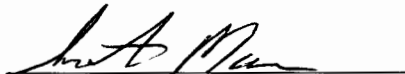
Frederik Donkers
Sarnia Chemical Plant Manager

DEC 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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at Imperial Oil's Sarnia Chemical Plant 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 10/22/2013 and that the plan
complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- CAS# 109-99-9, Tetrahydrofuran



Scott Manser
Toxic Substance Reduction Planner

TSRP0071
License Number

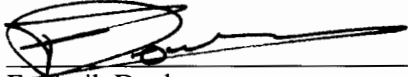
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Highest Ranking Employee

As of DEC 17, 2013, I, Frederik Donkers, certify that I have read the toxic substance
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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.

- N/A, Nitrate Ion



Frederik Donkers
Sarnia Chemical Plant Manager

DEC 17, 2013
Date

Toxic Substance Reduction Planner

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Reduction Act, 2009* that are set out in the plan dated 12/13/2013 and that the plan
complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- N/A, Nitrate Ion



Scott Manser
Toxic Substance Reduction Planner

TSRP0071
License Number


12/17/2013
Date

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Highest Ranking Employee

As of DEC 17, 2013, I, Frederik Donkers, certify that I have read the toxic substance
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- **TOTAL REDUCED SULPHUR**




Frederik Donkers
Chemical Plant Manager, Sarnia Chemical Plant

DEC 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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Reduction Act, 2009* that are set out in the plan dated 12/13/2013 and that the plan
complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- **TOTAL REDUCED SULPHUR**



Toxic Substance Reduction Planner

TSRP0071
License Number

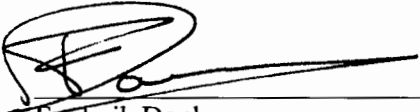
12/17/2013
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Highest Ranking Employee

As of DEC 17, 2013, I, Frederik Donkers, 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.

- NPRI # NA-M10, PM 2.5




Frederik Donkers
Chemical Plant Manager, Sarnia Chemical Plant

DEC 17, 2013
Date

Toxic Substance Reduction Planner

As of 12/17/2013, I, SCOTT MANER certify that I am familiar with the processes
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Reduction Act, 2009* that are set out in the plan dated 12/13/2013 and that the plan
complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- NPRI # NA-M10, PM 2.5



Toxic Substance Reduction Planner

TSR70071

License Number

12/17/2013

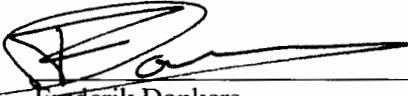
Date

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Highest Ranking Employee

As of DEC 17, 2013, I, Frederik Donkers, 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.

- NPRI# NA-M09, PM 10



Frederik Donkers
Chemical Plant Manager, Sarnia Chemical Plant

DEC 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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Reduction Act, 2009* that are set out in the plan dated 12/3/2013 and that the plan
complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- NPRI# NA-M09, PM 10



Toxic Substance Reduction Planner

TSRP0071
License Number

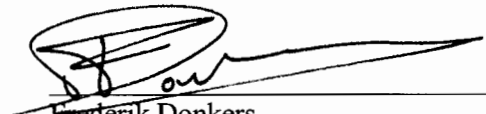
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Highest Ranking Employee

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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.

- **NPRI# NA-M08, PARTICULATES**




Frederik Donkers
Chemical Plant Manager, Sarnia Chemical Plant

DEC 17, 2013
Date

Toxic Substance Reduction Planner

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Reduction Act, 2009* that are set out in the plan dated 12/3/2013 and that the plan
complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- **NPRI# NA-M08, PARTICULATES**



Toxic Substance Reduction Planner

TSR0071
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.

- 207-08-9, Benzo(k)fluoranthene



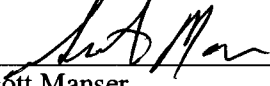
Frederik Donkers
Sarnia Chemical Plant Manager

Dec 17, 2013
Date

Toxic Substance Reduction Planner

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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 12/12/2013 and that the plan
complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- 207-08-9, Benzo(k)fluoranthene



Scott Manser
Toxic Substance Reduction Planner

TSR00071
License Number

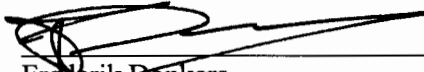
12/17/2013
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of Dec 17, 2013, I, Frederik Donkers, 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
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Regulation 455/09 (General) made under that Act.

- 53-70-3, Dibenzo(a,h)anthracene



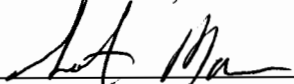
Frederik Donkers
Sarnia Chemical Plant Manager

DEC 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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- 53-70-3, Dibenzo(a,h)anthracene



Scott Manser
Toxic Substance Reduction Planner

TSRP0071
License Number

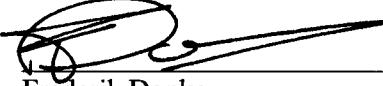
12/17/2013
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Highest Ranking Employee

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- 198-55-0, Perylene

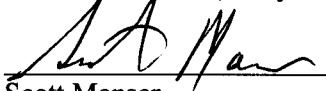

Frederik Donkers
Sarnia Chemical Plant Manager

DEC 17, 2013
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Toxic Substance Reduction Planner

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- 198-55-0, Perylene


Scott Manser
Toxic Substance Reduction Planner

TSRP 0071
License Number

12/17/2013
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- 95-63-6, 1,2,4 Trimethylbenzene



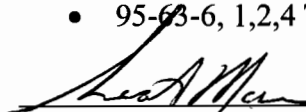
Frederik Donkers
Sarnia Chemical Plant Manager

DEC 17, 2013
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- 95-63-6, 1,2,4 Trimethylbenzene



Scott Manser
Toxic Substance Reduction Planner

TSR0071
License Number

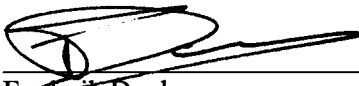
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Highest Ranking Employee

As of DEC 17, 2013, I, Frederik Donkers, certify that I have read the toxic substance
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Regulation 455/09 (General) made under that Act.

- N/A, Ammonia



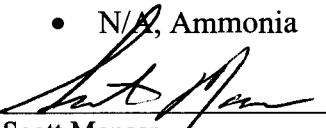
Frederik Donkers
Sarnia Chemical Plant Manager

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- N/A, Ammonia



Scott Manser
Toxic Substance Reduction Planner

TSRP0071
License Number


12/17/2013
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- Butane

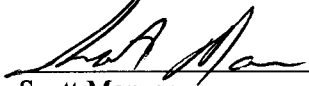

Frederik Donkers
Sarnia Chemical Plant Manager

DEC 17, 2013
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- Butane


Scott Manser
Toxic Substance Reduction Planner

TSRPO071
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.

- CAS# 25167-67-3, Butene

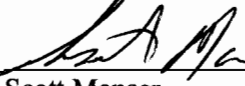

Frederik Donkers
Sarnia Chemical Plant Manager

DEC 17, 2013
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Toxic Substance Reduction Planner

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complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- CAS# 25167-67-3, Butene


Scott Manser
Toxic Substance Reduction Planner

TSRPP0071
License Number

12/17/2013
Date

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Highest Ranking Employee

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

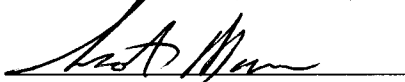

Frederik Donkers
Sarnia Chemical Plant Manager

DEC 17, 2013
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complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

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


Scott Manser
Toxic Substance Reduction Planner

TSRP0671
License Number


12/17/2013
Date

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
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Regulation 455/09 (General) made under that Act.

- Cycloheptane

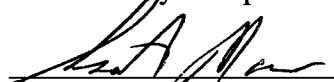

Frederik Donkers
Sarnia Chemical Plant Manager

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- Cycloheptane


Scott Manser
Toxic Substance Reduction Planner

TSRP0071
License Number


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- CAS# 110-82-7, Cyclohexane



Frederik Donkers
Sarnia Chemical Plant Manager

DEC 17, 2013
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- CAS# 110-82-7, Cyclohexane


Scott Manser
Toxic Substance Reduction Planner

1SRP0071
License Number

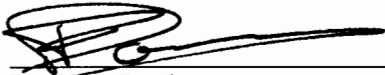
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- Cyclohexene



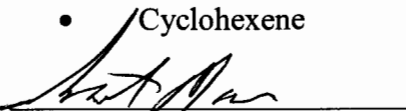
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Sarnia Chemical Plant Manager

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- Cyclohexene



Scott Manser
Toxic Substance Reduction Planner

TSR0071
License Number


12/17/2013
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- Cyclooctane



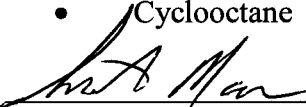
Frederik Donkers
Sarnia Chemical Plant Manager

DEC 17, 2013
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- Cyclooctane



Scott Manser
Toxic Substance Reduction Planner

TSR0071
License Number

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- Decane

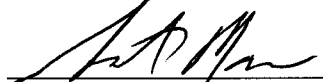

Frederik Donkers
Sarnia Chemical Plant Manager

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- Decane


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TSRP0071
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- CAS# 77-73-6, Dicyclopentadiene



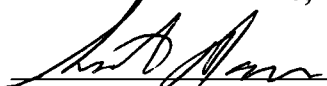
Frederik Donkers
Sarnia Chemical Plant Manager

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- CAS# 77-73-6, Dicyclopentadiene



Scott Manser
Toxic Substance Reduction Planner

TSRP0071
License Number

12/17/2013
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- 107-21-1, Ethylene Glycol

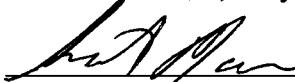

Frederik Donkers
Sarnia Chemical Plant Manager

DEC 17, 2013
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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

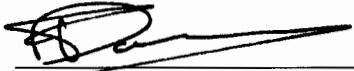
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knowledge the plan is factually accurate and complies with the *Toxics Reduction Act, 2009* and Ontario
Regulation 455/09 (General) made under that Act.

- CAS# 74-85-1, Ethylene




Frederik Donkers
Sarnia Chemical Plant Manager

DEC 17, 2013
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Toxic Substance Reduction Planner

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- CAS# 74-85-1, Ethylene



Scott Manser
Toxic Substance Reduction Planner

TSRP0071
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12/17/2013
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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.

- CAS # 7783-06-4, H2S



Frederik Donkers
Chemical Plant Manager, Sarnia Chemical Plant

DEC 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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- CAS # 7783-06-4, H2S



Toxic Substance Reduction Planner

TSRP0071
License Number

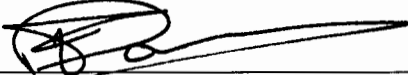
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- Heptane




Frederik Donkers
Sarnia Chemical Plant Manager

DEC 17, 2013
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- Heptane



Scott Manser
Toxic Substance Reduction Planner

TSRP0071
License Number

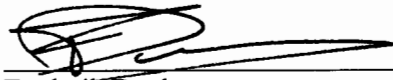
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- Hexane



Frederik Donkers
Sarnia Chemical Plant Manager

DEC 17, 2013
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- Hexane



Scott Manser
Toxic Substance Reduction Planner

TSRP0071
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knowledge the plan is factually accurate and complies with the *Toxics Reduction Act, 2009* and Ontario
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- CAS# 25264-93-1, Hexene



Frederik Donkers
Sarnia Chemical Plant Manager

DEC 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 Chemical Plant 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 12/11/2013 and that the plan
complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- CAS# 25264-93-1, Hexene


Scott Manser
Toxic Substance Reduction Planner

TSRP0071
License Number

12/17/2013
Date