Imperial Oil
Products and Chemicals Division
Nanticoke Refinery
P.O. Box 500
Nanticoke, Ontario
N0A 1L0

R. Henderson
Refinery Manager

Tel. (519) 587-4992
Fax. (519) 587-7070

December 2012

Nanticoke Refinery – Reduction plan summary (OR 455/09)

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

Petroleum refineries process crude oil to manufacture finished products that are used and valued by our society such as gasoline and heating oil. Crude oil may contain varying quantities of the substances covered under the TRA. Through the tightly controlled multi-step refinery operation, a variety of substances are used, created and transformed within contained piping and vessels. Finished products are regulated for both content (sulphur levels, for example) and use (pollution controls and higher mileage vehicles). In addition, Imperial Oil has comprehensive programs in place at all 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.

Government of Canada Gouvernement du Canada

Canada

Single Window Reporting

NPRI and Partners

Plan Summary Preview

Company Details

Company Legal Name:

Imperial Oil

Company Address:

237 4th Avenue Southwest, Calgary (Alberta)

Report Details

Facility:

Nanticoke Refinery

Facility Address:

225 2nd Concession, Nanticoke (Ontario)

Update Comments:

Activities

Select the Facility Contacts

Select the Facility Contacts

Contacts

Please assign the appropriate contact under each category below.

Public Contact:*

Jon Harding

Highest Ranking Employee:

Person responsible for Toxic Substance Reduction Plan preparation:

Organization Validation

The information in this section was copied from the Single Window Information Manager (SWIM) at the time the plan summary was created. Please verify the information and update it where required. Please note that any changes made here will only be reflected in this plan summary. To ensure updates reflected in future reports, please ensure the information is updated in SWIM. After making updates in SWIM, return here and click the "Refresh" button to trigger a reload of the SWIM information. Please note all previously entered data will be modified.

Company and Parent Company Information

Company Details

Company Legal Name:*

Imperial Oil

Company Trade Name:*

Imperial Oil

Business Number:*

121461107

Mailing Address

Delivery Mode:

Post Office Box

PO Box or Rural Route Number:

2480

Address Line 1:

237 4th Avenue Southwest

City:

Calgary

Province/Territory:

Alberta

Postal Code:

T2P3M9

Physical Address

Address Line 1:

237 4th Avenue Southwest

City:

Calgary

Province/Territory:

Alberta

Postal Code:

T2P3M9

Additional Information:

Land Survey Description:

National Topographical Description:

Parent Companies

Empty

Facility Validation

The information in this section was copied from the Single Window Information Manager (SWIM) at the time the plan summary was created. Please verify the information and update it where required. Please note that any changes made here will only be reflected in this plan summary. To ensure updates reflected in future reports, please ensure the information is updated in SWIM. After making updates in SWIM, return here and click the "Refresh" button to trigger a reload of the SWIM information. Please note all previously entered data will be modified.

Facility Information

Facility:*

Nanticoke Refinery

NAICS Id:*

324110

NPRI Id:*

3701

ON Reg 127/01 Id:

Mailing Address

Delivery Mode:

General Delivery

PO Box or Rural Route Number:

500

Address Line 1:

225 Concession 2 Concession

City:

Nanticoke

Province/Territory:

Ontario

Postal Code:

N0A1L0

Physical Address

Address Line 1:

225 2nd Concession

City:

Nanticoke

Province/Territory:

Ontario

Postal Code:

N0A1L0

UTM Zone:

17

UTM Easting:

578000

UTM Northing:

4743000

Latitude:

42.83750

Longitude:

80.05170

Additional Information:

Land Survey Description:

National Topographical Description:

Contact Validation

The information in this section was copied from the Single Window Information Manager (SWIM) at the time the plan summary was created. Please verify the information and update it where required. Please note that any changes made here will only be reflected in this plan summary. To ensure updates reflected in future reports, please ensure the information is updated in SWIM. After making updates in SWIM, return here and click the "Refresh" button to trigger a reload of the SWIM information. Please note all previously entered data will be modified.

Contacts

Public Contact:

First Name:*

Jon

Last Name:*

Harding

Position:*

Public Contact

Telephone:*

519-339-4015

Ext:

Fax:

Email:*

jon.s.harding@esso.ca

Mailing Address

Delivery Mode:

PO Box or Rural Route Number:

3004

Address Line 1:

602 Christina Street South

City:

Sarnia

Province/Territory:

Ontario

Postal Code:

N7T7M5

Employees

Employees

Number of Full-time Employees:*

287

Substances

108-88-3, Toluene

108-88-3, Toluene

Substances Section Data

Statement of Intent

Are the following included in the Facility's TRA Plan?

Use

Is there a statement that the owner or operator of the facility intends to reduce the use of the toxic substance at the facility?:*

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the use of the toxic substance at the facility:**

If 'no', reason in the facility's TRA Plan for no intent to reduce the use of the toxic substance at the facility:**

Toluene is a naturally occurring component of crude oil, and a component of various refinery feedstock. It is also a component of some additives used onsite. Toluene is used by the refinery to meet the required octane specifications of its products.

Creation

Is there a statement that the owner or operator of the facility intends to reduce the creation of the toxic substance at the facility?:*

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the creation of the toxic substance at the facility:**

If 'no', reason in the facility's TRA Plan for no intent to reduce the creation of the toxic substance at the facility:**

Toluene is created at the facility through complex chemical reactions in various conversion units. Toluene is created by the refinery to meet the required octane specifications of its products.

Objectives, Targets and Description

Objectives

Objectives in plan:*

While Nanticoke has not identified any feasible options to reduce the use or creation of toluene at the facility, various projects at Nanticoke refinery are expected to reduce fugitive emissions of toluene in the coming years. These projects include tank upgrades and improvements to the fugitive emission monitoring program. A reduction in the amount disposed is also expected as 2011 included a one-time shipment of additive.

Use Targets

What is the targeted reduction in use of the toxic substance at the facility?*

Quantity

Unit

☑ No quantity target

or

What is the targeted timeframe for this reduction?*

☑ No timeline target

or

years

Description of targets:

Creation Targets

What is the targeted reduction in creation of the toxic substance at the facility?*

Quantity

Unit

☑ No quantity target

or

What is the targeted timeframe for this reduction?*

☑ No timeline target

or

years

Description of targets:

Reasons for Use

Why is the toxic substance used at the facility?:*

As a formulation component

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

Toluene is a component of various refinery feedstock and is used by the refinery to meet the required octane specifications of its products.

Reasons for Creation

Why is the toxic substance created at the facility?:*

As a formulation component

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

Toluene is created at the facility through complex chemical reactions in various conversion units, and is used by the refinery to meet the required octane specifications of its products.

Toxic Reduction Options for Implementation

Description of the toxic reduction option(s) to be implemented:

Is there a statement that no option will be implemented?:*

Yes

If you answered “No” to this question, please add the option(s) under the appropriate Toxic Substance Reduction Categories (e.g. Materials or feedstock substitution, Product design or reformulation, etc.). If you answered “Yes” please provide an explanation below why your facility is not implementing an option.

Explanation of the reasons why no option will be implemented:**

Toluene is used and created by the refinery to meet the required octane specifications of its products.

Materials or feedstock substitution

Empty

Product design or reformulation

Empty

Equipment or process modifications

Empty

Spill or leak prevention

Empty

On-site reuse, recycling or recovery

Empty

Improved inventory management or purchasing techniques

Empty

Good operator practice or training

Empty

Rationale for why the listed options were chosen for implementation:

General description of any actions undertaken by the owner and operator of the facility to reduce the use and creation of the toxic substance at the facility that are outside of the plan:

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

TRSP0071

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

TRSP0071

What version of the plan is this summary based on?: *

New Plan

1330-20-7, Xylene (all isomers)

1330-20-7, Xylene (all isomers)

Substances Section Data

Statement of Intent

Are the following included in the Facility's TRA Plan?

Use

Is there a statement that the owner or operator of the facility intends to reduce the use of the toxic substance at the facility?:*

Yes

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the use of the toxic substance at the facility:**

Imperial Oil intends to reduce the use of xylene (all isomers) at the facility related to its use in additive(s).

If 'no', reason in the facility's TRA Plan for no intent to reduce the use of the toxic substance at the facility:**

Creation

Is there a statement that the owner or operator of the facility intends to reduce the creation of the toxic substance at the facility?:*

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the creation of the toxic substance at the facility:**

If 'no', reason in the facility's TRA Plan for no intent to reduce the creation of the toxic substance at the facility:**

Xylene (all isomers) is created at the facility through complex chemical reactions in various conversion units. Xylene (all isomers) is created by the refinery to meet the required octane specifications of its products.

Objectives, Targets and Description

Objectives

Objectives in plan:*

Xylene (all isomers) is currently used at the facility and enters the refinery in various additives and feedstock including crude oil. Xylene (all isomers) is created at the facility in the fluid catalytic cracking unit (FCCU) and catalytic reforming unit (CRU). Nanticoke refinery is targeting to reduce the use of xylene in additives by 2.7 tonnes. Various projects at Nanticoke refinery are also expected

to reduce the fugitive emissions of xylene (all isomers) in the coming years. These projects include tank upgrades and improvements to the fugitive emission monitoring program.

Use Targets

What is the targeted reduction in use of the toxic substance at the facility?*

Quantity
Unit

☐ No quantity target

or

2.7

tonnes

What is the targeted timeframe for this reduction?*

☐ No timeline target

or

1

years

Description of targets:

Imperial Oil intends to reduce the use of xylene (all isomers) at the facility related to its use in additive(s).

Creation Targets

What is the targeted reduction in creation of the toxic substance at the facility?*

Quantity
Unit

☑ No quantity target

or

What is the targeted timeframe for this reduction?*

☑ No timeline target

or

years

Description of targets:

Reasons for Use

Why is the toxic substance used at the facility?:*

As a formulation component

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

Xylene is a component of various refinery feedstock, and is used by the refinery to meet the required octane specifications of its products.

Reasons for Creation

Why is the toxic substance created at the facility?:*

As a formulation component

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

Xylene is created at the facility through complex chemical reactions in various conversion units, and is used by the refinery to meet the required octane specifications of its products.

Toxic Reduction Options for Implementation

Description of the toxic reduction option(s) to be implemented:

Is there a statement that no option will be implemented?:*

No

If you answered “No” to this question, please add the option(s) under the appropriate Toxic Substance Reduction Categories (e.g. Materials or feedstock substitution, Product design or reformulation, etc.). If you answered “Yes” please provide an explanation below why your facility is not implementing an option.

Explanation of the reasons why no option will be implemented:**

Materials or feedstock substitution

Substituted materials

Which activities will be undertaken to implement these reduction options?

Which activities will be undertaken to implement these reduction options?: *

Substituted materials

Describe the option: *

Replace hydrocarbon sulphide scavenger additive with xylene-free version in FCCU. * SWIM reduction % entry limited to two decimal places, percentage reduction has been rounded up to 0.01.

Estimates

Select All

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

☐ N/A

2.7

tonnes

0.01

%

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

☑ N/A

tonnes

%

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

☐ N/A

2.7

tonnes

0.01

%

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

Select All

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

☐ N/A

1

years

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

☑ N/A

years

Product design or reformulation

Empty

Equipment or process modifications

Empty

Spill or leak prevention

Empty

On-site reuse, recycling or recovery

Empty

Improved inventory management or purchasing techniques

Empty

Good operator practice or training

Empty

Rationale for why the listed options were chosen for implementation:

General description of any actions undertaken by the owner and operator of the facility to reduce the use and creation of the toxic substance at the facility that are outside of the plan:

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

TRSP0071

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

TRSP0071

What version of the plan is this summary based on?: *

New Plan

67-56-1, Methanol

67-56-1, Methanol

Substances Section Data

Statement of Intent

Are the following included in the Facility's TRA Plan?

Use

Is there a statement that the owner or operator of the facility intends to reduce the use of the toxic substance at the facility?:*

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the use of the toxic substance at the facility:**

If 'no', reason in the facility's TRA Plan for no intent to reduce the use of the toxic substance at the facility:**

Methanol is used by the facility as an antifreeze in the refining process. A small amount of methanol is used by the laboratory. Imperial Oil is continuing to evaluate reduction options for methanol.

Creation

Is there a statement that the owner or operator of the facility intends to reduce the creation of the toxic substance at the facility?:*

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the creation of the toxic substance at the facility:**

If 'no', reason in the facility's TRA Plan for no intent to reduce the creation of the toxic substance at the facility:**

Methanol is not created at the facility.

Objectives, Targets and Description

Objectives

Objectives in plan:*

Methanol is used as an antifreeze for the refinery process equipment. We are continuing to evaluate methanol reduction options.

Use Targets

What is the targeted reduction in use of the toxic substance at the facility?*

Quantity

Unit

No quantity target

or

What is the targeted timeframe for this reduction?*

☑ No timeline target

or

years

Description of targets:

Creation Targets

What is the targeted reduction in creation of the toxic substance at the facility?*

Quantity

Unit

☑ No quantity target

or

What is the targeted timeframe for this reduction?*

☑ No timeline target

or

years

Description of targets:

Reasons for Use

Why is the toxic substance used at the facility?: *

As a physical or chemical processing aid

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

Methanol is used as an antifreeze for the refinery process equipment.

Reasons for Creation

Why is the toxic substance created at the facility?:*

This substance is not created at the facility

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

Toxic Reduction Options for Implementation

Description of the toxic reduction option(s) to be implemented:

Is there a statement that no option will be implemented?:*

Yes

If you answered “No” to this question, please add the option(s) under the appropriate Toxic Substance Reduction Categories (e.g. Materials or feedstock substitution, Product design or reformulation, etc.). If you answered “Yes” please provide an explanation below why your facility is not implementing an option.

Explanation of the reasons why no option will be implemented:**

Imperial Oil is continuously looking at opportunities to reduce the impact of the refinery on the environment. We are continuing to evaluate the reduction options and are not yet finalized on which (if any) of the option identified in the plan will be implemented.

Materials or feedstock substitution

Empty

Product design or reformulation

Empty

Equipment or process modifications

Empty

Spill or leak prevention

Empty

On-site reuse, recycling or recovery

Empty

Improved inventory management or purchasing techniques

Empty

Good operator practice or training

Empty

Rationale for why the listed options were chosen for implementation:

General description of any actions undertaken by the owner and operator of the facility to reduce the use and creation of the toxic substance at the facility that are outside of the plan:

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

TRSP0071

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

TRSP0071

What version of the plan is this summary based on?: *

New Plan

71-43-2, Benzene

71-43-2, Benzene

Substances Section Data

Statement of Intent

Are the following included in the Facility's TRA Plan?

Use

Is there a statement that the owner or operator of the facility intends to reduce the use of the toxic substance at the facility?: *

No

If ‘yes’, exact statement of the intent that is included in the facility’s TRA Plan to reduce the use of the toxic substance at the facility: **

If ‘no’, reason in the facility’s TRA Plan for no intent to reduce the use of the toxic substance at the facility: **

Nanticoke refinery is in the business of producing benzene from crude oil to be used in other commercial and industrial applications.

Creation

Is there a statement that the owner or operator of the facility intends to reduce the creation of the toxic substance at the facility?: *

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the creation of the toxic substance at the facility: **

If 'no', reason in the facility's TRA Plan for no intent to reduce the creation of the toxic substance at the facility: **

Nanticoke refinery is in the business of producing benzene from crude oil to be used in other commercial and industrial applications.

Objectives, Targets and Description

Objectives

Objectives in plan: *

Nanticoke refinery is in the business of producing benzene from crude oil to be used in other commercial and industrial applications. However, various projects at Nanticoke refinery are expected to reduce fugitive emissions of benzene in the coming years. These projects include tank upgrades and improvements to the fugitive emission monitoring program.

Use Targets

What is the targeted reduction in use of the toxic substance at the facility?*

Quantity

Unit

☑ No quantity target

or

What is the targeted timeframe for this reduction?*

☑ No timeline target

or

years

Description of targets:

Creation Targets

What is the targeted reduction in creation of the toxic substance at the facility?*

Quantity

Unit

☑ No quantity target

or

What is the targeted timeframe for this reduction?*

☑ No timeline target

or

years

Description of targets:

Reasons for Use

Why is the toxic substance used at the facility?:*

For sale/distribution

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

Benzene enters the refinery in various feedstock. Nanticoke refinery is in the business of producing benzene from crude oil to be used in other commercial and industrial applications.

Reasons for Creation

Why is the toxic substance created at the facility?:*

For sale/distribution

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

Benzene is created in various conversion units at the facility. Nanticoke refinery is in the business of producing benzene from crude oil to be used in other commercial and industrial applications.

Toxic Reduction Options for Implementation

Description of the toxic reduction option(s) to be implemented:

Is there a statement that no option will be implemented?:*

Yes

If you answered “No” to this question, please add the option(s) under the appropriate Toxic Substance Reduction Categories (e.g. Materials or feedstock substitution, Product design or reformulation, etc.). If you answered “Yes” please provide an explanation below why your facility is not implementing an option.

Explanation of the reasons why no option will be implemented:**

Nanticoke refinery is in the business of producing benzene from crude oil to be used in other commercial and industrial applications. Various projects at Nanticoke refinery are expected to reduce fugitive emissions of benzene in the coming years. These projects include tank upgrades and improvements to the fugitive emission monitoring program.

Materials or feedstock substitution

Empty

Product design or reformulation

Empty

Equipment or process modifications

Empty

Spill or leak prevention

Empty

On-site reuse, recycling or recovery

Empty

Improved inventory management or purchasing techniques

Empty

Good operator practice or training

Empty

Rationale for why the listed options were chosen for implementation:

General description of any actions undertaken by the owner and operator of the facility to reduce the use and creation of the toxic substance at the facility that are outside of the plan:

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

TRSP0071

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

TRSP0071

What version of the plan is this summary based on?: *

New Plan

NA - 10, Mercury (and its compounds)

NA - 10, Mercury (and its compounds)

Substances Section Data

Statement of Intent

Are the following included in the Facility's TRA Plan?

Use

Is there a statement that the owner or operator of the facility intends to reduce the use of the toxic substance at the facility?: *

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the use of the toxic substance at the facility: **

If 'no', reason in the facility's TRA Plan for no intent to reduce the use of the toxic substance at the facility: **

Mercury (and its compounds) is naturally occurring in trace quantities in crude oil, which is required by the refinery to run its base business. Imperial Oil did not

identify any technically and economically feasible options to reduce the amount of mercury (and its compounds) currently used at the facility.

Creation

Is there a statement that the owner or operator of the facility intends to reduce the creation of the toxic substance at the facility?:*

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the creation of the toxic substance at the facility:**

If 'no', reason in the facility's TRA Plan for no intent to reduce the creation of the toxic substance at the facility:**

Mercury (and its compounds) is not created at the facility.

Objectives, Targets and Description

Objectives

Objectives in plan:*

Mercury (and its compounds) is naturally occurring in trace quantities in the crude oil required by the refinery to run its base business. The refinery has a mercury protocol in place that assesses the safe processing of mercury containing crudes, and includes components on industrial health, releases, equipment integrity and product specifications. No technically and economically feasible options were identified to reduce the use of mercury (and its compounds) at the facility.

Use Targets

What is the targeted reduction in use of the toxic substance at the facility?*

Quantity

Unit

☑ No quantity target

or

What is the targeted timeframe for this reduction?*

No timeline target

or

years

Description of targets:

Creation Targets

What is the targeted reduction in creation of the toxic substance at the facility?*

Quantity

Unit

No quantity target

or

What is the targeted timeframe for this reduction?*

No timeline target

or

years

Description of targets:

Reasons for Use

Why is the toxic substance used at the facility?:*

As an impurity

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

Mercury is an impurity in the facility's feedstock.

Reasons for Creation

Why is the toxic substance created at the facility?:*

This substance is not created at the facility

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

Toxic Reduction Options for Implementation

Description of the toxic reduction option(s) to be implemented:

Is there a statement that no option will be implemented?:*

Yes

If you answered “No” to this question, please add the option(s) under the appropriate Toxic Substance Reduction Categories (e.g. Materials or feedstock substitution, Product design or reformulation, etc.). If you answered “Yes” please provide an explanation below why your facility is not implementing an option.

Explanation of the reasons why no option will be implemented:**

Mercury (and its compounds) is naturally occurring in trace quantities in the crude oil that is required by the refinery to run its base business. No technically and economically feasible options were identified that would be expected to reduce the use of mercury (and its compounds) at the facility.

Materials or feedstock substitution

Empty

Product design or reformulation

Empty

Equipment or process modifications

Empty

Spill or leak prevention

Empty

On-site reuse, recycling or recovery

Empty

Improved inventory management or purchasing techniques

Empty

Good operator practice or training

Empty

Rationale for why the listed options were chosen for implementation:

General description of any actions undertaken by the owner and operator of the facility to reduce the use and creation of the toxic substance at the facility that are outside of the plan:

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

TRSP0071

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

TRSP0071

What version of the plan is this summary based on?:*

New Plan

NA - 01, Antimony (and its compounds)

NA - 01, Antimony (and its compounds)

Substances Section Data

Statement of Intent

Are the following included in the Facility's TRA Plan?

Use

Is there a statement that the owner or operator of the facility intends to reduce the use of the toxic substance at the facility?:*

No

If ‘yes’, exact statement of the intent that is included in the facility’s TRA Plan to reduce the use of the toxic substance at the facility:**

If ‘no’, reason in the facility’s TRA Plan for no intent to reduce the use of the toxic substance at the facility:**

Imperial Oil is continuing to evaluate reduction options for antimony (and its compounds).

Creation

Is there a statement that the owner or operator of the facility intends to reduce the creation of the toxic substance at the facility?:*

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the creation of the toxic substance at the facility:**

If 'no', reason in the facility's TRA Plan for no intent to reduce the creation of the toxic substance at the facility:**

Antimony is not created at the facility.

Objectives, Targets and Description

Objectives

Objectives in plan:*

Antimony is used to trap nickel in the catalytic cracking unit. We are continuing to evaluate antimony (and its compounds) reduction options.

Use Targets

What is the targeted reduction in use of the toxic substance at the facility?*

Quantity

Unit

☑ No quantity target

or

What is the targeted timeframe for this reduction?*

☑ No timeline target

or

years

Description of targets:

Creation Targets

What is the targeted reduction in creation of the toxic substance at the facility?*

Quantity
Unit

☑ No quantity target

or

What is the targeted timeframe for this reduction?*

☑ No timeline target

or

years

Description of targets:

Reasons for Use

Why is the toxic substance used at the facility?:*

As a physical or chemical processing aid

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

Antimony is used to trap nickel in the catalytic cracking unit.

Reasons for Creation

Why is the toxic substance created at the facility?:*

This substance is not created at the facility

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

Antimony is not created at the facility.

Toxic Reduction Options for Implementation

Description of the toxic reduction option(s) to be implemented:

Is there a statement that no option will be implemented?:*

Yes

If you answered “No” to this question, please add the option(s) under the appropriate Toxic Substance Reduction Categories (e.g. Materials or feedstock substitution, Product design or reformulation, etc.). If you answered “Yes” please provide an explanation below why your facility is not implementing an option.

Explanation of the reasons why no option will be implemented:**

Imperial Oil is continuously looking at opportunities to reduce the impact of the refinery on the environment. We are continuing to evaluate the reduction options and are not yet finalized on which (if any) of the option identified in the plan will be implemented.

Materials or feedstock substitution

Empty

Product design or reformulation

Empty

Equipment or process modifications

Empty

Spill or leak prevention

Empty

On-site reuse, recycling or recovery

Empty

Improved inventory management or purchasing techniques

Empty

Good operator practice or training

Empty

Rationale for why the listed options were chosen for implementation:

General description of any actions undertaken by the owner and operator of the facility to reduce the use and creation of the toxic substance at the facility that are outside of the plan:

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

TRSP0071

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

TRSP0071

What version of the plan is this summary based on?:*

New Plan

100-41-4, Ethylbenzene

100-41-4, Ethylbenzene

Substances Section Data

Statement of Intent

Are the following included in the Facility's TRA Plan?

Use

Is there a statement that the owner or operator of the facility intends to reduce the use of the toxic substance at the facility?:*

Yes

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the use of the toxic substance at the facility:**

Imperial Oil intends to reduce the use of ethylbenzene at the facility related to its use in additive(s).

If 'no', reason in the facility's TRA Plan for no intent to reduce the use of the toxic substance at the facility:**

Creation

Is there a statement that the owner or operator of the facility intends to reduce the creation of the toxic substance at the facility?:*

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the creation of the toxic substance at the facility:**

If 'no', reason in the facility's TRA Plan for no intent to reduce the creation of the toxic substance at the facility:**

Ethylbenzene is created at the facility through complex chemical reactions in various conversion units and is used by the refinery to meet the required octane specifications of its products.

Objectives, Targets and Description

Objectives

Objectives in plan: *

Ethylbenzene is currently used at the facility and enters the refinery in various additives and feedstock including crude oil. Ethylbenzene is created at the facility in the fluid catalytic cracking unit (FCCU) and catalytic reforming unit (CRU). Nanticoke refinery is targeting to reduce the use of ethylbenzene in additives by 0.3 tonnes. In addition, various projects at Nanticoke refinery are expected to reduce the fugitive emissions of ethylbenzene in the coming years. These projects include tank upgrades and improvements to the fugitive emission monitoring program.

Use Targets

What is the targeted reduction in use of the toxic substance at the facility?*

Quantity
Unit

☐ No quantity target

or

0.3

tonnes

What is the targeted timeframe for this reduction?*

☐ No timeline target

or

1

years

Description of targets:

Nanticoke refinery is targeting to reduce the use of ethylbenzene in additives by 0.3 tonnes.

Creation Targets

What is the targeted reduction in creation of the toxic substance at the facility?*

Quantity
Unit

☑ No quantity target

or

What is the targeted timeframe for this reduction?*

☑ No timeline target

or

years

Description of targets:

Reasons for Use

Why is the toxic substance used at the facility?:*

As a formulation component

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

Ethylbenzene is a naturally occurring component of crude oil and is used by the refinery to meet the required octane specifications of its products.

Reasons for Creation

Why is the toxic substance created at the facility?:*

As a formulation component

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

Ethylbenzene is created at the facility through complex chemical reactions in various conversion units, and is used by the refinery to meet the required octane specifications of its products.

Toxic Reduction Options for Implementation

Description of the toxic reduction option(s) to be implemented:

Is there a statement that no option will be implemented?:*

No

If you answered “No” to this question, please add the option(s) under the appropriate Toxic Substance Reduction Categories (e.g. Materials or feedstock substitution, Product design or reformulation, etc.). If you answered “Yes” please provide an explanation below why your facility is not implementing an option.

Explanation of the reasons why no option will be implemented:**

Materials or feedstock substitution

Substituted materials

Which activities will be undertaken to implement these reduction options?

Which activities will be undertaken to implement these reduction options?:*

Substituted materials

Describe the option:*

Replace hydrocarbon sulphide scavenger additive with ethylbenzene - free version in FCCU. * SWIM reduction % entry limited to two decimal places, percentage reduction has been rounded up to 0.01.

Estimates

Select All

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

0.3

tonnes

0.01

%

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

0.3

tonnes

0.01

%

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

Select All

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

N/A

1

years

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

N/A

years

Product design or reformulation

Empty

Equipment or process modifications

Empty

Spill or leak prevention

Empty

On-site reuse, recycling or recovery

Empty

Improved inventory management or purchasing techniques

Empty

Good operator practice or training

Empty

Rationale for why the listed options were chosen for implementation:

General description of any actions undertaken by the owner and operator of the facility to reduce the use and creation of the toxic substance at the facility that are outside of the plan:

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

TRSP0071

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

TRSP0071

What version of the plan is this summary based on?: *

New Plan

7647-01-0, Hydrochloric acid

7647-01-0, Hydrochloric acid

Substances Section Data

Statement of Intent

Are the following included in the Facility's TRA Plan?

Use

Is there a statement that the owner or operator of the facility intends to reduce the use of the toxic substance at the facility?:*

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the use of the toxic substance at the facility:**

If 'no', reason in the facility's TRA Plan for no intent to reduce the use of the toxic substance at the facility:**

Hydrochloric acid is not used at the facility.

Creation

Is there a statement that the owner or operator of the facility intends to reduce the creation of the toxic substance at the facility?:*

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the creation of the toxic substance at the facility:**

If 'no', reason in the facility's TRA Plan for no intent to reduce the creation of the toxic substance at the facility:**

Hydrochloric acid is created through the conversion of tetrachloroethylene in the catalytic reforming unit (CRU) and organic chlorides in the fluid catalytic cracking unit (FCCU). No technically and economically feasible options to reduce the creation of hydrochloric acid were identified at this time.

Objectives, Targets and Description

Objectives

Objectives in plan:*

Hydrochloric acid is created at the facility through the conversion of organic chlorides in various conversion units onsite. There were no technically and economically feasible options identified to reduce the creation of hydrochloric acid at the facility.

Use Targets

What is the targeted reduction in use of the toxic substance at the facility?*

Quantity

Unit

☑ No quantity target

or

What is the targeted timeframe for this reduction?*

☑ No timeline target

or

years

Description of targets:

Creation Targets

What is the targeted reduction in creation of the toxic substance at the facility?*

Quantity

Unit

☑ No quantity target

or

What is the targeted timeframe for this reduction?*

☑

No timeline target

or

years

Description of targets:

Reasons for Use

Why is the toxic substance used at the facility?:*

This substance is not used at the facility

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

Reasons for Creation

Why is the toxic substance created at the facility?:*

As a by-product

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

Hydrochloric acid is created at the facility through the conversion of tetrachloroethylene in the catalytic reforming unit (CRU) and the conversion of organic chlorides in the fluid catalytic cracking unit (FCCU).

Toxic Reduction Options for Implementation

Description of the toxic reduction option(s) to be implemented:

Is there a statement that no option will be implemented?:*

Yes

If you answered “No” to this question, please add the option(s) under the appropriate Toxic Substance Reduction Categories (e.g. Materials or feedstock substitution, Product design or reformulation, etc.). If you answered “Yes” please provide an explanation below why your facility is not implementing an option.

Explanation of the reasons why no option will be implemented:**

Hydrochloric acid is created via the conversion of tetrachloroethylene in the catalytic reforming unit and of organic chlorides in the fluid catalytic cracking unit. No technically and economically feasible options to reduce the creation of hydrochloric acid were identified at this time.

Materials or feedstock substitution

Empty

Product design or reformulation

Empty

Equipment or process modifications

Empty

Spill or leak prevention

Empty

On-site reuse, recycling or recovery

Empty

Improved inventory management or purchasing techniques

Empty

Good operator practice or training

Empty

Rationale for why the listed options were chosen for implementation:

General description of any actions undertaken by the owner and operator of the facility to reduce the use and creation of the toxic substance at the facility that are outside of the plan:

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

TRSP0071

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

TRSP0071

What version of the plan is this summary based on?: *

New Plan

91-20-3, Naphthalene

91-20-3, Naphthalene

Substances Section Data

Statement of Intent

Are the following included in the Facility's TRA Plan?

Use

Is there a statement that the owner or operator of the facility intends to reduce the use of the toxic substance at the facility?:*

Yes

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the use of the toxic substance at the facility:**

Imperial Oil intends to reduce the use of naphthalene at the facility related to its use as a carrier fluid in additive(s).

If 'no', reason in the facility's TRA Plan for no intent to reduce the use of the toxic substance at the facility:**

Creation

Is there a statement that the owner or operator of the facility intends to reduce the creation of the toxic substance at the facility?:*

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the creation of the toxic substance at the facility:**

If 'no', reason in the facility's TRA Plan for no intent to reduce the creation of the toxic substance at the facility:**

Naphthalene is created as a by-product through complex chemical reactions in various processes at the facility. The operations of these units vary to meet market demands and product specifications and are not able to be adjusted to minimize the creation of one specific substance.

Objectives, Targets and Description

Objectives

Objectives in plan:*

Naphthalene is currently used at the facility and enters the refinery in various additives and feedstock including crude oil. Naphthalene is created at the facility in the fluid catalytic cracking unit (FCCU) and catalytic reforming unit (CRU). Nanticoke refinery is targeting to reduce the use of naphthalene in additives by 0.07 tonnes.

Use Targets

What is the targeted reduction in use of the toxic substance at the facility?*

Quantity
Unit

☐ No quantity target

or

0.07

tonnes

What is the targeted timeframe for this reduction?*

☐ No timeline target

or

1

years

Description of targets:

Nanticoke refinery is targeting to reduce the use of naphthalene in additives by 0.07 tonnes.

Creation Targets

What is the targeted reduction in creation of the toxic substance at the facility?*

Quantity
Unit

☑ No quantity target

or

What is the targeted timeframe for this reduction?*

☑ No timeline target

or

years

Description of targets:

Reasons for Use

Why is the toxic substance used at the facility?:*

As a formulation component

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

Naphthalene is a naturally occurring component of crude oil and a component of various refinery feedstock, which are required by the refinery to run its base business. Naphthalene is a component of the refinery's products.

Reasons for Creation

Why is the toxic substance created at the facility?:*

As a formulation component

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

Naphthalene is created as a by-product through complex chemical reactions in various processes at the facility. Naphthalene is a component of the refinery's products.

Toxic Reduction Options for Implementation

Description of the toxic reduction option(s) to be implemented:

Is there a statement that no option will be implemented?:*

No

If you answered “No” to this question, please add the option(s) under the appropriate Toxic Substance Reduction Categories (e.g. Materials or feedstock substitution, Product design or reformulation, etc.). If you answered “Yes” please provide an explanation below why your facility is not implementing an option.

Explanation of the reasons why no option will be implemented:**

Materials or feedstock substitution

Substituted materials

Which activities will be undertaken to implement these reduction options?

Which activities will be undertaken to implement these reduction options?: *

Substituted materials

Describe the option: *

Replace hydrocarbon sulphide scavenger additive with naphthalene-free version in FCCU. * SWIM reduction % entry limited to two decimal places, percentage reduction has been rounded up to 0.01.

Estimates

Select All

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

0.07

tonnes

0.01

%

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

0.07

tonnes

0.01

%

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

Select All

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

N/A

1

years

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

N/A

years

Product design or reformulation

Empty

Equipment or process modifications

Empty

Spill or leak prevention

Empty

On-site reuse, recycling or recovery

Empty

Improved inventory management or purchasing techniques

Empty

Good operator practice or training

Empty

Rationale for why the listed options were chosen for implementation:

General description of any actions undertaken by the owner and operator of the facility to reduce the use and creation of the toxic substance at the facility that are outside of the plan:

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

TRSP0071

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

TRSP0071

What version of the plan is this summary based on?:*

New Plan

108-95-2, Phenol (and its salts)

108-95-2, Phenol (and its salts)

Substances Section Data

Statement of Intent

Are the following included in the Facility's TRA Plan?

Use

Is there a statement that the owner or operator of the facility intends to reduce the use of the toxic substance at the facility?:*

No

If ‘yes’, exact statement of the intent that is included in the facility’s TRA Plan to reduce the use of the toxic substance at the facility:**

If 'no', reason in the facility's TRA Plan for no intent to reduce the use of the toxic substance at the facility:**

Phenol (and its salts) used at the facility is an active ingredient in various additives. These additives are used to stabilize and prolong the shelf life of the finished products. No viable alternatives were identified that would result in a net reduction of toxic substances used at the facility.

Creation

Is there a statement that the owner or operator of the facility intends to reduce the creation of the toxic substance at the facility?:*

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the creation of the toxic substance at the facility:**

If 'no', reason in the facility's TRA Plan for no intent to reduce the creation of the toxic substance at the facility:**

Phenol (and its salts) is created through combustion processes. The type of fuel tied to the creation of phenol is generated onsite by other process units. In order to maximize energy efficiency, the facility uses this fuel to fire various onsite combustion units.

Objectives, Targets and Description

Objectives

Objectives in plan:*

Phenol (and its salts) is an active ingredient of various additives used to prolong the shelf life of finished products. No viable alternatives were identified that would result in a net reduction of toxic substances used at the facility. Phenol (and its salts) is created in combustion processes. Reducing the creation of phenol would not result in a net reduction of toxic substances created at the facility. No feasible options to reduce the creation of phenol (and its salts) were identified.

Use Targets

What is the targeted reduction in use of the toxic substance at the facility?*

Quantity

Unit

☑ No quantity target

or

What is the targeted timeframe for this reduction?*

No timeline target

or

years

Description of targets:

Creation Targets

What is the targeted reduction in creation of the toxic substance at the facility?*

Quantity

Unit

No quantity target

or

What is the targeted timeframe for this reduction?*

No timeline target

or

years

Description of targets:

Reasons for Use

Why is the toxic substance used at the facility?:*

As a physical or chemical processing aid

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

Phenol is an active ingredient in various additives and is used to prolong the shelf life of finished products.

Reasons for Creation

Why is the toxic substance created at the facility?:*

As a by-product

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

Phenol is created as a byproduct of combustion processes.

Toxic Reduction Options for Implementation

Description of the toxic reduction option(s) to be implemented:

Is there a statement that no option will be implemented?:*

Yes

If you answered “No” to this question, please add the option(s) under the appropriate Toxic Substance Reduction Categories (e.g. Materials or feedstock substitution, Product design or reformulation, etc.). If you answered “Yes” please provide an explanation below why your facility is not implementing an option.

Explanation of the reasons why no option will be implemented:**

Phenol (and its salts) used onsite is found in various additives. No alternative additives were identified that would reduce the overall quantity of toxic substances used by the refinery. Phenol (and its salts) is created through combustion units at the facility. Reducing the creation of phenol would not result in a net reduction of toxic substances created at the facility. No feasible options to reduce the creation of phenol (and its salts) were identified.

Materials or feedstock substitution

Empty

Product design or reformulation

Empty

Equipment or process modifications

Empty

Spill or leak prevention

Empty

On-site reuse, recycling or recovery

Empty

Improved inventory management or purchasing techniques

Empty

Good operator practice or training

Empty

Rationale for why the listed options were chosen for implementation:

General description of any actions undertaken by the owner and operator of the facility to reduce the use and creation of the toxic substance at the facility that are outside of the plan:

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

TRSP0071

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

TRSP0071

What version of the plan is this summary based on?: *

New Plan

7664-93-9, Sulphuric acid

7664-93-9, Sulphuric acid

Substances Section Data

Statement of Intent

Are the following included in the Facility's TRA Plan?

Use

Is there a statement that the owner or operator of the facility intends to reduce the use of the toxic substance at the facility?: *

Yes

If ‘yes’, exact statement of the intent that is included in the facility’s TRA Plan to reduce the use of the toxic substance at the facility: **

Imperial Oil intends to reduce the use of sulphuric acid at the facility.

If 'no', reason in the facility's TRA Plan for no intent to reduce the use of the toxic substance at the facility:**

Creation

Is there a statement that the owner or operator of the facility intends to reduce the creation of the toxic substance at the facility?:*

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the creation of the toxic substance at the facility:**

If 'no', reason in the facility's TRA Plan for no intent to reduce the creation of the toxic substance at the facility:**

Sulphuric acid is created primarily through onsite combustion processes, while a trace amount is created in certain conversion units due to the reaction of organic sulphur in the feed. No economically and technically feasible options were identified to reduce the creation of sulphuric acid at the facility

Objectives, Targets and Description

Objectives

Objectives in plan:*

Sulphuric acid is currently used at the Nanticoke refinery primarily as a catalyst in the alkylation unit, and is sent for offsite regeneration. Sulphuric acid is created at the facility primarily through combustion processes. Nanticoke refinery is targeting to reduce the use of sulphuric acid onsite by 1760 tonnes. These measures are also expected to result in a reduction in the amount of sulphuric acid transferred offsite for regeneration.

Use Targets

What is the targeted reduction in use of the toxic substance at the facility?*

Quantity

Unit

☐ No quantity target

or

1760

tonnes

What is the targeted timeframe for this reduction?*

☐ No timeline target

or

2 years

Description of targets:

Creation Targets

What is the targeted reduction in creation of the toxic substance at the facility?*

Quantity

Unit

☑ No quantity target

or

What is the targeted timeframe for this reduction?*

☑ No timeline target

or

years

Description of targets:

Reasons for Use

Why is the toxic substance used at the facility?: *

As a physical or chemical processing aid

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

Sulphuric acid is predominantly used as a catalyst in the alkylation unit, with the remainder used as a regenerant in the water treatment plant and a neutralizer in the cooling tower.

Reasons for Creation

Why is the toxic substance created at the facility?:*

As a by-product

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

Sulphuric acid is a byproduct of combustion processes. A trace amount is created as a byproduct in certain conversion units due to the reaction of organic sulphur in the feed.

Toxic Reduction Options for Implementation

Description of the toxic reduction option(s) to be implemented:

Is there a statement that no option will be implemented?:*

No

If you answered “No” to this question, please add the option(s) under the appropriate Toxic Substance Reduction Categories (e.g. Materials or feedstock substitution, Product design or reformulation, etc.). If you answered “Yes” please provide an explanation below why your facility is not implementing an option.

Explanation of the reasons why no option will be implemented:**

Materials or feedstock substitution

Empty

Product design or reformulation

Empty

Equipment or process modifications

Modified equipment, layout or piping

Which activities will be undertaken to implement these reduction options?

Which activities will be undertaken to implement these reduction options?:*

Modified equipment, layout or piping

Describe the option:*

Upgrade alky cooling technology

Estimates

Select All

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

1460

tonnes

5

%

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

1390

tonnes

5

%

Timelines

Select All

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

N/A

2

years

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

N/A

years

Other

Which activities will be undertaken to implement these reduction options?

Which activities will be undertaken to implement these reduction options?: *

Other

Describe the option: *

Add analyzer to alky

Estimates

Select All

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

300

tonnes

1

%

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

290

tonnes

1

%

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

Select All

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

☐ N/A

1

years

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

☑ N/A

years

Spill or leak prevention

Empty

On-site reuse, recycling or recovery

Empty

Improved inventory management or purchasing techniques

Empty

Good operator practice or training

Empty

Rationale for why the listed options were chosen for implementation:

General description of any actions undertaken by the owner and operator of the facility to reduce the use and creation of the toxic substance at the facility that are outside of the plan:

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

TRSP0071

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

TRSP0071

What version of the plan is this summary based on?:*

New Plan

127-18-4, Tetrachloroethylene

127-18-4, Tetrachloroethylene

Substances Section Data

Statement of Intent

Are the following included in the Facility's TRA Plan?

Use

Is there a statement that the owner or operator of the facility intends to reduce the use of the toxic substance at the facility?:*

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the use of the toxic substance at the facility:**

If 'no', reason in the facility's TRA Plan for no intent to reduce the use of the toxic substance at the facility:**

Tetrachloroethylene is used in the catalytic reforming unit as a source of chlorine to promote the conversion of paraffins and naphthenes to isoparaffins and aromatics. No technically and economically feasible options to reduce the use of tetrachloroethylene were identified at this time.

Creation

Is there a statement that the owner or operator of the facility intends to reduce the creation of the toxic substance at the facility?:*

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the creation of the toxic substance at the facility:**

If 'no', reason in the facility's TRA Plan for no intent to reduce the creation of the toxic substance at the facility:**

Tetrachloroethylene is not created at the facility.

Objectives, Targets and Description

Objectives

Objectives in plan: *

Tetrachloroethylene is currently used at the Nanticoke refinery as a promoter in the catalytic reforming unit (CRU). All of the tetrachloroethylene is transformed in the CRU. There were no technically and economically feasible options identified to reduce the use of tetrachloroethylene at the facility.

Use Targets

What is the targeted reduction in use of the toxic substance at the facility?*

Quantity

Unit

☑ No quantity target

or

What is the targeted timeframe for this reduction?*

☑ No timeline target

or

years

Description of targets:

Creation Targets

What is the targeted reduction in creation of the toxic substance at the facility?*

Quantity

Unit

☑

No quantity target

or

What is the targeted timeframe for this reduction?*

No timeline target

or

years

Description of targets:

Reasons for Use

Why is the toxic substance used at the facility?:*

As a physical or chemical processing aid

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

Tetrachloroethylene is used in the catalytic reforming unit as a source of chlorine to promote the conversion of paraffins and naphthenes to isoparaffins and aromatics.

Reasons for Creation

Why is the toxic substance created at the facility?:*

This substance is not created at the facility

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

Toxic Reduction Options for Implementation

Description of the toxic reduction option(s) to be implemented:

Is there a statement that no option will be implemented?:*

Yes

If you answered “No” to this question, please add the option(s) under the appropriate Toxic Substance Reduction Categories (e.g. Materials or feedstock substitution, Product design or reformulation, etc.). If you answered “Yes” please

provide an explanation below why your facility is not implementing an option.

Explanation of the reasons why no option will be implemented:**

No technically and economically feasible options were identified that would be expected to reduce the use of tetrachloroethylene at the facility. Tetrachloroethylene is used as a source of chlorine in the catalytic reforming unit, required by the refinery to create high octane substances in order to meet product specifications.

Materials or feedstock substitution

Empty

Product design or reformulation

Empty

Equipment or process modifications

Empty

Spill or leak prevention

Empty

On-site reuse, recycling or recovery

Empty

Improved inventory management or purchasing techniques

Empty

Good operator practice or training

Empty

Rationale for why the listed options were chosen for implementation:

General description of any actions undertaken by the owner and operator of the facility to reduce the use and creation of the toxic substance at the facility that are outside of the plan:

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

TRSP0071

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

TRSP0071

What version of the plan is this summary based on?:*

New Plan

NA - 03, Cadmium (and its compounds)

NA - 03, Cadmium (and its compounds)

Substances Section Data

Statement of Intent

Are the following included in the Facility's TRA Plan?

Use

Is there a statement that the owner or operator of the facility intends to reduce the use of the toxic substance at the facility?:*

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the use of the toxic substance at the facility:**

If 'no', reason in the facility's TRA Plan for no intent to reduce the use of the toxic substance at the facility:**

Cadmium (and its compounds) is not used in measureable quantities.

Creation

Is there a statement that the owner or operator of the facility intends to reduce the creation of the toxic substance at the facility?:*

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the creation of the toxic substance at the facility:**

If 'no', reason in the facility's TRA Plan for no intent to reduce the creation of the toxic substance at the facility:**

Cadmium (and its compounds) is not created at the facility.

Objectives, Targets and Description

Objectives

Objectives in plan:*

Cadmium (and its compounds) enters the facility at concentrations in the refinery feedstock that are below the measurement detection limit. Cadmium (and its compounds) is not created at the facility. No reduction options were identified at this time.

Use Targets

What is the targeted reduction in use of the toxic substance at the facility?*

Quantity

Unit

☑ No quantity target

or

What is the targeted timeframe for this reduction?*

☑ No timeline target

or

years

Description of targets:

Creation Targets

What is the targeted reduction in creation of the toxic substance at the facility?*

Quantity

Unit

☑ No quantity target

or

What is the targeted timeframe for this reduction?*

☑ No timeline target

or

years

Description of targets:

Reasons for Use

Why is the toxic substance used at the facility?:*

This substance is not used at the facility

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

Reasons for Creation

Why is the toxic substance created at the facility?:*

This substance is not created at the facility

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

Toxic Reduction Options for Implementation

Description of the toxic reduction option(s) to be implemented:

Is there a statement that no option will be implemented?:*

Yes

If you answered “No” to this question, please add the option(s) under the appropriate Toxic Substance Reduction Categories (e.g. Materials or feedstock substitution, Product design or reformulation, etc.). If you answered “Yes” please provide an explanation below why your facility is not implementing an option.

Explanation of the reasons why no option will be implemented:**

Cadmium (and its compounds) was not detected in any of the refinery feedstock, nor is it created onsite.

Materials or feedstock substitution

Empty

Product design or reformulation

Empty

Equipment or process modifications

Empty

Spill or leak prevention

Empty

On-site reuse, recycling or recovery

Empty

Improved inventory management or purchasing techniques

Empty

Good operator practice or training

Empty

Rationale for why the listed options were chosen for implementation:

General description of any actions undertaken by the owner and operator of the facility to reduce the use and creation of the toxic substance at the facility that are outside of the plan:

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

TRSP0071

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

TRSP0071

What version of the plan is this summary based on?: *

New Plan

NA - 02, Arsenic (and its compounds)

NA - 02, Arsenic (and its compounds)

Substances Section Data

Statement of Intent

Are the following included in the Facility's TRA Plan?

Use

Is there a statement that the owner or operator of the facility intends to reduce the use of the toxic substance at the facility?:*

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the use of the toxic substance at the facility:**

If 'no', reason in the facility's TRA Plan for no intent to reduce the use of the toxic substance at the facility:**

Arsenic (and its compounds) is naturally occurring in trace quantities in crude oil and other refinery feedstock, which are required by the refinery to run its base business.

Creation

Is there a statement that the owner or operator of the facility intends to reduce the creation of the toxic substance at the facility?:*

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the creation of the toxic substance at the facility:**

If 'no', reason in the facility's TRA Plan for no intent to reduce the creation of the toxic substance at the facility:**

Arsenic (and its compounds) is not created at the facility.

Objectives, Targets and Description

Objectives

Objectives in plan:*

Arsenic (and its compounds) is naturally occurring in trace quantities in the crude oil required by the refinery to run its base business. Arsenic (and its compounds) is also found in trace quantities in the feed. No technically and economically feasible options to reduce the use of arsenic at the facility were identified.

Use Targets

What is the targeted reduction in use of the toxic substance at the facility?*

Quantity

Unit

☑ No quantity target

or

What is the targeted timeframe for this reduction?*

☑ No timeline target

or

years

Description of targets:

Creation Targets

What is the targeted reduction in creation of the toxic substance at the facility?*

Quantity

Unit

☑ No quantity target

or

What is the targeted timeframe for this reduction?*

☑ No timeline target

or

years

Description of targets:

Reasons for Use

Why is the toxic substance used at the facility?:*

As an impurity

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

Arsenic is an impurity in the facility's feedstock.

Reasons for Creation

Why is the toxic substance created at the facility?:*

This substance is not created at the facility

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

Toxic Reduction Options for Implementation

Description of the toxic reduction option(s) to be implemented:

Is there a statement that no option will be implemented?:*

Yes

If you answered “No” to this question, please add the option(s) under the appropriate Toxic Substance Reduction Categories (e.g. Materials or feedstock substitution, Product design or reformulation, etc.). If you answered “Yes” please provide an explanation below why your facility is not implementing an option.

Explanation of the reasons why no option will be implemented:**

No technically and economically feasible options were identified that would be expected to reduce the use of arsenic (and its compounds) at the facility. Arsenic (and its compounds) is not created at the facility. Therefore, Imperial Oil does not intend to implement any options to reduce the amount of arsenic (and its compounds) currently used at Nanticoke refinery. Arsenic (and its compounds) is naturally occurring in trace quantities in the crude oil that is required by the refinery to run its base business.

Materials or feedstock substitution

Empty

Product design or reformulation

Empty

Equipment or process modifications

Empty

Spill or leak prevention

Empty

On-site reuse, recycling or recovery

Empty

Improved inventory management or purchasing techniques

Empty

Good operator practice or training

Empty

Rationale for why the listed options were chosen for implementation:

General description of any actions undertaken by the owner and operator of the facility to reduce the use and creation of the toxic substance at the facility that are outside of the plan:

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

TRSP0071

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

TRSP0071

What version of the plan is this summary based on?: *

New Plan

NA - 08, Lead (and its compounds)

NA - 08, Lead (and its compounds)

Substances Section Data

Statement of Intent

Are the following included in the Facility's TRA Plan?

Use

Is there a statement that the owner or operator of the facility intends to reduce the use of the toxic substance at the facility?:*

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the use of the toxic substance at the facility:**

If 'no', reason in the facility's TRA Plan for no intent to reduce the use of the toxic substance at the facility:**

Lead (and its compounds) used at the facility enters as a component of purchased feedstock that is required to meet market and contractual demands for the refinery's products.

Creation

Is there a statement that the owner or operator of the facility intends to reduce the creation of the toxic substance at the facility?:*

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the creation of the toxic substance at the facility:**

If 'no', reason in the facility's TRA Plan for no intent to reduce the creation of the toxic substance at the facility:**

Lead (and its compounds) is not created at the facility.

Objectives, Targets and Description

Objectives

Objectives in plan:*

Lead (and its compounds) is found in trace quantities in the purchased feed. No feasible options were identified to reduce the use of lead (and its compounds) at the facility.

Use Targets

What is the targeted reduction in use of the toxic substance at the facility?*

Quantity

Unit

No quantity target

or

What is the targeted timeframe for this reduction?*

No timeline target

or

years

Description of targets:

Creation Targets

What is the targeted reduction in creation of the toxic substance at the facility?*

Quantity

Unit

No quantity target

or

What is the targeted timeframe for this reduction?*

No timeline target

or

years

Description of targets:

Reasons for Use

Why is the toxic substance used at the facility?:*

As an impurity

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

Lead is an impurity in the facility's feedstock.

Reasons for Creation

Why is the toxic substance created at the facility?:*

This substance is not created at the facility

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

Toxic Reduction Options for Implementation

Description of the toxic reduction option(s) to be implemented:

Is there a statement that no option will be implemented?:*

Yes

If you answered “No” to this question, please add the option(s) under the appropriate Toxic Substance Reduction Categories (e.g. Materials or feedstock substitution, Product design or reformulation, etc.). If you answered “Yes” please provide an explanation below why your facility is not implementing an option.

Explanation of the reasons why no option will be implemented:**

Lead (and its compounds) used at the facility enters as a component of the purchased feedstock that is required to meet market and contractual demands for the refinery’s products. No feasible options were identified to reduce the use of lead (and its compounds) at the facility.

Materials or feedstock substitution

Empty

Product design or reformulation

Empty

Equipment or process modifications

Empty

Spill or leak prevention

Empty

On-site reuse, recycling or recovery

Empty

Improved inventory management or purchasing techniques

Empty

Good operator practice or training

Empty

Rationale for why the listed options were chosen for implementation:

General description of any actions undertaken by the owner and operator of the facility to reduce the use and creation of the toxic substance at the facility that are outside of the plan:

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

TRSP0071

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

TRSP0071

What version of the plan is this summary based on?: *

New Plan

NA - 12, Selenium (and its compounds)

NA - 12, Selenium (and its compounds)

Substances Section Data

Statement of Intent

Are the following included in the Facility's TRA Plan?

Use

Is there a statement that the owner or operator of the facility intends to reduce the use of the toxic substance at the facility?: *

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the use of the toxic substance at the facility: **

If 'no', reason in the facility's TRA Plan for no intent to reduce the use of the toxic substance at the facility:**

Selenium (and its compounds) is found in trace quantities in crude and has not been detected in measurable concentrations in any of the refinery outputs. Crude oil is required by the refinery to run its base business.

Creation

Is there a statement that the owner or operator of the facility intends to reduce the creation of the toxic substance at the facility?:*

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the creation of the toxic substance at the facility:**

If 'no', reason in the facility's TRA Plan for no intent to reduce the creation of the toxic substance at the facility:**

Selenium (and its compounds) is not created at the facility.

Objectives, Targets and Description

Objectives

Objectives in plan:*

Selenium (and its compounds) is naturally occurring in the crude oil required by the refinery to run its base business. Selenium (and its compounds) is only found in trace quantities in crude, and has not been detected in measurable concentrations in any of the refinery outputs. No feasible reduction options were identified.

Use Targets

What is the targeted reduction in use of the toxic substance at the facility?*

Quantity

Unit

☑ No quantity target

or

What is the targeted timeframe for this reduction?*

☑ No timeline target

or

years

Description of targets:

Creation Targets

What is the targeted reduction in creation of the toxic substance at the facility?*

Quantity

Unit

☑ No quantity target

or

What is the targeted timeframe for this reduction?*

☑ No timeline target

or

years

Description of targets:

Reasons for Use

Why is the toxic substance used at the facility?:*

As an impurity

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

Selenium is an impurity in the facility's feedstock.

Reasons for Creation

Why is the toxic substance created at the facility?:*

This substance is not created at the facility

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

Toxic Reduction Options for Implementation

Description of the toxic reduction option(s) to be implemented:

Is there a statement that no option will be implemented?:*

Yes

If you answered “No” to this question, please add the option(s) under the appropriate Toxic Substance Reduction Categories (e.g. Materials or feedstock substitution, Product design or reformulation, etc.). If you answered “Yes” please provide an explanation below why your facility is not implementing an option.

Explanation of the reasons why no option will be implemented:**

Selenium (and its compounds) enters the refinery with the crude oil. Selenium (and its compounds) is naturally occurring in trace quantities in the crude oil that is required by the refinery to run its base business and has not been detected in measurable concentrations in any of the refinery outputs. Selenium (and its compounds) is not created at the facility.

Materials or feedstock substitution

Empty

Product design or reformulation

Empty

Equipment or process modifications

Empty

Spill or leak prevention

Empty

On-site reuse, recycling or recovery

Empty

Improved inventory management or purchasing techniques

Empty

Good operator practice or training

Empty

Rationale for why the listed options were chosen for implementation:

General description of any actions undertaken by the owner and operator of the facility to reduce the use and creation of the toxic substance at the facility that are outside of the plan:

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

TRSP0071

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

TRSP0071

What version of the plan is this summary based on?:*

New Plan

83-32-9, Acenaphthene

83-32-9, Acenaphthene

Substances Section Data

Statement of Intent

Are the following included in the Facility's TRA Plan?

Use

Is there a statement that the owner or operator of the facility intends to reduce the use of the toxic substance at the facility?:*

No

If ‘yes’, exact statement of the intent that is included in the facility’s TRA Plan to reduce the use of the toxic substance at the facility:**

If ‘no’, reason in the facility’s TRA Plan for no intent to reduce the use of the toxic substance at the facility:**

Acenaphthene used at the facility is a component of the purchased feedstock that is required to meet market and contractual demands for the refinery's products.

Creation

Is there a statement that the owner or operator of the facility intends to reduce the creation of the toxic substance at the facility?: *

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the creation of the toxic substance at the facility: **

If 'no', reason in the facility's TRA Plan for no intent to reduce the creation of the toxic substance at the facility: **

The acenaphthene created onsite is a byproduct of the complex chemical reactions occurring in conversion units onsite which cannot be controlled for individual substance creation.

Objectives, Targets and Description

Objectives

Objectives in plan: *

Acenaphthene enters the facility in purchased feedstock, and is created as a byproduct of the complex chemical reactions occurring in conversion units onsite. No options to reduce the use or creation of acenaphthene were identified.

Use Targets

What is the targeted reduction in use of the toxic substance at the facility?*

Quantity

Unit

☑ No quantity target

or

What is the targeted timeframe for this reduction?*

☑

No timeline target

or

years

Description of targets:

Creation Targets

What is the targeted reduction in creation of the toxic substance at the facility?*

Quantity

Unit

No quantity target

or

What is the targeted timeframe for this reduction?*

No timeline target

or

years

Description of targets:

Reasons for Use

Why is the toxic substance used at the facility?:*

As a by-product

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

Acenaphthene enters as a byproduct in the refinery's feedstock.

Reasons for Creation

Why is the toxic substance created at the facility?:*

As a by-product

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

Acenaphtene is created as a byproduct of the complex chemical reactions occurring in conversion units at the facility.

Toxic Reduction Options for Implementation

Description of the toxic reduction option(s) to be implemented:

Is there a statement that no option will be implemented?:*

Yes

If you answered “No” to this question, please add the option(s) under the appropriate Toxic Substance Reduction Categories (e.g. Materials or feedstock substitution, Product design or reformulation, etc.). If you answered “Yes” please provide an explanation below why your facility is not implementing an option.

Explanation of the reasons why no option will be implemented:**

Acenaphthene used at the facility is a component of the purchased feedstock that is required by the facility to meet market and contractual demands for the refinery’s products. The acenaphthene created onsite is a byproduct of the complex chemical reactions occurring in conversion units onsite which cannot be controlled for individual substance creation.

Materials or feedstock substitution

Empty

Product design or reformulation

Empty

Equipment or process modifications

Empty

Spill or leak prevention

Empty

On-site reuse, recycling or recovery

Empty

Improved inventory management or purchasing techniques

Empty

Good operator practice or training

Empty

Rationale for why the listed options were chosen for implementation:

General description of any actions undertaken by the owner and operator of the facility to reduce the use and creation of the toxic substance at the facility that are outside of the plan:

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

TRSP0071

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

TRSP0071

What version of the plan is this summary based on?:*

New Plan

218-01-9, Benzo(a)phenanthrene

218-01-9, Benzo(a)phenanthrene

Substances Section Data

Statement of Intent

Are the following included in the Facility's TRA Plan?

Use

Is there a statement that the owner or operator of the facility intends to reduce the use of the toxic substance at the facility?:*

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the use of the toxic substance at the facility:**

If 'no', reason in the facility's TRA Plan for no intent to reduce the use of the toxic substance at the facility:**

Benzo(a)phenanthrene used at the facility is a component of the purchased feedstock that is required to meet market and contractual demands for the refinery's products.

Creation

Is there a statement that the owner or operator of the facility intends to reduce the creation of the toxic substance at the facility?:*

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the creation of the toxic substance at the facility:**

If 'no', reason in the facility's TRA Plan for no intent to reduce the creation of the toxic substance at the facility:**

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

Objectives, Targets and Description

Objectives

Objectives in plan:*

Benzo(a)phenanthrene enters the facility in purchased feedstock, and is created as a byproduct of the complex chemical reactions occurring in conversion units onsite. No options to reduce the use or creation of benzo(a)phenanthrene were identified.

Use Targets

What is the targeted reduction in use of the toxic substance at the facility?*

Quantity

Unit

☑ No quantity target

or

What is the targeted timeframe for this reduction?*

☑ No timeline target

or

years

Description of targets:

Creation Targets

What is the targeted reduction in creation of the toxic substance at the facility?*

Quantity
Unit

☑ No quantity target

or

What is the targeted timeframe for this reduction?*

☑ No timeline target

or

years

Description of targets:

Reasons for Use

Why is the toxic substance used at the facility?:*

As a by-product

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

Benzo(a)phenanthrene enters as a byproduct in the refinery's feedstock.

Reasons for Creation

Why is the toxic substance created at the facility?:*

As a by-product

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

Benzo(a)phenanthrene is created as a byproduct of the complex chemical reactions occurring in conversion units at the facility.

Toxic Reduction Options for Implementation

Description of the toxic reduction option(s) to be implemented:

Is there a statement that no option will be implemented?:*

Yes

If you answered “No” to this question, please add the option(s) under the appropriate Toxic Substance Reduction Categories (e.g. Materials or feedstock substitution, Product design or reformulation, etc.). If you answered “Yes” please provide an explanation below why your facility is not implementing an option.

Explanation of the reasons why no option will be implemented:**

Benzo(a)phenanthrene used at the facility is a component of the purchased feedstock that is required by the facility to meet market and contractual demands for the refinery’s products. The benzo(a)phenanthrene created at the facility is a byproduct of the complex chemical reactions occurring in conversion units onsite which cannot be controlled for individual substance creation.

Materials or feedstock substitution

Empty

Product design or reformulation

Empty

Equipment or process modifications

Empty

Spill or leak prevention

Empty

On-site reuse, recycling or recovery

Empty

Improved inventory management or purchasing techniques

Empty

Good operator practice or training

Empty

Rationale for why the listed options were chosen for implementation:

General description of any actions undertaken by the owner and operator of the facility to reduce the use and creation of the toxic substance at the facility that are outside of the plan:

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

TRSP0071

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

TRSP0071

What version of the plan is this summary based on?:*

New Plan

206-44-0, Fluoranthene

206-44-0, Fluoranthene

Substances Section Data

Statement of Intent

Are the following included in the Facility's TRA Plan?

Use

Is there a statement that the owner or operator of the facility intends to reduce the use of the toxic substance at the facility?:*

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the use of the toxic substance at the facility:**

If 'no', reason in the facility's TRA Plan for no intent to reduce the use of the toxic substance at the facility:**

Fluoranthene used at the facility is a component of the purchased feedstock that is required to meet market and contractual demands for the refinery's products.

Creation

Is there a statement that the owner or operator of the facility intends to reduce the creation of the toxic substance at the facility?:*

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the creation of the toxic substance at the facility:**

If 'no', reason in the facility's TRA Plan for no intent to reduce the creation of the toxic substance at the facility:**

The fluoranthene created onsite is a byproduct of the complex chemical reactions occurring in conversion units onsite which cannot be controlled for individual substance creation.

Objectives, Targets and Description

Objectives

Objectives in plan:*

Fluoranthene enters the facility in purchased feedstock, and is created as a byproduct of the complex chemical reactions occurring in conversion units onsite. No options to reduce the use or creation of fluoranthene were identified.

Use Targets

What is the targeted reduction in use of the toxic substance at the facility?*

Quantity

Unit

☑ No quantity target

or

What is the targeted timeframe for this reduction?*

☑ No timeline target

or

years

Description of targets:

Creation Targets

What is the targeted reduction in creation of the toxic substance at the facility?*

Quantity

Unit

☑ No quantity target

or

What is the targeted timeframe for this reduction?*

☑ No timeline target

or

years

Description of targets:

Reasons for Use

Why is the toxic substance used at the facility?:*

As a by-product

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

Fluoranthene enters as a byproduct in the refinery's feedstock.

Reasons for Creation

Why is the toxic substance created at the facility?:*

As a by-product

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

Fluoranthene is created as a byproduct of the complex chemical reactions occurring in conversion units at the facility.

Toxic Reduction Options for Implementation

Description of the toxic reduction option(s) to be implemented:

Is there a statement that no option will be implemented?:*

Yes

If you answered “No” to this question, please add the option(s) under the appropriate Toxic Substance Reduction Categories (e.g. Materials or feedstock substitution, Product design or reformulation, etc.). If you answered “Yes” please provide an explanation below why your facility is not implementing an option.

Explanation of the reasons why no option will be implemented:**

Fluoranthene used at the facility is a component of the purchased feedstock that is required by the facility to meet market and contractual demands for the refinery’s products. The fluoranthene created onsite is a byproduct of the complex chemical reactions occurring in conversion units onsite which cannot be controlled for individual substance creation.

Materials or feedstock substitution

Empty

Product design or reformulation

Empty

Equipment or process modifications

Empty

Spill or leak prevention

Empty

On-site reuse, recycling or recovery

Empty

Improved inventory management or purchasing techniques

Empty

Good operator practice or training

Empty

Rationale for why the listed options were chosen for implementation:

General description of any actions undertaken by the owner and operator of the facility to reduce the use and creation of the toxic substance at the facility that are outside of the plan:

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

TRSP0071

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

TRSP0071

What version of the plan is this summary based on?:*

New Plan

86-73-7, Fluorene

86-73-7, Fluorene

Substances Section Data

Statement of Intent

Are the following included in the Facility's TRA Plan?

Use

Is there a statement that the owner or operator of the facility intends to reduce the use of the toxic substance at the facility?:*

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the use of the toxic substance at the facility:**

If 'no', reason in the facility's TRA Plan for no intent to reduce the use of the toxic substance at the facility:**

Fluorene used at the facility is a component of the crude oil and purchased feedstock that is required to meet market and contractual demands for the refinery's products.

Creation

Is there a statement that the owner or operator of the facility intends to reduce the creation of the toxic substance at the facility?:*

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the creation of the toxic substance at the facility:**

If 'no', reason in the facility's TRA Plan for no intent to reduce the creation of the toxic substance at the facility:**

The fluorene created onsite is a byproduct of the complex chemical reactions occurring in conversion units onsite which cannot be controlled for individual substance creation.

Objectives, Targets and Description

Objectives

Objectives in plan: *

Fluorene is naturally occurring in the crude oil required by the refinery to run its base business, and enters the refinery in various purchased feedstock. Fluorene is created as a byproduct of the complex chemical reactions occurring in conversion units onsite. No options to reduce the use or creation of fluorene were identified.

Use Targets

What is the targeted reduction in use of the toxic substance at the facility?*

Quantity

Unit

☑ No quantity target

or

What is the targeted timeframe for this reduction?*

☑ No timeline target

or

years

Description of targets:

Creation Targets

What is the targeted reduction in creation of the toxic substance at the facility?*

Quantity
Unit

☑ No quantity target

or

What is the targeted timeframe for this reduction?*

☑ No timeline target

or

years

Description of targets:

Reasons for Use

Why is the toxic substance used at the facility?:*

As a by-product

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

Fluorene enters as a byproduct in the refinery's feedstock.

Reasons for Creation

Why is the toxic substance created at the facility?:*

As a by-product

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

Fluorene is created as a byproduct of the complex chemical reactions occurring in conversion units at the facility.

Toxic Reduction Options for Implementation

Description of the toxic reduction option(s) to be implemented:

Is there a statement that no option will be implemented?:*

Yes

If you answered “No” to this question, please add the option(s) under the appropriate Toxic Substance Reduction Categories (e.g. Materials or feedstock substitution, Product design or reformulation, etc.). If you answered “Yes” please provide an explanation below why your facility is not implementing an option.

Explanation of the reasons why no option will be implemented:**

Fluorene is naturally occurring in the crude oil required by the facility to run its base business and is a component of the purchased feedstock that is required by the facility to meet market and contractual demands for the refinery’s products. The fluorene created onsite is a byproduct of the complex chemical reactions occurring in conversion units onsite which cannot be controlled for individual substance creation.

Materials or feedstock substitution

Empty

Product design or reformulation

Empty

Equipment or process modifications

Empty

Spill or leak prevention

Empty

On-site reuse, recycling or recovery

Empty

Improved inventory management or purchasing techniques

Empty

Good operator practice or training

Empty

Rationale for why the listed options were chosen for implementation:

General description of any actions undertaken by the owner and operator of the facility to reduce the use and creation of the toxic substance at the facility that are outside of the plan:

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

TRSP0071

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

TRSP0071

What version of the plan is this summary based on?:*

New Plan

85-01-8, Phenanthrene

85-01-8, Phenanthrene

Substances Section Data

Statement of Intent

Are the following included in the Facility's TRA Plan?

Use

Is there a statement that the owner or operator of the facility intends to reduce the use of the toxic substance at the facility?:*

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the use of the toxic substance at the facility:**

If 'no', reason in the facility's TRA Plan for no intent to reduce the use of the toxic substance at the facility:**

Phenanthrene used at the facility is a component of the crude oil and purchased feedstock that is required to meet market and contractual demands for the refinery's products.

Creation

Is there a statement that the owner or operator of the facility intends to reduce the creation of the toxic substance at the facility?:*

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the creation of the toxic substance at the facility:**

If 'no', reason in the facility's TRA Plan for no intent to reduce the creation of the toxic substance at the facility:**

The phenanthrene created onsite is a byproduct of the complex chemical reactions occurring in conversion units onsite which cannot be controlled for individual substance creation.

Objectives, Targets and Description

Objectives

Objectives in plan: *

Phenanthrene is naturally occurring in the crude oil required by the refinery to run its base business, and also enters the refinery in purchased feedstock. Phenanthrene is created as a byproduct of the complex chemical reactions occurring in conversion units onsite. No options to reduce the use or creation of phenanthrene were identified.

Use Targets

What is the targeted reduction in use of the toxic substance at the facility?*

Quantity

Unit

☑ No quantity target

or

What is the targeted timeframe for this reduction?*

☑ No timeline target

or

years

Description of targets:

Creation Targets

What is the targeted reduction in creation of the toxic substance at the facility?*

Quantity

Unit

☑ No quantity target

or

What is the targeted timeframe for this reduction?*

☑ No timeline target

or

years

Description of targets:

Reasons for Use

Why is the toxic substance used at the facility?:*

As a by-product

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

Phenanthrene enters as a byproduct in the refinery's feedstock.

Reasons for Creation

Why is the toxic substance created at the facility?:*

As a by-product

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

Phenanthrene is created as a byproduct of the complex chemical reactions occurring in conversion units at the facility.

Toxic Reduction Options for Implementation

Description of the toxic reduction option(s) to be implemented:

Is there a statement that no option will be implemented?:*

Yes

If you answered “No” to this question, please add the option(s) under the appropriate Toxic Substance Reduction Categories (e.g. Materials or feedstock substitution, Product design or reformulation, etc.). If you answered “Yes” please

provide an explanation below why your facility is not implementing an option.

Explanation of the reasons why no option will be implemented:**

Phenanthrene is naturally occurring in the crude oil required by the facility to run its base business and is a component of the purchased feedstock that is required by the facility to meet market and contractual demands for the refinery's products. The phenanthrene created onsite is a byproduct of the complex chemical reactions occurring in conversion units onsite which cannot be controlled for individual substance creation.

Materials or feedstock substitution

Empty

Product design or reformulation

Empty

Equipment or process modifications

Empty

Spill or leak prevention

Empty

On-site reuse, recycling or recovery

Empty

Improved inventory management or purchasing techniques

Empty

Good operator practice or training

Empty

Rationale for why the listed options were chosen for implementation:

General description of any actions undertaken by the owner and operator of the facility to reduce the use and creation of the toxic substance at the facility that are outside of the plan:

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

TRSP0071

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

TRSP0071

What version of the plan is this summary based on?:*

New Plan

129-00-0, Pyrene

129-00-0, Pyrene

Substances Section Data

Statement of Intent

Are the following included in the Facility's TRA Plan?

Use

Is there a statement that the owner or operator of the facility intends to reduce the use of the toxic substance at the facility?:*

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the use of the toxic substance at the facility:**

If 'no', reason in the facility's TRA Plan for no intent to reduce the use of the toxic substance at the facility:**

Pyrene used at the facility is a component of the purchased feedstock that is required to meet market and contractual demands for the refinery's products.

Creation

Is there a statement that the owner or operator of the facility intends to reduce the creation of the toxic substance at the facility?:*

No

If 'yes', exact statement of the intent that is included in the facility's TRA Plan to reduce the creation of the toxic substance at the facility:**

If 'no', reason in the facility's TRA Plan for no intent to reduce the creation of the toxic substance at the facility:**

The pyrene created onsite is a byproduct of the complex chemical reactions occurring in conversion units onsite which cannot be controlled for individual substance creation.

Objectives, Targets and Description

Objectives

Objectives in plan: *

Pyrene enters the facility in purchased feedstock and is created as a byproduct of the complex chemical reactions occurring in conversion units onsite. No options to reduce the use or creation of pyrene were identified.

Use Targets

What is the targeted reduction in use of the toxic substance at the facility?*

Quantity

Unit

☑ No quantity target

or

What is the targeted timeframe for this reduction?*

☑ No timeline target

or

years

Description of targets:

Creation Targets

What is the targeted reduction in creation of the toxic substance at the facility?*

Quantity

Unit

☑ No quantity target

or

What is the targeted timeframe for this reduction?*

☑ No timeline target

or

years

Description of targets:

Reasons for Use

Why is the toxic substance used at the facility?:*

As a by-product

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

Pyrene enters as a byproduct in the refinery's feedstock.

Reasons for Creation

Why is the toxic substance created at the facility?:*

As a by-product

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

Pyrene is created as a byproduct of the complex chemical reactions occurring in conversion units at the facility.

Toxic Reduction Options for Implementation

Description of the toxic reduction option(s) to be implemented:

Is there a statement that no option will be implemented?:*

Yes

If you answered “No” to this question, please add the option(s) under the appropriate Toxic Substance Reduction Categories (e.g. Materials or feedstock substitution, Product design or reformulation, etc.). If you answered “Yes” please provide an explanation below why your facility is not implementing an option.

Explanation of the reasons why no option will be implemented:**

Pyrene used at the facility is a component of the purchased feedstock that is required by the facility to meet market and contractual demands for the refinery’s products. The pyrene created onsite is a byproduct of the complex chemical

reactions occurring in conversion units onsite which cannot be controlled for individual substance creation.

Materials or feedstock substitution

Empty

Product design or reformulation

Empty

Equipment or process modifications

Empty

Spill or leak prevention

Empty

On-site reuse, recycling or recovery

Empty

Improved inventory management or purchasing techniques

Empty

Good operator practice or training

Empty

Rationale for why the listed options were chosen for implementation:

General description of any actions undertaken by the owner and operator of the facility to reduce the use and creation of the toxic substance at the facility that are outside of the plan:

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

TRSP0071

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

TRSP0071

What version of the plan is this summary based on?: *

New Plan

Version: 3.0.0.1

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of December 13, 2012 (Date), I, Richard Henderson, certify that I have read the toxic substance 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.

- 1330-20-7 Xylene (all isomers)

Richard Henderson
Refinery Manager, Nanticoke Refinery

13 Dec. 2012.
Date

Toxic Substance Reduction Planner

As of December 18, 2012 (Date), I, Scott Manser (Planner Name) certify that I am familiar with the processes at Imperial Oil's Nanticoke Refinery that use or create the toxic substances referred to below, that I agree with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the *Toxics Reduction Act, 2009* that are set out in the plan dated December 12, 2012 and that the plan complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- 1330-20-7 Xylene (all isomers)

Scott Manser
Toxic Substance Reduction Planner

TSRP0071
License Number

December 18, 2012
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of December 13, 2012 (Date), I, Richard Henderson, certify that I have read the toxic substance 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.

- 108-88-3 Toluene

Richard Henderson
Refinery Manager, Nanticoke Refinery

13 Dec 2012
Date

Toxic Substance Reduction Planner

As of December 18, 2012 (Date), I, Scott Manser (Planner Name) certify that I am familiar with the processes at Imperial Oil's Nanticoke Refinery that use or create the toxic substances referred to below, that I agree with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the *Toxics Reduction Act, 2009* that are set out in the plan dated December 12, 2012 and that the plan complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- 108-88-3 Toluene

Scott Manser
Toxic Substance Reduction Planner

TSRP0071
License Number

December 18, 2012
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of December 13, 2012 (Date), I, Richard Henderson, certify that I have read the toxic substance 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.

- 127-18-4 Tetrachloroethylene

Richard Henderson
Refinery Manager, Nanticoke Refinery

13 Dec 2012.
Date

Toxic Substance Reduction Planner

As of December 18, 2012 (Date), I, Scott Manser (Planner Name) certify that I am familiar with the processes at Imperial Oil's Nanticoke Refinery that use or create the toxic substances referred to below, that I agree with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the *Toxics Reduction Act, 2009* that are set out in the plan dated December 12, 2012 and that the plan complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- 127-18-4 Tetrachloroethylene

Scott Manser
Toxic Substance Reduction Planner

TSRP0071
License Number

December 18, 2012
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of December 13, 2012 (Date), I, Richard Henderson, certify that I have read the toxic substance 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.

- 7664-93-9 Sulphuric Acid

Richard Henderson — 13 Dec 2012 (Date)
Refinery Manager, Nanticoke Refinery

Toxic Substance Reduction Planner

As of December 18, 2012 (Date), I, Scott Manser (Planner Name) certify that I am familiar with the processes at Imperial Oil's Nanticoke Refinery that use or create the toxic substances referred to below, that I agree with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the *Toxics Reduction Act, 2009* that are set out in the plan dated December 12, 2012 and that the plan complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- 7664-93-9 Sulphuric Acid

Planner name — TSRP0071 (License Number) — December 18, 2012 (Date)
Toxic Substance Reduction Planner

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of December 13, 2012 (Date), I, Richard Henderson, certify that I have read the toxic substance 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.

- N/A Selenium (and its compounds)

Richard Henderson — 13 Dec 2012. (Date)
Refinery Manager, Nanticoke Refinery

Toxic Substance Reduction Planner

As of December 18, 2012 (Date), I, Scott Manser (Planner Name) certify that I am familiar with the processes at Imperial Oil's Nanticoke Refinery that use or create the toxic substances referred to below, that I agree with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the *Toxics Reduction Act, 2009* that are set out in the plan dated December 12, 2012 and that the plan complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- N/A Selenium (and its compounds)

Scott Manser — TSRP0071 (License Number) — December 18, 2012 (Date)
Toxic Substance Reduction Planner

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of December 13, 2012 (Date), I, Richard Henderson, certify that I have read the toxic substance 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.

- 129-00-0 Pyrene

Richard Henderson
Refinery Manager, Nanticoke Refinery

13 Dec 2012.
Date

Toxic Substance Reduction Planner

As of December 18, 2012 (Date), I, Scott Manser (Planner Name) certify that I am familiar with the processes at Imperial Oil's Nanticoke Refinery that use or create the toxic substances referred to below, that I agree with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the *Toxics Reduction Act, 2009* that are set out in the plan dated December 12, 2012 and that the plan complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- 129-00-0 Pyrene

Scott Manser
Toxic Substance Reduction Planner

TSRP0071
License Number

December 18, 2012
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of December 13, 2012 (Date), I, Richard Henderson, certify that I have read the toxic substance 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.

- 108-95-2 Phenol (and its salts)

Richard Henderson
Refinery Manager, Nanticoke Refinery

13 Dec 2012.
Date

Toxic Substance Reduction Planner

As of December 18, 2012 (Date), I, Scott Manser (Planner Name) certify that I am familiar with the processes at Imperial Oil's Nanticoke Refinery that use or create the toxic substances referred to below, that I agree with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the *Toxics Reduction Act, 2009* that are set out in the plan dated December 12, 2012 and that the plan complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- 108-95-2 Phenol (and its salts)

Scott Manser
Toxic Substance Reduction Planner

TSR70071
License Number

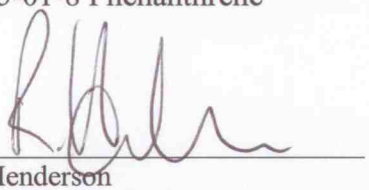
December 18, 2012
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of December 13, 2012 (Date), I, Richard Henderson, certify that I have read the toxic substance 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.

- 85-01-8 Phenanthrene



13 Dec 2012

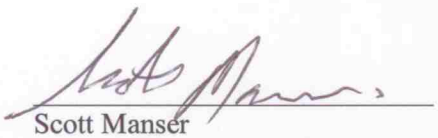
Richard Henderson
Refinery Manager, Nanticoke Refinery

Date

Toxic Substance Reduction Planner

As of December 18, 2012 (Date), I, Scott Manser (Planner Name) certify that I am familiar with the processes at Imperial Oil's Nanticoke Refinery that use or create the toxic substances referred to below, that I agree with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the *Toxics Reduction Act, 2009* that are set out in the plan dated December 12, 2012 and that the plan complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- 85-01-8 Phenanthrene



Scott Manser
Toxic Substance Reduction Planner

TSRP0071
License Number

December 18, 2012
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of December 13, 2012 (Date), I, Richard Henderson, certify that I have read the toxic substance 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.

- 91-20-3 Naphthalene

Richard Henderson — 13 Dec 2012. (Date)
Refinery Manager, Nanticoke Refinery

Toxic Substance Reduction Planner

As of December 18, 2012 (Date), I, Scott Manser (Planner Name) certify that I am familiar with the processes at Imperial Oil's Nanticoke Refinery that use or create the toxic substances referred to below, that I agree with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the *Toxics Reduction Act, 2009* that are set out in the plan dated December 12, 2012 and that the plan complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- 91-20-3 Naphthalene

Scott Manser — TSRP0071 (License Number) — December 18, 2012 (Date)
Toxic Substance Reduction Planner

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of December 13, 2012 (Date), I, Richard Henderson, certify that I have read the toxic substance 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.

- 67-56-1 Methanol

Richard Henderson
Refinery Manager, Nanticoke Refinery

13 Dec 2012
Date

Toxic Substance Reduction Planner

As of December 18, 2012 (Date), I, Scott Manser (Planner Name) certify that I am familiar with the processes at Imperial Oil's Nanticoke Refinery that use or create the toxic substances referred to below, that I agree with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the *Toxics Reduction Act, 2009* that are set out in the plan dated December 12, 2012 and that the plan complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- 67-56-1 Methanol

Scott Manser
Toxic Substance Reduction Planner

TSRP0071
License Number

December 18, 2012
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of December 13, 2012 (Date), I, Richard Henderson, certify that I have read the toxic substance 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.

- N/A Mercury (and its compounds)

Richard Henderson
Refinery Manager, Nanticoke Refinery

13 Dec 2012.
Date

Toxic Substance Reduction Planner

As of December 18, 2012 (Date), I, Scott Manser (Planner Name) certify that I am familiar with the processes at Imperial Oil's Nanticoke Refinery that use or create the toxic substances referred to below, that I agree with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the *Toxics Reduction Act, 2009* that are set out in the plan dated December 12, 2012 and that the plan complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- N/A Mercury (and its compounds)

Scott Manser
Toxic Substance Reduction Planner

TSRP0071
License Number

December 18, 2012
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of December 13, 2012 (Date), I, Richard Henderson, certify that I have read the toxic substance 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.

- N/A Lead (and its compounds)

Richard Henderson — 13 Dec 2012. (Date)
Refinery Manager, Nanticoke Refinery

Toxic Substance Reduction Planner

As of December 18, 2012 (Date), I, Scott Manser (Planner Name) certify that I am familiar with the processes at Imperial Oil's Nanticoke Refinery that use or create the toxic substances referred to below, that I agree with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the *Toxics Reduction Act, 2009* that are set out in the plan dated December 12, 2012 and that the plan complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- N/A Lead (and its compounds)

Scott Manser — TSR70071 (License Number) — December 18, 2012 (Date)
Toxic Substance Reduction Planner

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of December 13, 2012 (Date), I, Richard Henderson, certify that I have read the toxic substance 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.

- 7647-01-0 Hydrochloric Acid

Richard Henderson
Refinery Manager, Nanticoke Refinery

13 Dec 2012.
Date

Toxic Substance Reduction Planner

As of December 18, 2012 (Date), I, Scott Manser (Planner Name) certify that I am familiar with the processes at Imperial Oil's Nanticoke Refinery that use or create the toxic substances referred to below, that I agree with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the *Toxics Reduction Act, 2009* that are set out in the plan dated December 12, 2012 and that the plan complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- 7647-01-0 Hydrochloric Acid

Scott Manser
Toxic Substance Reduction Planner

TSRP0071
License Number

December 12, 2012
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of December 13, 2012 (Date), I, Richard Henderson, certify that I have read the toxic substance 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.

- 86-73-7 Fluorene

Richard Henderson
Refinery Manager, Nanticoke Refinery

13 Dec 2012.
Date

Toxic Substance Reduction Planner

As of December 18, 2012 (Date), I, Scott Manser (Planner Name) certify that I am familiar with the processes at Imperial Oil's Nanticoke Refinery that use or create the toxic substances referred to below, that I agree with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the *Toxics Reduction Act, 2009* that are set out in the plan dated December 12, 2012 and that the plan complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- 86-73-7 Fluorene

Scott Manser
Toxic Substance Reduction Planner

TSRP0071
License Number

December 18, 2012
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of December 13, 2012 (Date), I, Richard Henderson, certify that I have read the toxic substance 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.

- 206-44-0 Fluoranthene

Richard Henderson
Refinery Manager, Nanticoke Refinery

13 Dec 2012.
Date

Toxic Substance Reduction Planner

As of December 18, 2012 (Date), I, Scott Manser (Planner Name) certify that I am familiar with the processes at Imperial Oil's Nanticoke Refinery that use or create the toxic substances referred to below, that I agree with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the *Toxics Reduction Act, 2009* that are set out in the plan dated December 12, 2012 and that the plan complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- 206-44-0 Fluoranthene

Scott Manser
Toxic Substance Reduction Planner

TSRP0071
License Number

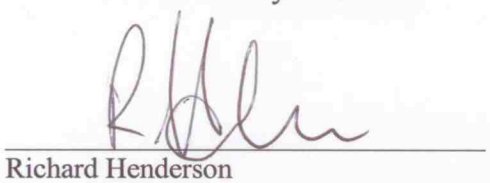
December 18, 2012
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of December 13, 2012 (Date), I, Richard Henderson, certify that I have read the toxic substance 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.

- 100-41-4 Ethylbenzene



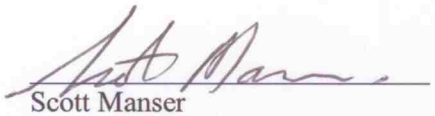
Richard Henderson
Refinery Manager, Nanticoke Refinery

13 Dec 2012.
Date

Toxic Substance Reduction Planner

As of December 18, 2012 (Date), I, Scott Manser (Planner Name) certify that I am familiar with the processes at Imperial Oil's Nanticoke Refinery that use or create the toxic substances referred to below, that I agree with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the *Toxics Reduction Act, 2009* that are set out in the plan dated December 12, 2012 and that the plan complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- 100-41-4 Ethylbenzene



Scott Manser
Toxic Substance Reduction Planner

TSRP0071
License Number

December 18, 2012
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of December 13, 2012 (Date), I, Richard Henderson, certify that I have read the toxic substance 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.

- N/A Cadmium (and its compounds)

Richard Henderson
Refinery Manager, Nanticoke Refinery

13 Dec 2012.
Date

Toxic Substance Reduction Planner

As of December 18, 2012 (Date), I, Scott Manser (Planner Name) certify that I am familiar with the processes at Imperial Oil's Nanticoke Refinery that use or create the toxic substances referred to below, that I agree with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the *Toxics Reduction Act, 2009* that are set out in the plan dated December 12, 2012 and that the plan complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- N/A Cadmium (and its compounds)

Scott Manser
Toxic Substance Reduction Planner

TSRP0071
License Number

December 18, 2012
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of December 13, 2012 (Date), I, Richard Henderson, certify that I have read the toxic substance 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.

- 218-01-9 Benzo(a)phenanthrene

Richard Henderson
Refinery Manager, Nanticoke Refinery

13 Dec 2012.
Date

Toxic Substance Reduction Planner

As of December 18, 2012 (Date), I, Scott Manser (Planner Name) certify that I am familiar with the processes at Imperial Oil's Nanticoke Refinery that use or create the toxic substances referred to below, that I agree with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the *Toxics Reduction Act, 2009* that are set out in the plan dated December 12, 2012 and that the plan complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- 218-01-9 Benzo(a)phenanthrene

Scott Manser
Toxic Substance Reduction Planner

TSRP0071
License Number

December 18, 2012
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of December 13, 2012 (Date), I, Richard Henderson, certify that I have read the toxic substance 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.

- 71-43-2 Benzene

Richard Henderson
Refinery Manager, Nanticoke Refinery

13 Dec 2012
Date

Toxic Substance Reduction Planner

As of December 18, 2012 (Date), I, Scott Manser (Planner Name) certify that I am familiar with the processes at Imperial Oil's Nanticoke Refinery that use or create the toxic substances referred to below, that I agree with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the *Toxics Reduction Act, 2009* that are set out in the plan dated December 12, 2012 and that the plan complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- 71-43-2 Benzene

Scott Manser
Toxic Substance Reduction Planner

TSRP0071
License Number

December 18, 2012
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of December 13, 2012 (Date), I, Richard Henderson, certify that I have read the toxic substance 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.

- N/A Arsenic (and its compounds)

Richard Henderson
Refinery Manager, Nanticoke Refinery

13 Dec 2012.
Date

Toxic Substance Reduction Planner

As of December 18, 2012 (Date), I, Scott Manser (Planner Name) certify that I am familiar with the processes at Imperial Oil's Nanticoke Refinery that use or create the toxic substances referred to below, that I agree with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the *Toxics Reduction Act, 2009* that are set out in the plan dated December 13, 2012 and that the plan complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- N/A Arsenic (and its compounds)

Scott Manser
Toxic Substance Reduction Planner

TSRP0071
License Number

December 18, 2012
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of December 13, 2012 (Date), I, Richard Henderson, certify that I have read the toxic substance 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.

- N/A Antimony (and its compounds)

Richard Henderson
Refinery Manager, Nanticoke Refinery

13 Dec 2012.
Date

Toxic Substance Reduction Planner

As of December 18, 2012 (Date), I, Scott Manser (Planner Name) certify that I am familiar with the processes at Imperial Oil's Nanticoke Refinery that use or create the toxic substances referred to below, that I agree with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the *Toxics Reduction Act, 2009* that are set out in the plan dated December 12, 2012 and that the plan complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- N/A Antimony (and its compounds)

Scott Manser
Toxic Substance Reduction Planner

TSRP0071
License Number

December 18, 2012
Date

9. TOXIC REDUCTION PLAN CERTIFICATION

Highest Ranking Employee

As of December 13, 2012 (Date), I, Richard Henderson, certify that I have read the toxic substance 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.

- 83-32-9 Acenaphthene

Richard Henderson
Refinery Manager, Nanticoke Refinery

13 December 2012.
Date

Toxic Substance Reduction Planner

As of December 18, 2012 (Date), I, Scott Manser (Planner Name) certify that I am familiar with the processes at Imperial Oil's Nanticoke Refinery that use or create the toxic substances referred to below, that I agree with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the *Toxics Reduction Act, 2009* that are set out in the plan dated 12 December 2012 and that the plan complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

- 83-32-9 Acenaphthene

Scott Manser
Toxic Substance Reduction Planner

TSRP0071
License Number

December 18, 2012
Date