

December 2016

### **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 prescribed substances.

Petroleum refineries process crude oil to manufacture finished products, such as gasoline and heating oil, that are used and valued by our society. Crude oil may contain varying quantities of the substances covered under the TRA. Through the tightly controlled multi-step refinery operation, a variety of substances are used, 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 plan 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. The summary accurately reflects the current version of the plan.

In 2016, Nanticoke refinery prepared new plans for the following substances:

- Arsenic (and its compounds)
- Cobalt (and its compounds)
- Molybdenum trioxide

The following substances also required plans in 2016 under subsection 3(1) of the Act based on 2015 toxic substance quantifications. These plans were prepared in previous years and remain valid in 2016.

- Ammonia (total)
- Antimony (and its compounds)
- Benzene
- Cresol (all isomers, and their salts)
- Cyclohexane
- Diethanolamine (and its salts)
- Ethylbenzene
- Ethylene
- HCFC-22
- n-Hexane
- Hydrochloric acid
- Hydrogen cyanide
- Hydrogen sulphide
- Isopropyl Alcohol
- Methanol
- Naphthalene
- Nitrate ion
- Phenol (and its salts)
- Propylene
- Sulphuric acid
- Tetrachloroethylene
- Toluene
- Total reduced sulphur
- Trimethylbenzene, 1,2,4-
- Xylene (all isomers)
- Mercury (and its compounds)
- Cadmium (and its compounds)
- Lead (and its compounds)
- Selenium (and its compounds)
- Acenaphthene
- Acenaphthylene
- Fluorene
- Phenanthrene
- Pyrene
- Carbon monoxide

- Nitrogen oxides (expressed as nitrogen dioxide)
- PM2.5
- PM10
- Sulphur dioxide
- Total particulate matter
- Propane
- Butane (all isomers)
- Butene (all isomers)
- Cycloheptane
- Cyclooctane
- Decane (all isomers)
- Heptane (all isomers)
- Hexane
- Hexene (all isomers)
- Nonane (all isomers)
- Octane (all isomers)
- Pentane (all isomers)
- Trimethylbenzene

# Plan Summary Preview

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## Company Details

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Company Legal Name

Imperial Oil

Company Address

505 Quarry Park Boulevard Southeast, Calgary (Alberta)

## Report Details

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NPRI ID

3701

Facility Name

Nanticoke Refinery

Facility Address

225 2nd Concession, Nanticoke (Ontario)

Update Comments

Updating to report new substances now that the system has been corrected

## Activities

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## Contacts

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Select the Facility Contacts

### Facility Contacts

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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

---

## Company and Parent Company Information

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### Company Details

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Company Legal Name: \*

Company Trade Name: \*

Business Number: \*

### Mailing Address

---

Delivery Mode

PO Box

Rural Route Number

Address Line 1

City \*

Province/Territory \*\*

Postal Code: \*\*

### Physical Address

---

Address Line 1

City

Province/Territory \*\*

Postal Code \*\*

Additional Information

Land Survey Description

National Topographical Description

### Parent Companies

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Empty

## Facility Validation

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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

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Facility Name: *	<input type="text" value="Nanticoke Refinery"/>
NAICS Code: *	<input type="text" value="324110"/>
NPRI Id: *	<input type="text" value="3701"/>
ON Reg 127/01 Id	<input type="text"/>

## Facility Mailing Address

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Delivery Mode	<input type="text" value="General Delivery"/>
PO Box	<input type="text" value="500"/>
Rural Route Number	<input type="text"/>
Address Line 1	<input type="text" value="225 Concession 2 Concession"/>
City *	<input type="text" value="Nanticoke"/>
Province/Territory **	<input type="text" value="Ontario"/>
Postal Code: **	<input type="text" value="N0A1L0"/>

## Physical Address

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Address Line 1	<input type="text" value="225 2nd Concession"/>
City	<input type="text" value="Nanticoke"/>
Province/Territory **	<input type="text" value="Ontario"/>
Postal Code **	<input type="text" value="N0A1L0"/>
Additional Information	<input type="text"/>

Land Survey Description

National Topographical Description

## Geographical Address

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Latitude \*\*

Longitude \*\*

UTM Zone \*\*

UTM Easting \*\*

UTM Northing \*\*

## Contact Validation

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## Contacts

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### Public Contact

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First Name: \*

Last Name: \*

Position: \*

Telephone: \*

Ext

Fax

Email: \*

## Mailing Address

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Delivery Mode

PO Box

3004

Rural Route Number

Address Line 1

602 Christina Street South

City \*

Sarnia

Province/Territory \*\*

Ontario

Postal Code: \*\*

N7T7M5

## Employees

### Employees

Number of Full-time Employees: \*

676

## Copy of Certifications of Plan

Copy of Certifications of Plan

### Upload Document

A copy of the certification statement(s) from the Highest Ranking Employee and the Licensed Planner(s), for the Toxic Substance Reduction Plan for which the Plan Summary is being submitted are required. Please upload a single document containing all certifications.

Do not upload any certification statements that are dated after December 31. If this applies, click "?" (Help) for more information.

Comments

Website address where the Plan Summary is posted for the public

**File Name**

**Date**

Nanticoke 2015 TRP Certification Pages.pdf

27/01/2017 12:00:50 PM

## Plan Summary Submission

### Electronic Submission

Company Name

Imperial Oil

Facility Name

Nanticoke Refinery

Report Submitted By (authorized delegate)

Kayla Mcfeeters

I, the authorized delegate, acknowledge that by pressing the "Continue" button, I am electronically submitting the facility TRA Plan Summary for the identified facility.

Substances

1313-27-5, Molybdenum trioxide

1313-27-5, Molybdenum trioxide

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: \*\*

Molybdenum trioxide is used in the facility as a process catalyst to produce a product which is required by the refinery to run its base business. No technically feasible alternatives were identified that would result in a reduction of molybdenum trioxide.

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: \*\*

Substance is not created at the facility.



## Objectives, Targets and Description

### Objectives

Objectives in plan: \*

Molybdenum trioxide is currently used at the facility and enters the refinery as a catalyst. There were no technically feasible options identified to reduce the use of molybdenum trioxide at the facility.

### Use Targets

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

No quantity target

Quantity

Unit

or

What is the targeted timeframe for this reduction? \*

No timeline target

years

or

Description of targets

### Creation Targets

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

No quantity target

Quantity

Unit

or

What is the targeted timeframe for this reduction? \*

No timeline target

years

or

Description of Target

## Reasons for Use

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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: \*\*

Molybdenum trioxide is a component of the Distillate Hydrofiner (DHIN#2) catalyst used to produce an ultra low sulphur distillate product. The catalyst is replaced periodically during unit shutdowns.

## Reasons for Creation

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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

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

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

Yes, we are not implementing

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: \*\*

Molybdenum trioxide is used in the facility as a process catalyst to produce a product which is required by the refinery to run its base business. No technically feasible alternatives were identified that would result in a reduction of molybdenum trioxide.

### Materials or feedstock substitution

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Empty

### Product design or reformulation

---

Empty

### Equipment or process modifications

---

Empty

### Spill or leak prevention

---

Empty

### On-site reuse, recycling or recovery

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Empty

## Improved inventory management or purchasing techniques

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Empty

## Good operator practice or training

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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): \*

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

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

## NA - 02, Arsenic (and its compounds)

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NA - 02, Arsenic (and its compounds)

## Substances Section Data

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### 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?: \*

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: \*\*

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 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: \*\*

Substance 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? \*

**No quantity target**

**Quantity**

**Unit**



or



What is the targeted timeframe for this reduction? \*

**No timeline target**

**years**



or

Description of targets

## Creation Targets

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

No quantity target

Quantity

Unit



or



What is the targeted timeframe for this reduction? \*

No timeline target

years



or

Description of Target

## 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: \*\*

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.

## 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: \*\*

This substance 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, we are not implementing

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 naturally occurring in trace quantities in crude oil and other refinery feedstock, which are 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): \*

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

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

**NA - 05, Cobalt (and its compounds)**

NA - 05, Cobalt (and its compounds)

## Substances Section Data

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### 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: \*\*

Cobalt (and its compounds) is used in the facility as a process catalyst to produce a product which is required by the refinery to run its base business. No technically feasible alternatives were identified that would result in a reduction of cobalt (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: \*\*

Substance is not created at the facility.

## Objectives, Targets and Description

---

### Objectives

---

Objectives in plan: \*

Cobalt (and its compounds) is currently used at the facility and enters the refinery in various catalysts. There were no technically and economically feasible options identified to reduce the use of cobalt (and its compounds) at the facility.

### Use Targets

---

What is the targeted reduction in use of the toxic substance at the

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facility? \*

No quantity target

Quantity

Unit

or

What is the targeted timeframe for this reduction? \*

No timeline target

years

or

Description of targets

## Creation Targets

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

No quantity target

Quantity

Unit

or

What is the targeted timeframe for this reduction? \*

No timeline target

years

or

Description of Target

## 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: \*\*

Cobalt (and its compounds) is a component of the Distillate Hydrofiner (DHIN#2) catalyst used to produce an ultra low sulphur distillate product. The catalyst is replaced periodically during unit shutdowns. Cobalt (and its compounds) is also a component of the catalyst for mercaptan removal.



## 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, we are not implementing

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: \*\*

Cobalt (and its compounds) is used in the facility as a process catalyst to produce a product which is required by the refinery to run its base business. No technically feasible alternatives were identified that would result in a reduction of cobalt (and its compounds).

### Materials or feedstock substitution

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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

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Empty

### Good operator practice or training

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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): \*

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

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