

Imperial Oil Products and Chemicals Division Nanticoke Refinery P.O. Box 500 Nanticoke, Ontario NOA 1L0 R. Henderson Refinery Manager Tel. (519) 587-4992 Fax. (519) 587-7070

December 2013

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

Plan Summary Preview **Company Details** Company Legal Name: Imperial Oil Company Address: 237 4th Avenue Southwest, Calgary (Alberta) Report Details Facility: Nanticoke Refinery Facility Address: 225 2nd Concession, Nanticoke (Ontario) **Update Comments: Activities Facility Contacts Facility Contacts** Public Contact:* Jon Harding Highest Ranking Employee: Richard Henderson Person responsible for preparing the toxic substance reduction plan: Madhavi Patel Organization Validation 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	2480	
Rural Route Number		
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		
Facility Validation		
Facility Information		
Facility:*	Nanticoke Refinery	
NAICS Id:*	324110	
NPRI Id:*	3701	
ON Reg 127/01 ld:		

Mailing Address Delivery Mode: General Delivery PO Box 500 Rural Route Number Address Line 1 225 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 **Additional Information** Land Survey Description National Topographical Description **Geographical Address** Latitude 42.83750 Longitude 80.05170 UTM Zone** 17 UTM Easting** 578000 UTM Northing** 4743000

Contact Validation

Environment Canada Contacts **Public Contact:** First Name:* Jon Last Name:* Harding Position:* **Public Contact** Telephone:* 5193394015 Ext: Fax: 5193394491 Email:* jon.s.harding@esso.ca **Mailing Address Delivery Mode: General Delivery** PO Box 3004 **Rural Route Number** Address Line 1 602 Christina Street South City* Sarnia Province/Territory** Ontario Postal Code:** N7T 7M5 Highest Ranking Employee: First Name:* Richard Lact Namo:*

Last Name.	Henderson	
Position:*	Refinery Manager	

Telephone:* 5195877001

Ext:

Fax:

	5195877210			
Email:*	richard.r.henderson@exxonmobil.com			
Mailing Address				
Delivery Mode:				
PO Box	500			
Rural Route Number				
Address Line 1	225 #2 Concession			
City*	Nanticoke			
Province/Territory**	Ontario			
Postal Code:**	NOA 1L0			
Person responsible for the Toxic Substance Reduction Plan preparation:				
First Name:*	Madhavi			
Last Name:*	Patel			
Position:*	Environmental Advisor			
Telephone:*	5195877403			
Ext:				
Fax:				
Email:*	madhavi.patel@esso.ca			
Mailing Address				
Delivery Mode:				
PO Box	500			
Rural Route Number				
Address Line 1	225 #2 Concession			

City*	Nanticoke
Province/Territory**	Ontario
Postal Code:**	NOA 1L0
Employees	
Employees	
Number of Full-time Employees:*	
296	
Substances	
110-54-3, n-Hexane	
110-54-3, n-Hexane	
Substances Section Data	
Statement of Intent	
Use	
Does the plan include a statement that stipulates the c substance at their facility?*	owner or operator's intent to use less of this toxic
No	
If 'yes', provide the exact statement of intent:**	
If 'no', what rationale is specified in the plan for not usi	ng less of this substance?**
n-Hexane used at the facility is a component of the crumeet market and contractual demands for the refinery	ude oil and purchased feedstock that is required to 's products.
Creation	
Does the plan include a statement that stipulates the c substance at their facility?*	owner or operator's intent to create less of this toxic
No	
If 'yes', provide the exact statement of intent:**	
If 'no', what rationale is specified in the plan for not cre	eating less of this substance?:**
The n-hexane created onsite is a byproduct of the conunits. No technically and economically feasible options	

Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

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

Reduction target:*			
		Quantity	Unit
⊠ No target	or		
Timeframe target:*			
⊠ No target	or		years
Description of use targets:			
Toxic Substance Creation	Targets		
Reduction target:*			
		Quantity	Unit
⊠ No target	or		
Timeframe target:*			
⊠ No target	or		years
Description of creation targets:			
Reasons for Using this Toy	vic Subst	ance	
Reasons for Using this Tox This substance is used at the facility:*	NIC JUDSIA		
As a by-product			

Summarize why this substance is used at the facility:**
n-Hexane enters as a byproduct in the refinery's feedstock
Reasons for Creating this Toxic Substance
This substance is created at the facility:*
As a by-product
Summarize why this substance is created at the facility:**
n-Hexane is created as a byproduct of the complex chemical reactions occurring in conversion units at the facility
Toxic Reduction Options for Implementation
Toxic substance reduction option(s) to be implemented:
Does the plan specify that no toxic reduction option will be implemented?*
Yes
If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation).If 'Yes', explain why no option will be implemented:**
n-Hexane 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 n-hexane created onsite is a byproduct of the complex chemical reactions occurring in conversion units onsite. No technically and economically feasible reduction options were identified.
Materials or feedstock substitution
Product design or reformulation
Equipment or process modifications
Spill or leak prevention
On-site reuse, recycling or recovery
Improved inventory management or purchasing techniques
Good operator practice or training
Rationale for choosing these options for implementation:
Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:

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

substance (format TSRPXXXX):*
TSRP0071
License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*
TSRP0071
Which version of the plan is reflected in this summary?*
New Plan
115-07-1, Propylene
115-07-1, Propylene
Substances Section Data
Statement of Intent
Use
Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*
No
If 'yes', provide the exact statement of intent:**
If 'no', what rationale is specified in the plan for not using less of this substance?**
Nanticoke refinery is in the business of producing propylene from feedstock to be used in other commercial and industrial applications.
Creation
Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*
No
If 'yes', provide the exact statement of intent:**
If 'no', what rationale is specified in the plan for not creating less of this substance?:**
Nanticoke refinery is in the business of producing propylene from feedstock to be used in other commercial and industrial applications.

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Objectives, Targets and Description

Plan Objectives

Objectives in plan:*

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

Toxic Substance Use Tar	gets			
Reduction target:*				
		Quantity	Unit	
⊠ No target	or			
Timeframe target:*				
⊠ No target	or		years	
Description of use targets:				
Toxic Substance Creation	Targets			
Reduction target:*				
		Quantity	Unit	
⊠ No target	or			
Timeframe target:*				
⊠ No target	or		years	
Description of creation targets:				
Reasons for Using this To	oxic Substa	ance		
This substance is used at the facility:				
For sale/distribution				

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

Propylene enters the refinery in various feedstock. Nanticoke refinery is in the business of producing propylene from feedstock to be used in other commercial and industrial applications.

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

For sale/distribution

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

Propylene is created in various conversion units at the facility. Nanticoke refinery is in the business of producing propylene from feedstock to be used in other commercial and industrial applications.

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

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

Yes

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

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

Materials or feedstock substitution

Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

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

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

nvironment Canada
TSRP0071
License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*
TSRP0071
Which version of the plan is reflected in this summary?*
New Plan
25167-67-3, Butene (all isomers)
25167-67-3, Butene (all isomers)
Substances Section Data
Statement of Intent
Use
Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*
No
If 'yes', provide the exact statement of intent:**
If 'no', what rationale is specified in the plan for not using less of this substance?**
Butene (all isomers) used at the facility is a component of the purchased feedstock that is required to meet market and contractual demands for the refinery's products.

Creation

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

No

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

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

The butene (all isomers) 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

Plan Objectives

Objectives in plan:*

Butene (all isomers) 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 butene (all isomers) created onsite is a byproduct of the complex chemical reactions occurring in conversion units onsite which cannot be controlled for individual substance creation. No reduction options were identified that are expected to reduce the use or creation of butene (all isomers) at the refinery.

Toxic Substance Use	Targets			
Reduction target:*				
		Quantity	Unit	
⊠ No target	or			
Timeframe target:*				
⊠ No target	or		years	
Description of use targets:				
Toxic Substance Crea	ation Targets			
Reduction target:*				
		Quantity	Unit	
⊠ No target	or			
Timeframe target:*				
⊠ No target	or		years	
Description of creation targets:				
December Heimer (b	ia Tavia Oulast			
Reasons for Using th		ance		
This substance is used at the fa	acility:*			
As a by-product				
Summarize why this substance	is used at the facility	.** -		
Butene (all isomers) enters as	a byproduct in the ref	inery's feedstock.		

Reasons for Creating this Toxic Substance
This substance is created at the facility:*
As a by-product
Summarize why this substance is created at the facility:**
Butene (all isomers) is created as a byproduct of the complex chemical reactions occurring in conversion units at the facility.
Toxic Reduction Options for Implementation
Toxic substance reduction option(s) to be implemented:
Does the plan specify that no toxic reduction option will be implemented?*
Yes
If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation).If 'Yes', explain why no option will be implemented:**
Butene (all isomers) 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 butene (all isomers) 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
Product design or reformulation
Equipment or process modifications
Spill or leak prevention
On-site reuse, recycling or recovery
Improved inventory management or purchasing techniques
Good operator practice or training
Rationale for choosing these options for implementation:
Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:
License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

License number of the toxic substance reduction planner who certified the plan for this substance (format

TSRP0071

TSRPXXXX):*
TSRP0071
Which version of the plan is reflected in this summary?*
New Plan
25264-93-1, Hexene (all isomers)
25264-93-1, Hexene (all isomers)
Substances Section Data
Statement of Intent
Use
Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*
No
If 'yes', provide the exact statement of intent:**
If 'no', what rationale is specified in the plan for not using less of this substance?**
Hexene enters the facility as a component of the crude oil and purchased feedstock that is required to meet market and contractual demands for the refinery's products.
Creation
Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*
No
If 'yes', provide the exact statement of intent:**
If 'no', what rationale is specified in the plan for not creating less of this substance?:**
The hexene created onsite is a product of the complex chemical reactions occurring in conversion units. No technically and economically feasible options were identified.
Objectives, Targets and Description
Plan Objectives
Objectives in plan:*

Hexene is a naturally occurring substance in the crude oil required by the refinery to run its base business, and enter the refinery in various purchased feedstock. Hexene is created as a product of the complex chemical reactions occurring in conversion units onsite. No technically and economically feasible options to reduce the use or creation of hexene were identified.

Toxic Substance Use	Targets			
Reduction target:*				
		Quantity	Unit	
⊠ No target	or			
Timeframe target:*				
⊠ No target	or		years	
Description of use targets:				
Toxic Substance Cre	ation Targets			
Reduction target:*				
		Quantity	Unit	
⊠ No target	or			
Timeframe target:*				
⊠ No target	or		years	
Description of creation targets:				
Pageons for Llains th	ic Toxic Substa	200		
Reasons for Using th		anc e		
This substance is used at the f	acılity:^			
As a by-product				
Summarize why this substance	e is used at the facility	.**		
Hexene enters as a byproduct	in the refinery's feeds	stock.		

Reasons for Creating this Toxic Substance
This substance is created at the facility:*
As a by-product
Summarize why this substance is created at the facility:**
Hexene is created as a byproduct of the complex chemical reactions occurring in conversion units at the facility.
Toxic Reduction Options for Implementation
Toxic substance reduction option(s) to be implemented:
Does the plan specify that no toxic reduction option will be implemented?*
Yes
If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation).If 'Yes', explain why no option will be implemented:**
Hexene is naturally occurring in the crude oil required by the facility to run its base business. Hexene is a component of the purchased feedstock that is required by the facility to meet market and contractual demands for the refinery's products. Hexene created onsite is a byproduct of the complex chemical reactions occurring in conversion units onsite. No technically and economically feasible reduction options were identified.
Materials or feedstock substitution
Product design or reformulation
Equipment or process modifications
Spill or leak prevention
On-site reuse, recycling or recovery
Improved inventory management or purchasing techniques
Good operator practice or training
Rationale for choosing these options for implementation:
Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:
License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*

TSRP0071

License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*
TSRP0071
Which version of the plan is reflected in this summary?*
New Plan
25551-13-7, Trimethylbenzene (all isomers excluding 1,2,4-
Trimethylbenzene)
25551-13-7, Trimethylbenzene (all isomers excluding 1,2,4-Trimethylbenzene)
Substances Section Data
Statement of Intent
Use
Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*
No
If 'yes', provide the exact statement of intent:**
If 'no', what rationale is specified in the plan for not using less of this substance?**
Trimethylbenzene (all isomers excluding 1,2,4-Trimethylbenzene) used at the facility is a component of the feedstock that is required to meet market and contractual demands for the refinery's products. Trimethylbenzene (all isomers excluding 1,2,4-Trimethylbenzene) used at the facility is also an active ingredient in various additives. These additives are used to neutralize acids in crude, prevent corrosion and to protect unit interior. No viable alternatives were identified that would result in a reduction of Trimethylbenzene (all isomers excluding 1,2,4-Trimethylbenzene) used at the facility.
Creation
Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*
No
If 'yes', provide the exact statement of intent:**

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

Trimethylbenzene (all isomers excluding 1,2,4-Trimethylbenzene) 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

Plan Objectives

Objectives in plan:*

Trimethylbenzene (all isomers excluding 1,2,4-Trimethylbenzene) enter the facility in additives and feedstock including crude oil, and is created as a byproduct of the complex chemical reactions occurring in conversion units onsite. There were no technically and economically feasible options identified to reduce the use or creation of trimethylbenzene (all isomers excluding 1,2,4-trimethylbenzene) at the facility.

Reduction target:*			
		Quantity	Unit
⊠ No target	or		
Timeframe target:*			
⊠ No target	or		years
Description of use targets:			
Toxic Substance Cre	ation Targets		
Reduction target:*			
		Quantity	Unit
⊠ No target	or		
Timeframe target:*			
⊠ No target	or		years
Description of creation targets:			
Reasons for Using th	is Toxic Substa	ance	
This substance is used at the fa	acility:*		
As a physical or chemical proc			

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

Trimethylbenzene (all isomers excluding 1,2,4-trimethylbenzene) 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. Trimethylbenzene (all isomers excluding 1,2,4-trimethylbenzene) is an active ingredient in various additives used to neutralize acids in crude, and to prevent corrosion to protect unit interior.

Reasons for Creating this Toxic Substance

This substance is created at the facility:*

As a by-product

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

Trimethylbenzene (all isomers excluding 1,2,4-Trimethylbenzene) is created as a by-product through complex chemical reactions in various processes at the facility.

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented:

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

Yes

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

Trimethylbenzene (all isomers excluding 1,2,4-Trimethylbenzene) is naturally occurring in the crude oil required by the facility to run its base business. Trimethylbenzene (all isomers excluding 1,2,4-Trimethylbenzene) is a component of the purchased feedstock that is required by the facility to meet market and contractual demands for the refinery's products. Trimethylbenzene (all isomers excluding 1,2,4-trimethylbenzene) used onsite is found in various additives, no economical alternatives were identified that would reduce the overall quantity of toxic substances used by the refinery. Trimethylbenzene (all isomers excluding 1,2,4-trimethylbenzene) 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
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Product design or reformulation

Equipment or process modifications

Spill or leak prevention

On-site reuse, recycling or recovery

Improved inventory management or purchasing techniques

Good operator practice or training

Rationale for choosing these options for implementation:

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

the facility:
License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*
TSRP0071
License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*
TSRP0071
Which version of the plan is reflected in this summary?*
New Plan
74-85-1, Ethylene
74-85-1, Ethylene
Substances Section Data
Statement of Intent
Use
Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*
No
If 'yes', provide the exact statement of intent:**
If 'no', what rationale is specified in the plan for not using less of this substance?**
Ethylene used at the facility is a component of the purchased feedstock that is required to meet market and contractual demands for the refinery's products.
Creation
Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*
Yes
If 'yes', provide the exact statement of intent:**
Imperial Oil intends to reduce the creation of ethylene at the facility.
If 'no', what rationale is specified in the plan for not creating less of this substance?:**

Objectives, Targets and	l Description			
Plan Objectives				
Objectives in plan:*				
Ethylene is currently used at the fanaturally created at the facility in toptions to reduce the use of ethylene onsite by 133 tonnes.	he fluid catalytic ci	racking unit. No tech	nically and economically fe	asible
Toxic Substance Use T	argets			
Reduction target:*				
		Quantity	Unit	
☑ No target	or			
Timeframe target:*				
No target ■	or		years	
Description of use targets:				
Toxic Substance Creati	on Targets			
Reduction target:*				
_		Quantity	Unit	
☐ No target	or	133	tonnes	
Timeframe target:*				
☐ No target	or	1	years	
_				
Description of creation targets:				
Reasons for Using this	Toxic Substa	ance		

As a by-product

This substance is used at the facility:*

Summarize why this substance is used a	at the facility:**			
Ethylene enters the facility as a byprodu	uct in the feedsto	ck for alkylation ur	nit.	
Reasons for Creating this T	oxic Substa	ance		
This substance is created at the facility:*	*			
As a by-product				
Summarize why this substance is create	ed at the facility:*	*		
Ethylene is created as a byproduct of th facility.	e complex chem	nical reactions occu	urring in convers	ion unit at the
Toxic Reduction Options for	r Implemen	tation		
Toxic substance reduction of	option(s) to	be implemer	nted:	
Does the plan specify that no toxic reduc	ction option will b	oe implemented?*		
No				
If 'No', record the option(s) under the ap Product design or reformulation).If 'Yes',	propriate catego , explain why no	ries below (e.g., M option will be impl	aterials or feeds emented:**	stock substitution;
Materials or feedstock subs	titution			
Product design or reformula	ation			
Equipment or process modi	fications			
Modified equipment, layout	or piping			
Which activities will be under	ertaken to ir	mplement the	ese reduction	on options?
Select an option:*				
Modified equipment, layout or piping				
Describe the option:*				
Reduce metals to fluid catalytic cracking	g unit by reducin	g entrainment in va	acuum tower	
Estimates				
Estimate of the amount by which the <st a="" as="" implementing="" of="" reduced="" result="" td="" the<=""><td></td><td>ng> of the toxic sub</td><td>estance at the fa</td><td>cility will be</td></st>		ng> of the toxic sub	estance at the fa	cility will be
⊠N/A		tonnes		%

Estimate of the amount by which the <si a="" as="" implementing="" of="" reduced="" result="" th="" the<=""><th></th><th>strong> of the toxion</th><th>c substance at th</th><th>e facility will be</th></si>		strong> of the toxion	c substance at th	e facility will be
□N/A	133	tonnes	1	%
Estimate of the amount by which the tox facility will be reduced as a result of imp			the product <td>ong> leaving the</td>	ong> leaving the
⊠N/A		tonnes		%
Estimate of the amount by which the tot facility will be reduced as a result of imp	al relea lementing the op	ses to air otion:	of the toxic sub	stance at the
□N/A	0.04	tonnes	1	%
Estimate of the amount by which the tot facility will be reduced as a result of imp	al relea lementing the op	ses to waterotion:	ng> of the toxic s	substance at the
⊠N/A		tonnes		%
Estimate of the amount by which the tot facility will be reduced as a result of imp			g> of the toxic su	bstance at the
⊠N/A		tonnes		%
Estimate of the amount by which the <si at="" facility="" l<="" of="" substance="" td="" the="" toxic="" will=""><td>trong>disposals be reduced as a</td><td>on-site (i result on impleme</td><td>ncluding tailing anting this option:</td><td>and waste rock)</td></si>	trong>disposals be reduced as a	on-site (i result on impleme	ncluding tailing anting this option:	and waste rock)
⊠N/A		tonnes		%
Estimate of the amount by which the <si a="" as="" be="" implemen<="" on="" reduced="" result="" td="" will=""><td></td><td>off-site o</td><td>f the toxic substa</td><td>ance at the facility</td></si>		off-site o	f the toxic substa	ance at the facility
⊠N/A		tonnes		%
Estimate of the amount by which total < facility will be reduced as a result on imp			of the toxic subst	ance at the
⊠N/A		tonnes		%
Timelines				

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

⊠ N/A		years
Anticipated timelines for achieving the estimated redusubstance:	ction of the creation	on of the toxic
□ N/A	1	years
Spill or leak prevention		
On-site reuse, recycling or recovery		
Improved inventory management or p	ourchasing techniq	ues
Good operator practice or training		
Rationale for choosing these options for implementation	on:	
Summary of actions undertaken outside of the plan to the facility:	reduce the use and creation	on of this toxic substance at
License number of the toxic substance reduction plant substance (format TSRPXXXX):*	ner who made the recomm	endations for this
TSRP0071		
License number of the toxic substance reduction plant TSRPXXXX):*	ner who certified the plan f	or this substance (format
TSRP0071		
Which version of the plan is reflected in this summary	?*	
New Plan		
74-98-6, Propane		
74-98-6, Propane		
Substances Section Data		
Statement of Intent		
Use		
Does the plan include a statement that stipulates the substance at their facility?*	owner or operator's intent t	o use less of this toxic
No		

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

f 'no', what rationale is specifie	d in the plan for not us	sing less of this su	bstance?**
Nanticoke refinery is in the bus used in other commercial and in	iness of producing prondustrial applications.	ppane from crude	oil and purchased feedstock to be
Creation			
Does the plan include a statemosubstance at their facility?*	ent that stipulates the	owner or operator	's intent to create less of this toxic
No			
If 'yes', provide the exact staten	nent of intent:**		
If 'no', what rationale is specifie	d in the plan for not cr	eating less of this	substance?:**
Nanticoke refinery is in the bus used in other commercial and in			oil and purchased feedstock to be
Objectives, Targets a	nd Description		
Plan Objectives			
Objectives in plan:*			
Nanticoke refinery is in the bus used in other commercial and in expected to reduce fugitive emunications and improvements to	ndustrial applications. ssions of propane in t	However, various the coming years.	oil and purchased feedstock to be projects at Nanticoke refinery are These projects include tank m.
Toxic Substance Use	Targets		
Reduction target:*			
J		Quantity	Unit
	or		
⊠ No target	Oi		
Timeframe target:*			
☑ No target	or		years
Description of use targets:			

Toxic Substance Creation Targets

Reduction target:*				
		Quantity		Unit
No target ■ No target No targ	or			
Timeframe target:*				
No target ■	or			years
Description of creation targets:				
Reasons for Using this	Toxic Substa	ince		
This substance is used at the facili	ty:*			
For sale/distribution				
Summarize why this substance is	used at the facility:	**		
Propane is contained in crude oil a producing propane from crude oil applications.	and purchased fee and purchased fee	dstock. Nanticoke edstock to be used i	refinery is n other co	s in the business of ommercial and industrial
Reasons for Creating th	is Toxic Sub	stance		
This substance is created at the fa	cility:*			
For sale/distribution				
Summarize why this substance is	created at the facil	ity:**		
Propane is created in various conproducing propane from crude oil applications.				
Toxic Reduction Option	s for Implem	entation		
Toxic substance reducti	on option(s)	to be impleme	ented:	
Does the plan specify that no toxic	reduction option v	vill be implemented	?*	
Yes				

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

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

Materials or feedstock substitution
Product design or reformulation
Equipment or process modifications
Spill or leak prevention
On-site reuse, recycling or recovery
Improved inventory management or purchasing techniques
Good operator practice or training
Rationale for choosing these options for implementation:
Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:
License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*
TSRP0071
License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*
TSRP0071
Which version of the plan is reflected in this summary?*
New Plan
95-63-6, 1,2,4-Trimethylbenzene
95-63-6, 1,2,4-Trimethylbenzene
Substances Section Data
Statement of Intent
Use
Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*
No
If 'yes', provide the exact statement of intent:**

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

1,2,4-Trimethylbenzene used at the facility is a component of the feedstock that is required to meet market and contractual demands for the refinery's products. 1,2,4-Trimethylbenzene used at the facility is also an active ingredient in various additives. These additives are used to neutralize acids in crude, and to prevent corrosion to protect unit interior. No viable alternatives were identified that would result in a reduction of 1,2,4-Trimethylbenzene used at the facility.

Creation			
Does the plan include a statement that substance at their facility?*	at stipulates the	owner or operator	s intent to create less of this toxi
No			
If 'yes', provide the exact statement o	f intent:**		
If 'no', what rationale is specified in th	e plan for not c	reating less of this	substance?:**
1,2,4-Trimethylbenzene is created as processes at the facility. The operations specifications and are not able to be	ons of these un	its vary to meet ma	rket demands and product
Objectives, Targets and D	escription		
Plan Objectives	·		
Objectives in plan:*			
1,2,4-Trimethylbenzene enters the fa byproduct of the complex chemical re technically and economically feasible trimethylbenzene at the facility.	eactions occurri	ng in conversion ur	nits onsite. There were no
	acto		
Toxic Substance Use Targ	geis		
Reduction target:*		Quantity	Unit
		Quantity	Onit
⊠ No target	or		
Timeframe target:*			
⊠ No target	or		years
Description of use targets:			
. 5			

Toxic Substance Creati	on Targets		
Reduction target:*			
		Quantity	Unit
⊠ No target	or		
Timeframe target:*			
No target ■ Target	or		years
Description of creation targets:			
Reasons for Using this	Toxic Substa	ance	
This substance is used at the facili	ity:*		
As a physical or chemical process	sing aid		
Summarize why this substance is	used at the facility	.** ·	
1,2,4-trimethylbenzene is a natural various refinery feedstock, which a trimethylbenzene is an active ingreprevent corrosion to protect unit in	are required by the edient in various a	e refinery to run its b	ase business. 1,2,4-
Reasons for Creating th	nis Toxic Sub	stance	
This substance is created at the fa	ıcility:*		
As a by-product			
Summarize why this substance is	created at the facil	lity:**	
1,2,4-Trimethylbenzene is created processes at the facility.	l as a by-product t	hrough complex che	emical reactions in various
Toxic Reduction Option	s for Implem	entation	
Toxic substance reduct	ion option(s)	to be implem	ented:
Does the plan specify that no toxic	reduction option v	will be implemented	?*
Vac			

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

1,2,4-Trimethylbenzene is naturally occurring in the crude oil required by the facility to run its base business. 1,2,4-trimethylbenzene used onsite is found in various additives, no economical alternatives were identified that would reduce the overall quantity of toxic substance used by the refinery. The 1,2,4-trimethylbenzene 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
Product design or reformulation
Equipment or process modifications
Spill or leak prevention
On-site reuse, recycling or recovery
Improved inventory management or purchasing techniques
Good operator practice or training
Rationale for choosing these options for implementation:
Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:
License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*
TSRP0071
License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*
TSRP0071
Which version of the plan is reflected in this summary?*
New Plan
NA - 24, Butane (all isomers)
NA - 24, Butane (all isomers)
Substances Section Data
Statement of Intent
Use
Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*
No

Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?* No If 'yes', provide the exact statement of intent:** If 'no', what rationale is specified in the plan for not creating less of this substance?:** Nanticoke refinery is in the business of producing butane from crude oil and purchased feedstock to be used in other commercial and industrial applications. Objectives, Targets and Description Plan Objectives Objectives in plan:* Nanticoke refinery is in the business of producing butane from crude oil and purchased feedstock to be used in other commercial and industrial applications. However, various projects at Nanticoke refinery are expected to reduce fugitive emissions of butane in the coming years. These projects include tank upgrades and improvements to the fugitive emission monitoring program. Toxic Substance Use Targets Reduction target:* Quantity Unit No target or years	If 'yes', provide the exact statement of in	ntent:**			
Nanticoke refinery is in the business of producing butane from crude oil and purchased feedstock to be used in other commercial and industrial applications. Creation Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?* No If 'yes', provide the exact statement of intent:** If 'no', what rationale is specified in the plan for not creating less of this substance?:** Nanticoke refinery is in the business of producing butane from crude oil and purchased feedstock to be used in other commercial and industrial applications. Objectives, Targets and Description Plan Objectives Objectives in plan:* Nanticoke refinery is in the business of producing butane from crude oil and purchased feedstock to be used in other commercial and industrial applications. However, various projects at Nanticoke refinery are expected to reduce fugilitye emissions of butane in the coming years. These projects include tank upgrades and improvements to the fugitive emission monitoring program. Toxic Substance Use Targets Reduction target:* Quantity Unit No target Or years					
Creation Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?* No If 'yes', provide the exact statement of intent:** If 'no', what rationale is specified in the plan for not creating less of this substance?:** Nanticoke refinery is in the business of producing butane from crude oil and purchased feedstock to be used in other commercial and industrial applications. Objectives, Targets and Description Plan Objectives Objectives in plan:* Nanticoke refinery is in the business of producing butane from crude oil and purchased feedstock to be used in other commercial and industrial applications. However, various projects at Nanticoke refinery are expected to reduce fugitive emissions of butane in the coming years. These projects include tank upgrades and improvements to the fugitive emission monitoring program. Toxic Substance Use Targets Reduction target:* Quantity Unit No target or years	If 'no', what rationale is specified in the p	olan for not us	sing less of this	substance?*	*
Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?* No If 'yes', provide the exact statement of intent:** If 'no', what rationale is specified in the plan for not creating less of this substance?:** Nanticoke refinery is in the business of producing butane from crude oil and purchased feedstock to be used in other commercial and industrial applications. Objectives, Targets and Description Plan Objectives Objectives in plan:* Nanticoke refinery is in the business of producing butane from crude oil and purchased feedstock to be used in other commercial and industrial applications. However, various projects at Nanticoke refinery are expected to reduce fugitive emissions of butane in the coming years. These projects include tank upgrades and improvements to the fugitive emission monitoring program. Toxic Substance Use Targets Reduction target:* Quantity Unit No target or years			tane from crude	oil and purc	hased feedstock to be
Substance at their facility?* No If 'yes', provide the exact statement of intent:** If 'no', what rationale is specified in the plan for not creating less of this substance?:** Nanticoke refinery is in the business of producing butane from crude oil and purchased feedstock to be used in other commercial and industrial applications. Objectives, Targets and Description Plan Objectives Objectives in plan:* Nanticoke refinery is in the business of producing butane from crude oil and purchased feedstock to be used in other commercial and industrial applications. However, various projects at Nanticoke refinery are expected to reduce fugitive emissions of butane in the coming years. These projects include tank upgrades and improvements to the fugitive emission monitoring program. Toxic Substance Use Targets Reduction target:* Quantity Unit No target or years	Creation				
If 'yes', provide the exact statement of intent:** If 'no', what rationale is specified in the plan for not creating less of this substance?:** Nanticoke refinery is in the business of producing butane from crude oil and purchased feedstock to be used in other commercial and industrial applications. Objectives, Targets and Description Plan Objectives Objectives Objectives in plan:* Nanticoke refinery is in the business of producing butane from crude oil and purchased feedstock to be used in other commercial and industrial applications. However, various projects at Nanticoke refinery are expected to reduce fugitive emissions of butane in the coming years. These projects include tank upgrades and improvements to the fugitive emission monitoring program. Toxic Substance Use Targets Reduction target:* Quantity Unit No target or years	Does the plan include a statement that s substance at their facility?*	stipulates the	owner or operat	or's intent to	create less of this toxic
If 'no', what rationale is specified in the plan for not creating less of this substance?:** Nanticoke refinery is in the business of producing butane from crude oil and purchased feedstock to be used in other commercial and industrial applications. Objectives, Targets and Description Plan Objectives Objectives Objectives in plan:* Nanticoke refinery is in the business of producing butane from crude oil and purchased feedstock to be used in other commercial and industrial applications. However, various projects at Nanticoke refinery are expected to reduce fugitive emissions of butane in the coming years. These projects include tank upgrades and improvements to the fugitive emission monitoring program. Toxic Substance Use Targets Reduction target:* Quantity Unit No target or years	No				
Nanticoke refinery is in the business of producing butane from crude oil and purchased feedstock to be used in other commercial and industrial applications. Objectives, Targets and Description Plan Objectives Objectives in plan:* Nanticoke refinery is in the business of producing butane from crude oil and purchased feedstock to be used in other commercial and industrial applications. However, various projects at Nanticoke refinery are expected to reduce fugitive emissions of butane in the coming years. These projects include tank upgrades and improvements to the fugitive emission monitoring program. Toxic Substance Use Targets Reduction target:* Quantity Unit No target or years	If 'yes', provide the exact statement of in	ntent:**			
Objectives, Targets and Description Plan Objectives Objectives in plan:* Nanticoke refinery is in the business of producing butane from crude oil and purchased feedstock to be used in other commercial and industrial applications. However, various projects at Nanticoke refinery are expected to reduce fugitive emissions of butane in the coming years. These projects include tank upgrades and improvements to the fugitive emission monitoring program. Toxic Substance Use Targets Reduction target:* Quantity Unit No target or Very years	If 'no', what rationale is specified in the p	olan for not cr	eating less of th	is substance	; ?:**
Plan Objectives Objectives in plan:* Nanticoke refinery is in the business of producing butane from crude oil and purchased feedstock to be used in other commercial and industrial applications. However, various projects at Nanticoke refinery are expected to reduce fugitive emissions of butane in the coming years. These projects include tank upgrades and improvements to the fugitive emission monitoring program. Toxic Substance Use Targets Reduction target:* Quantity Unit No target or years			tane from crude	oil and purc	hased feedstock to be
Nanticoke refinery is in the business of producing butane from crude oil and purchased feedstock to be used in other commercial and industrial applications. However, various projects at Nanticoke refinery are expected to reduce fugitive emissions of butane in the coming years. These projects include tank upgrades and improvements to the fugitive emission monitoring program. Toxic Substance Use Targets Reduction target:* Quantity Unit Imeframe target:* No target or years	Objectives, Targets and De	scription			
Nanticoke refinery is in the business of producing butane from crude oil and purchased feedstock to be used in other commercial and industrial applications. However, various projects at Nanticoke refinery are expected to reduce fugitive emissions of butane in the coming years. These projects include tank upgrades and improvements to the fugitive emission monitoring program. Toxic Substance Use Targets Reduction target:* Quantity Unit Imeframe target:* No target or years	Plan Objectives				
used in other commercial and industrial applications. However, various projects at Nanticoke refinery are expected to reduce fugitive emissions of butane in the coming years. These projects include tank upgrades and improvements to the fugitive emission monitoring program. Toxic Substance Use Targets Reduction target:* Quantity Unit Immeframe target:* No target or years	Objectives in plan:*				
Reduction target:* Quantity Unit No target or No target or years	used in other commercial and industrial expected to reduce fugitive emissions o	applications. f butane in th	However, vario e coming years.	us projects a	at Nanticoke refinery are
Quantity Unit In No target Or Timeframe target:* ✓ No target ✓ or years	Toxic Substance Use Targe	ets			
➤ No target or Timeframe target:* ➤ No target or years	Reduction target:*				
Timeframe target:* No target or years			Quantity		Unit
☑ No target or years	⊠ No target	or			
X No target	Timeframe target:*				
Description of use targets:	⊠ No target	or			years
	Description of use targets:				

Toxic Substance Creati	on Targets				
Reduction target:*					
		Quantity	Unit		
⊠ No target	or				
Timeframe target:*					
⊠ No target	or		years		
Description of creation targets:					
Reasons for Using this	Toxic Substa	nce			
This substance is used at the facil	ity:*				
For sale/distribution					
Summarize why this substance is	used at the facility:	**			
Butane enters the refinery in various from crude oil and feedstock to be)	
Reasons for Creating this Toxic Substance					
This substance is created at the fa					
For on-site use/processing					
Summarize why this substance is	created at the facil	ity:**			
Butane is created in various conversion units at the facility. Nanticoke refinery is in the business of producing butane from crude oil and feedstock to be used in other commercial and industrial applications.					
Toxic Reduction Option	s for Implem	entation			
Toxic substance reduct	ion option(s)	to be implem	ented:		
Does the plan specify that no toxic	reduction option v	vill be implemented	?*		

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

Yes

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

Materials or feedstock substitution
Product design or reformulation
Equipment or process modifications
Spill or leak prevention
On-site reuse, recycling or recovery
Improved inventory management or purchasing techniques
Good operator practice or training
Rationale for choosing these options for implementation:
Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:
License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*
TSRP0071
License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*
TSRP0071
Which version of the plan is reflected in this summary?*
New Plan
NA - 25, Cycloheptane (all isomers)
NA - 25, Cycloheptane (all isomers)
Substances Section Data
Statement of Intent
Use
Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*
No

If 'yes', provide the exact statement of inte	nt:**			
If 'no', what rationale is specified in the pla	ın for not u	sing less of this s	substance?*	*
Cycloheptane used at the facility is a com to meet market and contractual demands			purchased t	feedstock that is required
Creation				
Does the plan include a statement that stip substance at their facility?*	oulates the	owner or operate	or's intent to	create less of this toxic
No				
If 'yes', provide the exact statement of inte	nt:**			
If 'no', what rationale is specified in the pla	n for not c	reating less of thi	is substance	e?:**
The cycloheptane created onsite is a produnits. No technically and economically fea				occurring in conversion
Objectives, Targets and Desc	cription			
Plan Objectives				
Objectives in plan:*				
Cycloheptane naturally occurs in the crude the refinery in various purchased feedstoo reactions occurring in conversion units on identified to reduce the use or creation of	k. Cyclohe site. There	ptane is created were no technic	as a produc	ct of the complex chemical
Toxic Substance Use Targets	3			
Reduction target:*				
J		Quantity		Unit
⊠ No target	or			
Timeframe target:*				
⊠ No target	or			years
Description of use targets:				

Toxic Substance Cre	eation Targets			
Reduction target:*				
		Quantity	Unit	
⊠ No target	or			
Timeframe target:*				
No target	or		years	
Description of creation targets	:			
Reasons for Using th	nis Toxic Substa	ınce		
This substance is used at the				
As a by-product				
Summarize why this substance	e is used at the facility:	**		
Cycloheptane enters as a byp	product in the refinery's	feedstock.		
Reasons for Creating	g this Toxic Sub	stance		
This substance is created at the				
As a by-product				
Summarize why this substance	e is created at the facil	ity:**		
Cycloheptane is created as a the facility.	byproduct of the comp	lex chemical reactio	ns occurring in conversion units at	
Toxic Reduction Opt	ions for Implem	entation		
Toxic substance red	uction option(s)	to be impleme	ented:	
Does the plan specify that no	• ` ,	•		
Yes				

Cycloheptane is a naturally occurring substance 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 cycloheptane created onsite is a product of the complex chemical reactions occurring in conversion units onsite. No technically and economically feasible reduction options were identified.

Materials or feedstock substitution
Product design or reformulation
Equipment or process modifications
Spill or leak prevention
On-site reuse, recycling or recovery
Improved inventory management or purchasing techniques
Good operator practice or training
Rationale for choosing these options for implementation:
Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:
License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*
TSRP0071
License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*
TSRP0071
Which version of the plan is reflected in this summary?*
New Plan
NA - 27, Cyclooctane (all isomers)
NA - 27, Cyclooctane (all isomers)
Substances Section Data
Statement of Intent
Use
Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*
No

If 'yes', provide the exact statement of in	itent:**			
If 'no', what rationale is specified in the p	olan for not us	sing less of this	substance?	**
Cyclooctane used at the facility is a commeet market and contractual demands f	nponent of the	e crude oil and		
Creation				
Does the plan include a statement that s substance at their facility?*	tipulates the	owner or opera	tor's intent t	o create less of this toxic
No				
If 'yes', provide the exact statement of in	itent:**			
If 'no', what rationale is specified in the p	olan for not cr	eating less of the	nis substanc	e?:**
The cyclooctane created onsite is a prounits. No technically and economically for	duct of the co	mplex chemica	I reactions o	
Objectives, Targets and De	scription			
Plan Objectives				
Objectives in plan:*				
Cyclooctane naturally occurs in the cruc refinery in various purchased feedstock, reactions occurring in conversion units identified to reduce the use or creation of	. Cyclooctane onsite. There	e is created as a were no techni	a product of	the complex chemical
Toxic Substance Use Targe	ets			
Reduction target:*				
		Quantity		Unit
⊠ No target	or			
Timeframe target:*				
No target ■	or			years
Description of use targets:				

Toxic Substance Creation Targets Reduction target:* Quantity Unit or ☑ No target Timeframe target:* or No target vears Description of creation targets: Reasons for Using this Toxic Substance This substance is used at the facility:* As a by-product Summarize why this substance is used at the facility:** Cyclooctane enters as a byproduct in the refinery's feedstock. Reasons for Creating this Toxic Substance This substance is created at the facility:* As a by-product Summarize why this substance is created at the facility:** Cyclooctane is created as a byproduct of the complex chemical reactions occurring in conversion units at the facility. Toxic Reduction Options for Implementation Toxic substance reduction option(s) to be implemented: Does the plan specify that no toxic reduction option will be implemented?* Yes

Cyclooctane is a naturally occurring substance 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 cyclooctane created onsite is a product of the complex chemical reactions occurring in conversion units onsite. No technically and economically feasible reduction options were identified.

Materials or feedstock substitution
Product design or reformulation
Equipment or process modifications
Spill or leak prevention
On-site reuse, recycling or recovery
Improved inventory management or purchasing techniques
Good operator practice or training
Rationale for choosing these options for implementation:
Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:
License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*
TSRP0071
License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*
TSRP0071
Which version of the plan is reflected in this summary?*
New Plan
NA - 28, Decane (all isomers) NA - 28, Decane (all isomers)
Substances Section Data
Statement of Intent
Use
Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic
substance at their facility?*
No

If 'no', what rationale is specified in the plan for not using less of this substance?** Decane enters the facility as a component of the crude oil and purchased feedstock that is required to meet market and contractual demands for the refinery's products. Creation Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?* No If 'yes', provide the exact statement of intent:** If 'no', what rationale is specified in the plan for not creating less of this substance?:** The Decane created onsite is a product of the complex chemical reactions occurring in conversion units. No technically and economically feasible options were identified. Objectives, Targets and Description Plan Objectives Objectives in plan:* Decane is naturally occurring in the crude oil required by the refinery to run its base business, and enter the refinery in various purchased feedstock. Decane is created as a product of the complex chemical reactions occurring in conversion units onsite. No technically and economically feasible options to reduce the use or creation of decane were identified. Toxic Substance Use Targets Reduction target:* Quantity Unit No target	If 'yes', provide the exact statement of intent	:** !:		
Decane enters the facility as a component of the crude oil and purchased feedstock that is required to meet market and contractual demands for the refinery's products. Creation Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?* No If 'yes', provide the exact statement of intent:** If 'no', what rationale is specified in the plan for not creating less of this substance?:** The Decane created onsite is a product of the complex chemical reactions occurring in conversion units. No technically and economically feasible options were identified. Objectives, Targets and Description Plan Objectives Objectives in plan:* Decane is naturally occurring in the crude oil required by the refinery to run its base business, and enter the refinery in various purchased feedstock. Decane is created as a product of the complex chemical reactions occurring in conversion units onsits. No technically and economically feasible options to reduce the use or creation of decane were identified. Toxic Substance Use Targets Reduction target:* Quantity Unit				
Creation Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?* No If 'yes', provide the exact statement of intent:** If 'no', what rationale is specified in the plan for not creating less of this substance?:** The Decane created onsite is a product of the complex chemical reactions occurring in conversion units. No technically and economically feasible options were identified. Objectives, Targets and Description Plan Objectives Objectives in plan:* Decane is naturally occurring in the crude oil required by the refinery to run its base business, and enter the refinery in various purchased feedstock. Decane is created as a product of the complex chemical reactions occurring in conversion units onsite. No technically and economically feasible options to reduce the use or creation of decane were identified. Toxic Substance Use Targets Reduction target:* Quantity Unit	If 'no', what rationale is specified in the plan	for not u	sing less of this substance	e?**
Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?* No If 'yes', provide the exact statement of intent:** If 'no', what rationale is specified in the plan for not creating less of this substance?:** The Decane created onsite is a product of the complex chemical reactions occurring in conversion units. No technically and economically feasible options were identified. Objectives, Targets and Description Plan Objectives Objectives in plan:* Decane is naturally occurring in the crude oil required by the refinery to run its base business, and enter the refinery in various purchased feedstock. Decane is created as a product of the complex chemical reactions occurring in conversion units onsite. No technically and economically feasible options to reduce the use or creation of decane were identified. Toxic Substance Use Targets Reduction target:* Quantity Unit				dstock that is required to meet
substance at their facility?* No If 'yes', provide the exact statement of intent:** If 'no', what rationale is specified in the plan for not creating less of this substance?:** The Decane created onsite is a product of the complex chemical reactions occurring in conversion units. No technically and economically feasible options were identified. Objectives, Targets and Description Plan Objectives Objectives in plan:* Decane is naturally occurring in the crude oil required by the refinery to run its base business, and enter the refinery in various purchased feedstock. Decane is created as a product of the complex chemical reactions occurring in conversion units onsite. No technically and economically feasible options to reduce the use or creation of decane were identified. Toxic Substance Use Targets Reduction target:* Quantity Unit	Creation			
If 'yes', provide the exact statement of intent:** If 'no', what rationale is specified in the plan for not creating less of this substance?:** The Decane created onsite is a product of the complex chemical reactions occurring in conversion units. No technically and economically feasible options were identified. Objectives, Targets and Description Plan Objectives Objectives in plan:* Decane is naturally occurring in the crude oil required by the refinery to run its base business, and enter the refinery in various purchased feedstock. Decane is created as a product of the complex chemical reactions occurring in conversion units onsite. No technically and economically feasible options to reduce the use or creation of decane were identified. Toxic Substance Use Targets Reduction target:* Quantity Unit		lates the	owner or operator's inten	t to create less of this toxic
If 'no', what rationale is specified in the plan for not creating less of this substance?:** The Decane created onsite is a product of the complex chemical reactions occurring in conversion units. No technically and economically feasible options were identified. Objectives, Targets and Description Plan Objectives Objectives in plan:* Decane is naturally occurring in the crude oil required by the refinery to run its base business, and enter the refinery in various purchased feedstock. Decane is created as a product of the complex chemical reactions occurring in conversion units onsite. No technically and economically feasible options to reduce the use or creation of decane were identified. Toxic Substance Use Targets Reduction target:* Quantity Unit	No			
The Decane created onsite is a product of the complex chemical reactions occurring in conversion units. No technically and economically feasible options were identified. Objectives, Targets and Description Plan Objectives Objectives in plan:* Decane is naturally occurring in the crude oil required by the refinery to run its base business, and enter the refinery in various purchased feedstock. Decane is created as a product of the complex chemical reactions occurring in conversion units onsite. No technically and economically feasible options to reduce the use or creation of decane were identified. Toxic Substance Use Targets Reduction target:* Quantity Unit	If 'yes', provide the exact statement of intent	t.** 		
No technically and economically feasible options were identified. Objectives, Targets and Description Plan Objectives Objectives in plan:* Decane is naturally occurring in the crude oil required by the refinery to run its base business, and enter the refinery in various purchased feedstock. Decane is created as a product of the complex chemical reactions occurring in conversion units onsite. No technically and economically feasible options to reduce the use or creation of decane were identified. Toxic Substance Use Targets Reduction target:* Quantity Unit	If 'no', what rationale is specified in the plan	for not ci	reating less of this substa	nce?:**
Plan Objectives Objectives in plan:* Decane is naturally occurring in the crude oil required by the refinery to run its base business, and enter the refinery in various purchased feedstock. Decane is created as a product of the complex chemical reactions occurring in conversion units onsite. No technically and economically feasible options to reduce the use or creation of decane were identified. Toxic Substance Use Targets Reduction target:* Quantity Unit	The Decane created onsite is a product of the No technically and economically feasible op	he compl tions we	ex chemical reactions occre identified.	curring in conversion units.
Objectives in plan:* Decane is naturally occurring in the crude oil required by the refinery to run its base business, and enter the refinery in various purchased feedstock. Decane is created as a product of the complex chemical reactions occurring in conversion units onsite. No technically and economically feasible options to reduce the use or creation of decane were identified. Toxic Substance Use Targets Reduction target:* Quantity Unit	Objectives, Targets and Descr	ription		
Decane is naturally occurring in the crude oil required by the refinery to run its base business, and enter the refinery in various purchased feedstock. Decane is created as a product of the complex chemical reactions occurring in conversion units onsite. No technically and economically feasible options to reduce the use or creation of decane were identified. Toxic Substance Use Targets Reduction target:* Quantity Unit	Plan Objectives			
refinery in various purchased feedstock. Decane is created as a product of the complex chemical reactions occurring in conversion units onsite. No technically and economically feasible options to reduce the use or creation of decane were identified. Toxic Substance Use Targets Reduction target:* Quantity Unit	Objectives in plan:*			
Reduction target:* Quantity Unit No target	refinery in various purchased feedstock. De occurring in conversion units onsite. No tech	cane is c	reated as a product of the	e complex chemical reactions
Quantity Unit No target	Toxic Substance Use Targets			
No target or	Reduction target:*			
i⊠ No target			Quantity	Unit
Timeframe target:*	⊠ No target	or		
	Timeframe target:*			
No target	⊠ No target	or		years
Description of use targets:	Description of use targets:			

Toxic Substance Creation Targets Reduction target:* Quantity Unit or ☑ No target Timeframe target:* or No target vears Description of creation targets: Reasons for Using this Toxic Substance This substance is used at the facility:* As a by-product Summarize why this substance is used at the facility:** Decane enters as a byproduct in the refinery's feedstock. Reasons for Creating this Toxic Substance This substance is created at the facility:* As a by-product Summarize why this substance is created at the facility:** Decane is created as a byproduct of the complex chemical reactions occurring in conversion units at the facility. Toxic Reduction Options for Implementation Toxic substance reduction option(s) to be implemented: Does the plan specify that no toxic reduction option will be implemented?* Yes

Decane is naturally occurring in the crude oil required by the facility to run its base business. Decane is a component of the purchased feedstock that is required by the facility to meet market and contractual demands for the refinery's products. Decane created onsite is a byproduct of the complex chemical reactions occurring in conversion units onsite. No technically and economically feasible reduction options were identified.

Materials or feedstock substitution
Product design or reformulation
Equipment or process modifications
Spill or leak prevention
On-site reuse, recycling or recovery
Improved inventory management or purchasing techniques
Good operator practice or training
Rationale for choosing these options for implementation:
Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:
License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*
TSRP0071
License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*
TSRP0071
Which version of the plan is reflected in this summary?*
New Plan
NA - 31, Heptane (all isomers)
NA - 31, Heptane (all isomers)
Substances Section Data
Statement of Intent
Use
Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*
No

If 'yes', provide the exact statement of in	ntent:**		
If 'no', what rationale is specified in the p	olan for not us	sing less of this	substance?**
Heptane enters the facility as a component meet market and contractual demands			nased feedstock that is required to
Creation			
Does the plan include a statement that s substance at their facility?*	stipulates the	owner or operat	or's intent to create less of this toxic
No			
If 'yes', provide the exact statement of in	ntent:**		
If 'no', what rationale is specified in the p	olan for not ci	eating less of th	is substance?:**
The Heptane created onsite is a production No technically and economically feasible	t of the comp e options we	lex chemical reare identified.	actions occurring in conversion units.
Objectives, Targets and De	scription		
Plan Objectives			
Objectives in plan:*			
Heptane is naturally occurring in the cru the refinery in various purchased feedst reactions occurring in conversion units of the use or creation of heptane were idea	ock. Heptane onsite. No tec	is created as a	product of the complex chemical
Toxic Substance Use Targe	ets		
Reduction target:*			
		Quantity	Unit
⊠ No target	or		
Timeframe target:*			
⊠ No target	or		years
Description of use targets:			

Toxic Substance Creation Targets Reduction target:* Quantity Unit or ☑ No target Timeframe target:* or No target vears Description of creation targets: Reasons for Using this Toxic Substance This substance is used at the facility:* As a by-product Summarize why this substance is used at the facility:** Heptane enters as a byproduct in the refinery's feedstock. Reasons for Creating this Toxic Substance This substance is created at the facility:* As a by-product Summarize why this substance is created at the facility:** Heptane is created as a byproduct of the complex chemical reactions occurring in conversion units at the facility. Toxic Reduction Options for Implementation Toxic substance reduction option(s) to be implemented: Does the plan specify that no toxic reduction option will be implemented?* Yes

Heptane is naturally occurring in the crude oil required by the facility to run its base business. Heptane is a component of the purchased feedstock that is required by the facility to meet market and contractual demands for the refinery's products. Heptane created onsite is a byproduct of the complex chemical reactions occurring in conversion units onsite. No technically and economically feasible reduction options were identified.

Materials or feedstock substitution
Product design or reformulation
Equipment or process modifications
Spill or leak prevention
On-site reuse, recycling or recovery
Improved inventory management or purchasing techniques
Good operator practice or training
Rationale for choosing these options for implementation:
Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:
License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*
TSRP0071
License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*
TSRP0071
Which version of the plan is reflected in this summary?*
New Plan
NA - 32, Hexane (all isomers excluding n-hexane) NA - 32, Hexane (all isomers excluding n-hexane)
Substances Section Data
Statement of Intent
Use
Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*
No

If 'yes', provide the exact statement of intent:**			
If 'no', what rationale is specified in the plan for			
Hexane (all isomers excluding n-Hexane) ente feedstock that is required to meet market and	rs the t contrac	cacility as a component ctual demands for the i	t of the crude oil and purchased refinery's products.
Creation			
Does the plan include a statement that stipulate substance at their facility?*	es the	owner or operator's int	ent to create less of this toxic
No			
If 'yes', provide the exact statement of intent:**			
If 'no', what rationale is specified in the plan for	not cr	eating less of this subs	stance?:**
The Hexane (all isomers excluding n-Hexane) reactions occurring in conversion units. No tec	create hnically	d onsite is a product of and economically feat	f the complex chemical asible options were identified.
Objectives, Targets and Descrip	tion		
Plan Objectives			
Objectives in plan:*			
Hexane (all isomers excluding n-Hexane) is narun its base business, and enter the refinery in n-Hexane) is created as a product of the comp No technically and economically feasible option excluding n-Hexane) were identified.	variou lex che	s purchased feedstock emical reactions occur	K. Hexane (all isomers excluding ring in conversion units onsite.
Toxic Substance Use Targets			
Reduction target:*			
•		Quantity	Unit
⊠ No target	or		
Timeframe target:*			
⊠ No target	or		years
Description of use targets:			

Toxic Substance Creation Targets Reduction target:* Quantity Unit or ☑ No target Timeframe target:* or No target vears Description of creation targets: Reasons for Using this Toxic Substance This substance is used at the facility:* As a by-product Summarize why this substance is used at the facility:** Hexane (all isomers excluding n-Hexane) enters as a byproduct in the refinery's feedstock. Reasons for Creating this Toxic Substance This substance is created at the facility:* As a by-product Summarize why this substance is created at the facility:** Hexane (all isomers excluding n-Hexane) is created as a byproduct of the complex chemical reactions occurring in conversion units at the facility. Toxic Reduction Options for Implementation Toxic substance reduction option(s) to be implemented: Does the plan specify that no toxic reduction option will be implemented?* Yes

Hexane (all isomers excluding n-Hexane) is naturally occurring in the crude oil required by the facility to run its base business. Hexane (all isomers excluding n-Hexane) is a component of the purchased feedstock that is required by the facility to meet market and contractual demands for the refinery's products. Hexane (all isomers excluding n-Hexane) created onsite is a byproduct of the complex chemical reactions occurring in conversion units onsite. No technically and economically feasible reduction options were identified.

Materials or feedstock substitution
Product design or reformulation
Equipment or process modifications
Spill or leak prevention
On-site reuse, recycling or recovery
Improved inventory management or purchasing techniques
Good operator practice or training
Rationale for choosing these options for implementation:
Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:
License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*
TSRP0071
License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*
TSRP0071
Which version of the plan is reflected in this summary?*
New Plan
NA - 33, Nonane (all isomers) NA - 33, Nonane (all isomers)
Substances Section Data
Statement of Intent
Use
Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*
No

If 'yes', provide the exact statement of in	ntent:**			
If 'no', what rationale is specified in the p	olan for not us	sing less of this	substance?**	
Nonane enters the facility as a componemarket and contractual demands for the			ased feedsto	ck that is required to meet
Creation				
Does the plan include a statement that substance at their facility?*	stipulates the	owner or operat	or's intent to	create less of this toxic
No				
If 'yes', provide the exact statement of ir	ntent:**			
If 'no', what rationale is specified in the p	olan for not cr	eating less of th	s substance	?:**
The Nonane created onsite is a product No technically and economically feasible			ctions occurr	ing in conversion units.
Objectives, Targets and De	scription			
Plan Objectives				
Objectives in plan:*				
Nonane is naturally occurring in the cruerefinery in various purchased feedstock occurring in conversion units onsite. No creation of Nonane were identified.	. Nonanė is c	reated as a prod	uct of the co	mplex chemical reactions
Toxic Substance Use Targe	ets			
Reduction target:*				
		Quantity		Unit
⊠ No target	or			
Timeframe target:*				
⊠ No target	or			years
Description of use targets:				

Toxic Substance Cre	ation Targets				
Reduction target:*					
		Quantity	Unit		
⊠ No target	or				
Timeframe target:*					
⊠ No target	or		years		
Description of creation targets	:				
Reasons for Using th	nis Toxic Substa	ınce			
This substance is used at the					
As a by-product					
Summarize why this substance	e is used at the facility:	**			
Nonane enters as a byproduc	t in the refinery's feeds	tock.			
Reasons for Creating	a this Toxic Sub	stance			
This substance is created at the					
As a by-product					
Summarize why this substance	e is created at the facil	ity:**			
Nonane is created as a bypro facility.	duct of the complex ch	emical reactions oc	curring in conversion units at the		
Toxic Reduction Opt	ions for Implem	entation			
Toxic substance redu	•		ented:		
Does the plan specify that no	. ,	•			
Yes					

Nonane is naturally occurring in the crude oil required by the facility to run its base business. Nonane is a component of the purchased feedstock that is required by the facility to meet market and contractual demands for the refinery's products. Nonane created onsite is a byproduct of the complex chemical reactions occurring in conversion units onsite. No technically and economically feasible reduction options were identified.

Materials or feedstock substitution
Product design or reformulation
Equipment or process modifications
Spill or leak prevention
On-site reuse, recycling or recovery
Improved inventory management or purchasing techniques
Good operator practice or training
Rationale for choosing these options for implementation:
Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:
License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*
TSRP0071
License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*
TSRP0071
Which version of the plan is reflected in this summary?*
New Plan
NA - 34, Octane (all isomers)
NA - 34, Octane (all isomers)
Substances Section Data
Statement of Intent
Use
Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*
No

If 'yes', provide the exact statement of in	tent:**			
If 'no', what rationale is specified in the p	olan for not u	sing less of this	substance?*	*
Octane enters the facility as a component market and contractual demands for the			sed feedsto	ck that is required to meet
Creation				
Does the plan include a statement that s substance at their facility?*	tipulates the	owner or operat	or's intent to	create less of this toxic
No				
If 'yes', provide the exact statement of in	tent:**			
If 'no', what rationale is specified in the p	olan for not c	eating less of th	is substance	9?:**
The Octane created onsite is a product of technically and economically feasible op			tions occurr	ing in conversion units. No
Objectives, Targets and Des	scription			
Plan Objectives	•			
Objectives in plan:*				
Octane is naturally occurring in the crud refinery in various purchased feedstock. occurring in conversion units onsite. No creation of Octane were identified.	Octane is cr	eated as a prod	uct of the co	mplex chemical reactions
Toxic Substance Use Targe	ets			
Reduction target:*				
		Quantity		Unit
⊠ No target	or			
Timeframe target:*				
⊠ No target	or			years
Description of use targets:				

Toxic Substance Creation Targets Reduction target:* Quantity Unit or ☑ No target Timeframe target:* or No target vears Description of creation targets: Reasons for Using this Toxic Substance This substance is used at the facility:* As a by-product Summarize why this substance is used at the facility:** Octane enters as a byproduct in the refinery's feedstock. Reasons for Creating this Toxic Substance This substance is created at the facility:* As a by-product Summarize why this substance is created at the facility:** Octane is created as a byproduct of the complex chemical reactions occurring in conversion units at the facility. Toxic Reduction Options for Implementation Toxic substance reduction option(s) to be implemented: Does the plan specify that no toxic reduction option will be implemented?* Yes

Octane is naturally occurring in the crude oil required by the facility to run its base business. Octane is a component of the purchased feedstock that is required by the facility to meet market and contractual demands for the refinery's products. Octane created onsite is a byproduct of the complex chemical reactions occurring in conversion units onsite. No technically and economically feasible reduction options were identified.

Materials or feedstock substitution
Product design or reformulation
Equipment or process modifications
Spill or leak prevention
On-site reuse, recycling or recovery
Improved inventory management or purchasing techniques
Good operator practice or training
Rationale for choosing these options for implementation:
Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:
License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*
TSRP0071
License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*
TSRP0071
Which version of the plan is reflected in this summary?*
New Plan
NA - 35, Pentane (all isomers)
NA - 35, Pentane (all isomers)
Substances Section Data
Statement of Intent
Use
Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*
No

If 'no', what rationale is specified in the plan for not using less of this substance?** Pentane enters the facility as a component of the crude oil and purchased feedstock that is required to meet market and contractual demands for the refinery's products. Creation Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*
meet market and contractual demands for the refinery's products. Creation Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*
Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*
substance at their facility?*
No
If 'yes', provide the exact statement of intent:**
If 'no', what rationale is specified in the plan for not creating less of this substance?:**
The Pentane created onsite is a product of the complex chemical reactions occurring in conversion units. No technically and economically feasible options were identified.
Objectives, Targets and Description
Plan Objectives
Objectives in plan:*
Pentane is naturally occurring in the crude oil required by the refinery to run its base business, and enter the refinery in various purchased feedstock. Pentane is created as a product of the complex chemical reactions occurring in conversion units onsite. No technically and economically feasible options to reduce the use or creation of Pentane were identified.
Toxic Substance Use Targets
Reduction target:*
Quantity Unit
☑ No target or
Timeframe target:*
No target
Description of use targets:

Toxic Substance Creation Targets Reduction target:* Quantity Unit or ☑ No target Timeframe target:* or No target vears Description of creation targets: Reasons for Using this Toxic Substance This substance is used at the facility:* As a by-product Summarize why this substance is used at the facility:** Pentane enters as a byproduct in the refinery's feedstock. Reasons for Creating this Toxic Substance This substance is created at the facility:* As a by-product Summarize why this substance is created at the facility:** Pentane is created as a byproduct of the complex chemical reactions occurring in conversion units at the facility. Toxic Reduction Options for Implementation Toxic substance reduction option(s) to be implemented: Does the plan specify that no toxic reduction option will be implemented?* Yes

Pentane is naturally occurring in the crude oil required by the facility to run its base business. Pentane is a component of the purchased feedstock that is required by the facility to meet market and contractual demands for the refinery's products. Pentane created onsite is a byproduct of the complex chemical reactions occurring in conversion units onsite. No technically and economically feasible reduction options were identified.

Materials or feedstock substitution
Product design or reformulation
Equipment or process modifications
Spill or leak prevention
On-site reuse, recycling or recovery
Improved inventory management or purchasing techniques
Good operator practice or training
Rationale for choosing these options for implementation:
Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:
License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*
TSRP0071
License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*
TSRP0071
Which version of the plan is reflected in this summary?*
New Plan
NA - 36, Pentene (all isomers) NA - 36, Pentene (all isomers)
Substances Section Data
Statement of Intent
Use
Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*
No

If 'yes', provide the exact statement of intent:**		
If 'no', what rationale is specified in the plan for not usi	ng less of this substance?	**
Pentene enters the facility as a component of the crud meet market and contractual demands for the refinery	e oil and purchased feeds 's products.	tock that is required to
Creation		
Does the plan include a statement that stipulates the c substance at their facility?*	wner or operator's intent to	o create less of this toxic
No		
If 'yes', provide the exact statement of intent:**		
If 'no', what rationale is specified in the plan for not cre	ating less of this substanc	e?:**
The Pentene created onsite is a product of the complete No technically and economically feasible options were	ex chemical reactions occu identified.	rring in conversion units.
Objectives, Targets and Description		
Plan Objectives		
Objectives in plan:*		
Pentene is naturally occurring in the crude oil required the refinery in various purchased feedstock. Pentene i reactions occurring in conversion units onsite. No tech the use or creation of pentene were identified.	s created as a product of t	he complex chemical
Toxic Substance Use Targets		
Reduction target:*		
	Quantity	Unit
No target		
Timeframe target:*		
No target		years
Description of use targets:		

Toxic Substance Cre	eation Targets		
Reduction target:*			
		Quantity	Unit
⊠ No target	or		
Timeframe target:*			
No target	or		years
Description of creation targets	:		
Reasons for Using th	nis Toxic Substa	ınce	
This substance is used at the	facility:*		
As a by-product			
Summarize why this substanc	e is used at the facility:	**	
Pentene enters as a byproduc	ct in the refinery's feed:	stock.	
Reasons for Creating	a this Toxic Sub	stance	
This substance is created at the			
As a by-product			
Summarize why this substance	e is created at the facil	ity:**	
Pentene is created as a byprofacility.	oduct of the complex ch	nemical reactions oc	curring in conversion units at the
Toxic Reduction Opt	ions for Implem	entation	
Toxic substance redu	•		ented:
Does the plan specify that no	. ,	•	
Yes			

Pentene is naturally occurring in the crude oil required by the facility to run its base business. Pentene is a component of the purchased feedstock that is required by the facility to meet market and contractual demands for the refinery's products. Pentene created onsite is a byproduct of the complex chemical reactions occurring in conversion units onsite. No technically and economically feasible reduction options were identified.

Materials or feedstock substitution
Product design or reformulation
Equipment or process modifications
Spill or leak prevention
On-site reuse, recycling or recovery
Improved inventory management or purchasing techniques
Good operator practice or training
Rationale for choosing these options for implementation:
Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:
License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*
TSRP0071
License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*
TSRP0071
Which version of the plan is reflected in this summary?*
New Plan
NA - 16, Ammonia (total) NA - 16, Ammonia (total)
Substances Section Data
Statement of Intent
Use
Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*
No

If 'yes', provide the exact statement of	f intent:**				
If 'no', what rationale is specified in the	e plan for not us	sing less of this su	ubstance?**		
Ammonia (total) is used as ammonium hydroxide to neutralize acids in atmospheric and vacuum tower overhead circuits. No economically feasible options to reduce the use of ammonia (total) were identified at this time.					
Creation					
Does the plan include a statement the substance at their facility?*	at stipulates the	owner or operato	r's intent to create less of this toxic		
No					
If 'yes', provide the exact statement of	f intent:**				
If 'no', what rationale is specified in the	e plan for not cr	eating less of this	s substance?:**		
The ammonia (total) created onsite is conversion units onsite. No economic identified at this time.	s a byproduct of cally feasible opt	the complex cher ions to reduce th	mical reactions occurring in e creation of ammonia (total) were		
Objectives, Targets and D	Description				
Plan Objectives					
Objectives in plan:*					
Ammonia (total) is used as ammoniu overhead circuits. The ammonia (total occurring in conversion units onsite. creation of ammonia (total) were iden	al) created onsite No technically ar	e is a byproduct o	f the complex chemical reactions		
Toxic Substance Use Tar	aets				
Reduction target:*	J				
<u> </u>		Quantity	Unit		
⊠ No target	or				
Timeframe target:*					
⊠ No target	or		years		
Description of use targets:					

Toxic Substance Creation Targets Reduction target:* Quantity Unit or ☑ No target Timeframe target:* orNo target vears Description of creation targets: Reasons for Using this Toxic Substance This substance is used at the facility:* As a physical or chemical processing aid Summarize why this substance is used at the facility:** Ammonia (total) is used as ammonium hydroxide to neutralize acids in atmospheric and vacuum tower overhead circuits. Reasons for Creating this Toxic Substance This substance is created at the facility:* As a by-product Summarize why this substance is created at the facility:** The ammonia (total) created onsite is a byproduct of the complex chemical reactions occurring in conversion units onsite. Toxic Reduction Options for Implementation Toxic substance reduction option(s) to be implemented: Does the plan specify that no toxic reduction option will be implemented?* Yes

Ammonia (total) is used as ammonium hydroxide to neutralize acids in atmospheric and vacuum tower overhead circuits; no viable alternatives found that could replace ammonium hydroxide. The ammonia (total) created onsite is a byproduct of the complex chemical reactions occurring in conversion units onsite. No technically and economically feasible reduction options were identified for reduction in use or creation of ammonia (total).

Materials or feedstock substitution
Product design or reformulation
Equipment or process modifications
Spill or leak prevention
On-site reuse, recycling or recovery
Improved inventory management or purchasing techniques
Good operator practice or training
Rationale for choosing these options for implementation:
Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:
License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*
TSRP0071
License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*
TSRP0071
Which version of the plan is reflected in this summary?*
New Plan
1319-77-3, Cresol (all isomers, and their salts) 1319-77-3, Cresol (all isomers, and their salts)
Substances Section Data
Statement of Intent
Use
Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*
No

If 'yes', provide the exact stateme	ent of intent:**			
If 'no', what rationale is specified	in the plan for not u	sing less of this su	bstance?**	
Cresol (all isomers, and their sal	ts) is not used in me	asureable quantiti	es.	
Creation				
Does the plan include a statemer substance at their facility?*	nt that stipulates the	owner or operator	's intent to create less	s of this toxic
No				
If 'yes', provide the exact statement	ent of intent:**			
If 'no', what rationale is specified	in the plan for not c	reating less of this	substance?:**	
Cresol (all isomers, and their sal	ts) is not created at	the facility.		
Objectives, Targets an	d Description			
Plan Objectives	la Becomputer			
Objectives in plan:*				
•				1.41.4
Cresol (all isomers, and their sal below the measurement detection reduction options were identified	on limit. Cresol (all is	somers, and their s	in the refinery feedsto salts) is not created at	the facility. No
Toxic Substance Use	Targets			
Reduction target:*				
		Quantity	Unit	
⊠ No target	or			
Timeframe target:*				
No target ■	or		years	
Description of use targets:				
Toxic Substance Crea	tion Targets			

Reduction target:		Quantity		Unit
⊠ No target	or			
Timeframe target:*				
No target ■	or			years
Description of creation targets:				
Reasons for Using this Toxic S	Substa	ance		
This substance is used at the facility:*				
This substance is not used at the facility				
Summarize why this substance is used at th	e facility	.** ·		
Reasons for Creating this Toxi	ic Sub	stance		
This substance is created at the facility:*				
This substance is not created at the facility				
Summarize why this substance is created at	the faci	lity:**		
Toxic Reduction Options for In	nplem	entation		
Toxic substance reduction opti	ion(s)	to be implem	ented	:
Does the plan specify that no toxic reduction	option	will be implemented	l?*	
Yes				
If 'No', record the option(s) under the appropriate Product design or reformulation). If 'Yes', exp				
Cresol (all isomers, and their salts) was not onsite.	detected	d in any of the refine	ery feeds	stock, nor is it created
Materials or feedstock substitu	ıtion			

Product design or reformulation
Equipment or process modifications
Spill or leak prevention
On-site reuse, recycling or recovery
Improved inventory management or purchasing techniques
Good operator practice or training
Rationale for choosing these options for implementation:
Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:
License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*
TSRP0071
License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*
TSRP0071
Which version of the plan is reflected in this summary?*
New Plan
110-82-7, Cyclohexane
110-82-7, Cyclohexane
Substances Section Data
Statement of Intent
Use
Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*
No
If 'yes', provide the exact statement of intent:**

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

Cyclohexane 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				
Does the plan include a statement that si substance at their facility?*	tipulates the	owner or operator	's intent to create less of this to	xic
No				
If 'yes', provide the exact statement of in	tent:**			
If 'no', what rationale is specified in the p	lan for not c	reating less of this	substance?:**	
The cyclohexane created onsite is a prounits. No technically and economically fe			eactions occurring in conversion	1
Objectives, Targets and Des	scription			
Plan Objectives				
Objectives in plan:*				
Cyclohexane naturally occurs in the cruc the refinery in various purchased feedsto reactions occurring in conversion units of identified to reduce the use or creation of	ock. Cyclohe Insite. There	exane is created as were no technical	a product of the complex chem	nical
Toxic Substance Use Targe	ts			
Reduction target:*				
		Quantity	Unit	
⊠ No target	or			
Timeframe target:*				
⊠ No target	or		years	
Description of use targets:				
Toxic Substance Creation T	argets			

Quantity

Reduction target:*

Unit

☑ No target	or						
Timeframe target:*							
No target ■	or		years				
Description of creation targets:							
	h - 1						
Reasons for Using this Toxic Su	bstar	ice					
This substance is used at the facility:*							
As a by-product							
Summarize why this substance is used at the fa	Summarize why this substance is used at the facility:**						
Cyclohexane enters as a byproduct in the refinery's feedstock.							
Reasons for Creating this Toxic	Subs	tance					
This substance is created at the facility:*							
As a by-product							
Summarize why this substance is created at th	e facility	/:**					
Cyclohexane is created as a byproduct of the complex chemical reactions occurring in conversion units at the facility.							
Toxic Reduction Options for Implementation							
Toxic substance reduction option	n(s) to	be implemented:					
Does the plan specify that no toxic reduction op-	otion wil	I be implemented?*					
Yes							
If 'No', record the option(s) under the appropria Product design or reformulation). If 'Yes', explain	ite cate in why r	gories below (e.g., Materia no option will be implement	ls or feedstock substitution; ted:**				
Cyclohexane is a naturally occurring substance business and is a component of the purchased contractual demands for the refinery's products complex chemical reactions occurring in convereduction options were identified.	d feedsto s. The c	ock that is required by the cyclohexane created onsite	facility to meet market and is a product of the				
Materials or feedstock substitution	on						
Product design or reformulation							

tipulates the	owner or operator	s intent to create less of this toxic
tent:**		
lan for not c	reating less of this	substance?:**
ated at the fa	acility.	
scription		
		acid gas impurities removal. finery is targeting to reduce the use
ts		
	Quantity	Unit
or	0.06	tonnes
or	2	years
	_	
argets		
argets		
	0	11!4
	Quantity	Unit
or		
	lan for not of ated at the facility as a ated at the fatonnes. ts or or	lan for not creating less of this ated at the facility. Scription a facility as a DEA makeup for a ated at the facility. Nanticoke retonnes. ts Quantity or 0.06 or 2

No target ■ No target No target ■ No target N	or		years
Description of creation targets:			
Reasons for Using this Toxic Su	bstar	nce	
This substance is used at the facility:*			
As a physical or chemical processing aid			
Summarize why this substance is used at the fa	acility:* [*]	*	
Diethanolamine (and its salts) is currently used Sulphur Recovery Unit (SRU).	at the	Nanticoke refinery in acid	gas removal process at the
Reasons for Creating this Toxic	Subs	tance	
This substance is created at the facility:*			
This substance is not created at the facility			
Summarize why this substance is created at the	e facility	y:**	
Toxic Reduction Options for Imp	leme	ntation	
Toxic substance reduction option	า(s) t	o be implemented:	
Does the plan specify that no toxic reduction op	otion wi	ll be implemented?*	
No			
If 'No', record the option(s) under the appropria Product design or reformulation). If 'Yes', explain	te cate n why r	gories below (e.g., Materia no option will be implement	ls or feedstock substitution; ed:**
Materials or feedstock substitution	on		
Product design or reformulation			
Equipment or process modificati	ons		
Spill or leak prevention			
On-site reuse, recycling or recov	ery		
Improved inventory managemen	t or p	ourchasing techniq	ues

Good operator practice or tr	aining			
Other				
Which activities will be under	ertaken to ir	mplement the	ese reduction	on options?
Select an option:*				
Other				
Describe the option:*				
Optimize amine usage in each treater				
Estimates				
Estimate of the amount by which the <st a="" as="" implementing="" of="" reduced="" result="" td="" the<=""><td></td><td>ng> of the toxic sub</td><td>ostance at the fa</td><td>cility will be</td></st>		ng> of the toxic sub	ostance at the fa	cility will be
□N/A	0.06	tonnes	0.3	%
Estimate of the amount by which the <st a="" as="" implementing="" of="" reduced="" result="" td="" the<=""><td></td><td>strong> of the toxic</td><td>c substance at th</td><td>ne facility will be</td></st>		strong> of the toxic	c substance at th	ne facility will be
⊠N/A		tonnes		%
Estimate of the amount by which the tox facility will be reduced as a result of implementation.			the product <td>ong> leaving the</td>	ong> leaving the
⊠N/A		tonnes		%
Estimate of the amount by which the total facility will be reduced as a result of implementation.	al relea lementing the op	ses to air tion:	of the toxic sub	stance at the
□N/A	0.00	tonnes	0.3	%
Estimate of the amount by which the total facility will be reduced as a result of implementation.			ng> of the toxic s	substance at the
⊠N/A		tonnes		%
Estimate of the amount by which the total facility will be reduced as a result of implementation.			g> of the toxic su	bstance at the
⊠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 impleme	nting this option:	
⊠N/A		tonnes		%
Estimate of the amount by which the <s a="" as="" be="" implement<="" on="" reduced="" result="" td="" will=""><td></td><td>off-site o</td><td>f the toxic substa</td><td>ance at the facility</td></s>		off-site o	f the toxic substa	ance at the facility
□N/A	0.00	tonnes	0.3	%
Estimate of the amount by which total < facility will be reduced as a result on im			of the toxic subst	ance at the
⊠N/A		tonnes		%
Timelines				
Anticipated timelines for achieving the esubstance:	estimated reducti	ion of the 	use of	the toxic
□ N/A	2	2	years	
Anticipated timelines for achieving the esubstance:	estimated reducti	ion of the 	creation <td>> of the toxic</td>	> of the toxic
⊠ N/A			years	
Rationale for choosing these options for	r implementation	:		
Summary of actions undertaken outside the facility:	of the plan to re	educe the use and	creation of this to	oxic substance at
License number of the toxic substance substance (format TSRPXXXX):*	reduction planne	er who made the re	commendations	for this
TSRP0071				
License number of the toxic substance TSRPXXXX):*	reduction planne	er who certified the	plan for this sub	stance (format
TSRP0071				
Which version of the plan is reflected in	this summary?*			
New Plan				

75-45-6, HCFC-22
75-45-6, HCFC-22
Substances Section Data
Statement of Intent
Use
Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*
No
If 'yes', provide the exact statement of intent:**
If 'no', what rationale is specified in the plan for not using less of this substance?**
HCFC-22 is used at the facility as a refrigerant at SRU-LRF. SRU-LRF recovers propane and heavier hydrocarbons from fuel gas to be used in other commercial and industrial applications. No economically feasible options to reduce the use of HCFC-22 were identified at this time.
Creation
Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*
No
If 'yes', provide the exact statement of intent:**
If 'no', what rationale is specified in the plan for not creating less of this substance?:**
HCFC-22 is not created at the refinery.
Objectives, Targets and Description
Plan Objectives
Objectives in plan:*
HCFC-22 is used as a method of refrigeration in the Sulphur Recovery Unit Liquid Recovery Facility (SRU-LRF) to recover propane and heavier hydrocarbons from refinery fuel gas. Nanticoke refinery has Best Management Practices Plan in place as a preventative measure to limit the fugitive emissions of HCFC-22. There were no technically and economic feasible options identified to reduce the use of HCFC-22 as the method of refrigeration.
Toxic Substance Use Targets
Reduction target:*
Quantity Unit

⊠ No target	or		
Timeframe target:*			
⊠ No target	or		years
Description of use targets:			
Toxic Substance Creation Targe	ets		
Reduction target:*			
		Quantity	Unit
⊠ No target	or		
Timeframe target:*			
No target ■ No target No target ■ No target N	or		years
Description of creation targets:			
Reasons for Using this Toxic Su	ubsta	nce	
This substance is used at the facility:*			
As a physical or chemical processing aid			
Summarize why this substance is used at the	facility:	**	
HCFC-22 is used as a refrigerant in the Sulph	nur Reco	overy Unit Liquid Recovery	Facility (SRU-LRF).
Reasons for Creating this Toxic	Subs	stance	
This substance is created at the facility:*			
This substance is not created at the facility			
Summarize why this substance is created at the	he facili	ty:**	

Toxic Reduction Options for Implementation
Toxic substance reduction option(s) to be implemented:
Does the plan specify that no toxic reduction option will be implemented?*
Yes
If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation).If 'Yes', explain why no option will be implemented:**
HCFC-22 is used as a method of refrigeration in the Sulphur Recovery Unit Liquid Recovery Facility (SRU-LRF). SRU-LRF recovers propane and heavier hydrocarbons from fuel gas to be used in other commercial and industrial applications. Nanticoke refinery has Best Management Practices Plan in place as a preventative measure to limit the fugitive emissions of HCFC-22. HCFC-22 is not created at the facility.
Materials or feedstock substitution
Product design or reformulation
Equipment or process modifications
Spill or leak prevention
On-site reuse, recycling or recovery
Improved inventory management or purchasing techniques
Good operator practice or training
Rationale for choosing these options for implementation:
Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:
License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*
TSRP0071
License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*
TSRP0071
Which version of the plan is reflected in this summary?*
New Plan
7783-06-4 Hydrogen sulphide

7783-06-4, Hydrogen sulphide		
Substances Section Data		
Statement of Intent		
Use		
Does the plan include a statement that stipulates the substance at their facility?*	owner or operator's intent to	o use less of this toxic
No		
If 'yes', provide the exact statement of intent:**		
If 'no', what rationale is specified in the plan for not us	sing less of this substance?	**
Hydrogen sulphide used at the facility is a componen required to run its base business and meet market ar	t of the crude oil and purchand contractual demands for	ased feedstock that is the refinery's products.
Creation		
Does the plan include a statement that stipulates the substance at their facility?*	owner or operator's intent to	o create less of this toxic
No		
If 'yes', provide the exact statement of intent:**		
If 'no', what rationale is specified in the plan for not cr	eating less of this substanc	e?:**
Hydrogen sulphide is created as byproduct of the coronsite. No technically and economically feasible optiwere identified.	nplex chemical reactions or ons to reduce the use or cr	ccurring in conversion units eation of hydrogen sulphide
Objectives, Targets and Description		
Plan Objectives		
Objectives in plan:*		
Hydrogen sulphide enters the facility in feedstock incomplex chemical reactions occurring in conversion upotions to reduce the use or creation of hydrogen sulphide.	units onsite. No technically	
Toxic Substance Use Targets Reduction torgets*		
Reduction target:*	Overtites	I lait
	Quantity	Unit
No target		

Timeframe target:*			
⊠ No target	or		years
Description of use targets:			
Toxic Substance Cre	ation Targets		
Reduction target:*			
		Quantity	Unit
⊠ No target	or		
Timeframe target:*			
⊠ No target	or		years
Description of creation targets			
Reasons for Using th	is Toxic Substa	ınce	
This substance is used at the t	acility:*		
As a by-product			
Summarize why this substance	e is used at the facility:	**	
Hydrogen sulphide enters as a	a byproduct in the refir	ery's feedstock.	
Reasons for Creating	this Toxic Sub	stance	
This substance is created at the			
As a by-product			
Summarize why this substance	e is created at the facil	ity:**	
Hydrogen sulphide is created units at the facility.	as a byproduct of the	complex chemical re	eactions occurring in conversion
Toxic Reduction Opti	ons for Implem	entation	
Toxic substance redu	uction option(s)	to be impleme	ented:

Does the plan aposity that no toyic reduction entian will be implemented?*
Does the plan specify that no toxic reduction option will be implemented?* Yes
res
If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented:**
Hydrogen sulphide used at the facility is a component of the crude oil and purchased feedstock that is required to run its base business and meet market and contractual demands for the refinery's products. No technically and economically feasible options were identified.
Materials or feedstock substitution
Product design or reformulation
Equipment or process modifications
Spill or leak prevention
On-site reuse, recycling or recovery
Improved inventory management or purchasing techniques
Good operator practice or training
Rationale for choosing these options for implementation:
Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:
License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*
TSRP0071
License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*
TSRP0071
Which version of the plan is reflected in this summary?*
New Plan
NA - 17, Nitrate ion in solution at pH >= 6.0
NA - 17, Nitrate ion in solution at pH >= 6.0
Substances Section Data

Statement of Intent

Use			
Does the plan include a statement that stipulate substance at their facility?*	es the	owner or operator's intent	to use less of this toxic
No			
If 'yes', provide the exact statement of intent:**			
If 'no', what rationale is specified in the plan for	not us	ing less of this substance	?**
Nitrate Ion in Solution at pH >=6.0 is not used	at the f	acility.	
Creation			
Does the plan include a statement that stipulate substance at their facility?*	es the (owner or operator's intent	to create less of this toxic
No			
If 'yes', provide the exact statement of intent:**			
If 'no', what rationale is specified in the plan for	not cre	eating less of this substan	ce?:**
Nitrate Ion in Solution at pH >=6.0 is created docomplex chemical reactions occurring in conversing individual substance creation. No technically a nitrate ion in solution at pH >=6.0 were identified	ersion u nd eco	ınits onsite. These units ca	annot be controlled for
Objectives, Targets and Descrip	tion		
Plan Objectives			
Objectives in plan:*			
Nitrate Ion in Solution at pH >=6.0 is created d which is created during complex chemical read economically feasible options to reduce the cre	ctions c	occurring in conversion uni	ts onsite. No technically and
Toxic Substance Use Targets			
Reduction target:*			
		Quantity	Unit
⊠ No target	or		
Timeframe target:*			

No target ■ No target N	or		years	
Description of use targets:				
Toxic Substance Creation Targe	ets			
Reduction target:*				
U		Quantity	Unit	
⊠ No target	or			
Timeframe target:*				
No target ■ No target No target	or		years	
Description of creation targets:				
Reasons for Using this Toxic Su	bstar	nce		
This substance is used at the facility:*				
This substance is not used at the facility				
Summarize why this substance is used at the facility:**				
Reasons for Creating this Toxic	Subs	stance		
This substance is created at the facility:*				
As a by-product				
Summarize why this substance is created at th	e facilit	y:**		
Nitrate Ion in Solution at pH >=6.0 is created due to biodegradation of ammonia in process wastewater, which is created during complex chemical reactions occurring in conversion units onsite.				
Toxic Reduction Options for Imp	leme	entation		
Toxic substance reduction option	n(s) t	o be implemented:		
Does the plan specify that no toxic reduction op	otion wi	ill be implemented?*		
Yes				

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

Nitrate Ion in Solution at pH >=6.0 is created due to biodegradation of ammonia, which is a byproduct of complex chemical reactions occurring in conversion units onsite. No technically and economically feasible options to reduce the creation of nitrate ion in solution at pH >=6.0 were identified.

Materials or feedstock substitution
Product design or reformulation
Equipment or process modifications
Spill or leak prevention
On-site reuse, recycling or recovery
Improved inventory management or purchasing techniques
Good operator practice or training
Rationale for choosing these options for implementation:
Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:
License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*
TSRP0071
License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*
TSRP0071
Which version of the plan is reflected in this summary?*
New Plan
630-08-0, Carbon monoxide
630-08-0, Carbon monoxide
Substances Section Data
Statement of Intent
Use
Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic

substance at their facility?*

f 'yes', provide the exact statement of int f 'no', what rationale is specified in the p Carbon Monoxide is not used at the facil	lan for not us	sing less of this s	ubstance?**
•		sing less of this s	ubstance?**
Carbon Monoxide is not used at the facil	lity		
Creation			
Does the plan include a statement that st substance at their facility?*	tipulates the	owner or operato	r's intent to create less of this toxic
No			
f 'yes', provide the exact statement of inf	tent:**		
f 'no', what rationale is specified in the p	lan for not cr	eating less of this	s substance?:**
The carbon monoxide created onsite is a conversion units. No economically and to carbon monoxide at the facility.			
Objectives, Targets and Des	scription		
Plan Objectives			
Objectives in plan:*			
Carbon Monoxide is created as a byprocunits onsite. Carbon Monoxide is not use to reduce the creation of carbon monoxide	ed at the refin	nery. No technica	
Toxic Substance Use Targe	ts		
Reduction target:*			
<u> </u>		Quantity	Unit
⊠ No target	or		
Timeframe target:*			
⊠ No target	or		years
Description of use targets:			

Toxic Substance Creation Targets				
Reduction target:*				
		Quantity	Unit	
⊠ No target	or			
Timeframe target:*				
⊠ No target	or		years	
Description of creation targets:				
Reasons for Using this 1	Toxic Substa	ınce		
This substance is used at the facilit	y:*			
This substance is not used at the fa	acility			
Summarize why this substance is u	sed at the facility:	**		
Reasons for Creating thi	is Toxic Sub	stance		
This substance is created at the fac	cility:*			
As a by-product				
Summarize why this substance is c	reated at the facil	ity:**		
Carbon Monoxide is created as a r catalytic reforming unit (CRU). Ca produced fuel gas and heavy fuel comonoxide released to air can be at	rbon Monoxide is oil in the refinery's	also created during heaters and steam	combustion of natural gas, refined boilers. Small amount of carbon	у
Toxic Reduction Options	s for Implem	entation		
Toxic substance reduction	on option(s)	to be impleme	ented:	
Does the plan specify that no toxic	reduction option v	vill be implemented)*	

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

Yes

The carbon monoxide created onsite is a byproduct of the complex combustion processes occurring in conversion units onsite which cannot be controlled for individual substance creation. No technically and economically feasible reduction options were identified.

Materials or feedstock substitution
Product design or reformulation
Equipment or process modifications
Spill or leak prevention
On-site reuse, recycling or recovery
Improved inventory management or purchasing techniques
Good operator practice or training
Rationale for choosing these options for implementation:
Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:
License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*
TSRP0071
License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*
TSRP0071
Which version of the plan is reflected in this summary?*
New Plan
NA - M14, Total reduced sulphur (expressed as hydrogen sulphide)
NA - M14, Total reduced sulphur (expressed as hydrogen sulphide)
Substances Section Data
Statement of Intent
Use
Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*
No

Page 86 of

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

Does the plan include a statement that stipulates the owner or oper substance at their facility?* No If 'yes', provide the exact statement of intent:** If 'no', what rationale is specified in the plan for not creating less of Total Reduced Sulphur is created as byproduct of the complex che units onsite. No technically and economically feasible options to resulphide were identified. Objectives, Targets and Description Plan Objectives Objectives in plan:* Total Reduced Sulphur enters the facility in feedstock including crucomplex chemical reactions occurring in conversion units onsite. No options to reduce the use or creation of Total Reduced Sulphur we Toxic Substance Use Targets Reduction target:* Quantity No target or	
Creation Does the plan include a statement that stipulates the owner or oper substance at their facility?* No If 'yes', provide the exact statement of intent:** If 'no', what rationale is specified in the plan for not creating less of Total Reduced Sulphur is created as byproduct of the complex che units onsite. No technically and economically feasible options to re sulphide were identified. Objectives, Targets and Description Plan Objectives Objectives in plan:* Total Reduced Sulphur enters the facility in feedstock including crucomplex chemical reactions occurring in conversion units onsite. No options to reduce the use or creation of Total Reduced Sulphur we Toxic Substance Use Targets Reduction target:* Quantity No target or	s substance?**
Does the plan include a statement that stipulates the owner or oper substance at their facility?* No If 'yes', provide the exact statement of intent:** If 'no', what rationale is specified in the plan for not creating less of Total Reduced Sulphur is created as byproduct of the complex che units onsite. No technically and economically feasible options to re sulphide were identified. Objectives, Targets and Description Plan Objectives Objectives in plan:* Total Reduced Sulphur enters the facility in feedstock including crucomplex chemical reactions occurring in conversion units onsite. No options to reduce the use or creation of Total Reduced Sulphur we Toxic Substance Use Targets Reduction target:* Quantity No target or	
substance at their facility?* No If 'yes', provide the exact statement of intent:** If 'no', what rationale is specified in the plan for not creating less of Total Reduced Sulphur is created as byproduct of the complex che units onsite. No technically and economically feasible options to re sulphide were identified. Objectives, Targets and Description Plan Objectives Objectives in plan:* Total Reduced Sulphur enters the facility in feedstock including crucomplex chemical reactions occurring in conversion units onsite. No options to reduce the use or creation of Total Reduced Sulphur we Toxic Substance Use Targets Reduction target:* Quantity No target or	
If 'yes', provide the exact statement of intent:** If 'no', what rationale is specified in the plan for not creating less of Total Reduced Sulphur is created as byproduct of the complex che units onsite. No technically and economically feasible options to resulphide were identified. Objectives, Targets and Description Plan Objectives Objectives in plan:* Total Reduced Sulphur enters the facility in feedstock including crucomplex chemical reactions occurring in conversion units onsite. No options to reduce the use or creation of Total Reduced Sulphur we Toxic Substance Use Targets Reduction target:* Quantity No target or	rator's intent to create less of this toxic
If 'no', what rationale is specified in the plan for not creating less of Total Reduced Sulphur is created as byproduct of the complex che units onsite. No technically and economically feasible options to re sulphide were identified. Objectives, Targets and Description Plan Objectives Objectives in plan:* Total Reduced Sulphur enters the facility in feedstock including cru complex chemical reactions occurring in conversion units onsite. N options to reduce the use or creation of Total Reduced Sulphur we Toxic Substance Use Targets Reduction target:* Quantity No target or	
Total Reduced Sulphur is created as byproduct of the complex che units onsite. No technically and economically feasible options to resulphide were identified. Objectives, Targets and Description Plan Objectives Objectives in plan:* Total Reduced Sulphur enters the facility in feedstock including crucomplex chemical reactions occurring in conversion units onsite. No options to reduce the use or creation of Total Reduced Sulphur we Toxic Substance Use Targets Reduction target:* Quantity No target Or	
units onsite. No technically and economically feasible options to resulphide were identified. Objectives, Targets and Description Plan Objectives Objectives in plan:* Total Reduced Sulphur enters the facility in feedstock including crucomplex chemical reactions occurring in conversion units onsite. No options to reduce the use or creation of Total Reduced Sulphur we Toxic Substance Use Targets Reduction target:* Quantity No target or	this substance?:**
Plan Objectives Objectives in plan:* Total Reduced Sulphur enters the facility in feedstock including crucomplex chemical reactions occurring in conversion units onsite. Noptions to reduce the use or creation of Total Reduced Sulphur we Toxic Substance Use Targets Reduction target:* Quantity No target or	mical reactions occurring in conversion duce the use or creation of hydrogen
Objectives in plan:* Total Reduced Sulphur enters the facility in feedstock including crucomplex chemical reactions occurring in conversion units onsite. No options to reduce the use or creation of Total Reduced Sulphur we Toxic Substance Use Targets Reduction target:* Quantity No target or No target	
Total Reduced Sulphur enters the facility in feedstock including crucomplex chemical reactions occurring in conversion units onsite. Noptions to reduce the use or creation of Total Reduced Sulphur we Toxic Substance Use Targets Reduction target:* Quantity No target or No target	
complex chemical reactions occurring in conversion units onsite. No options to reduce the use or creation of Total Reduced Sulphur we Toxic Substance Use Targets Reduction target:* Quantity No target Timeframe target:* No target Or	
Reduction target:* Quantity No target or Timeframe target:* No target or	o technically and economically feasible
Reduction target:* Quantity No target or Timeframe target:* No target or	
Quantity I No target Timeframe target:* I No target Or Or	
Timeframe target:* ⊠ No target or	Unit
No target or	
X No target	
Description of use targets:	years
-	

Reduction target:* Quantity Unit or ☑ No target Timeframe target:* or No target years Description of creation targets: Reasons for Using this Toxic Substance This substance is used at the facility:* As a by-product Summarize why this substance is used at the facility:** Total Reduced Sulphur enters as a byproduct in the refinery's feedstock. Reasons for Creating this Toxic Substance This substance is created at the facility:* As a by-product Summarize why this substance is created at the facility:** Total Reduced Sulphur is created as a byproduct of the complex chemical reactions occurring in conversion units at the facility. Toxic Reduction Options for Implementation Toxic substance reduction option(s) to be implemented: Does the plan specify that no toxic reduction option will be implemented?* Yes

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

Total Reduced Sulphur used at the facility is a component of the crude oil and purchased feedstock that is required to run its base business and meet market and contractual demands for the refinery's products. No technically and economically feasible options were identified.

Materials or feedstock substitution
Product design or reformulation
Equipment or process modifications
Spill or leak prevention
On-site reuse, recycling or recovery
Improved inventory management or purchasing techniques
Good operator practice or training
Rationale for choosing these options for implementation:
Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:
License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*
TSRP0071
License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*
TSRP0071
Which version of the plan is reflected in this summary?*
New Plan
11104-93-1, Nitrogen oxides (expressed as NO2)
11104-93-1, Nitrogen oxides (expressed as NO2)
Substances Section Data
Statement of Intent
Use
Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*
No
If 'yes', provide the exact statement of intent:**

If 'no', what rationale is specified in	the plan for not u	ising less of this sul	ostance?**
Nitrogen oxides (expressed as NC	2) is not used at t	he facility	
Creation			
Does the plan include a statement substance at their facility?*	that stipulates the	owner or operator	s intent to create less of this toxic
No			
If 'yes', provide the exact statemen	t of intent:**		
If 'no', what rationale is specified in	the plan for not c	reating less of this	substance?:**
The nitrogen oxides (expressed as economically and technically feasilexpressed as NO2) at the facility.	s NO2) created on ble options were i	site is a result of or dentified to reduce	nsite combustion processes. No the creation of nitrogen oxides
Objectives, Targets and	Description		
Plan Objectives			
Objectives in plan:*			
and boilers and combustion of cok	e in fluid catalytic cally and econom	cracking unit. Nitro	on processes in the refinery heaters gen oxides (expressed as NO2) is ns to reduce the creation of nitrogen
Toxic Substance Use Ta	argets		
Reduction target:*	_		
		Quantity	Unit
⊠ No target	or		
Timeframe target:*			
No target ■ Target	or		years
Description of use targets:			
Toxic Substance Creation	on Targets		
Reduction target:*			
		Quantity	Unit

⊠ No target	or					
Timeframe target:*						
	or		years			
Description of creation targets:						
Reasons for Using this Tox	ic Substar	nce				
This substance is used at the facility:*						
This substance is not used at the facilit	у					
Summarize why this substance is used	at the facility:*	ŧ				
Nitrogen oxides (expressed as NO2) is	not used at the	e facility				
Reasons for Creating this 1	Toxic Subs	tance				
This substance is created at the facility:	.*					
As a by-product						
Summarize why this substance is creat	ed at the facility	y:**				
Nitrogen oxides (expressed as NO2) is and boilers and combustion of coke in	created on site	e by the combustion proc racking unit.	cesses in the refinery heaters			
Toxic Reduction Options for	r Impleme	ntation				
Toxic substance reduction	option(s) t	o be implemente	d:			
Does the plan specify that no toxic redu	ction option wi	Il be implemented?*				
Yes						
If 'No', record the option(s) under the approduct design or reformulation). If 'Yes	opropriate cate ', explain why r	gories below (e.g., Mate no option will be impleme	rials or feedstock substitution; ented:**			
The nitrogen oxides (expressed as NO2) created onsite is a result of onsite combustion processes. No economically and technically feasible options were identified to reduce the creation of nitrogen oxides (expressed as NO2) at the facility.						
Materials or feedstock subs	stitution					
Product design or reformula	ation					

Equipment or process modifications
Spill or leak prevention
On-site reuse, recycling or recovery
Improved inventory management or purchasing techniques
Good operator practice or training
Rationale for choosing these options for implementation:
Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:
License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*
TSRP0071
License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*
TSRP0071
Which version of the plan is reflected in this summary?*
New Plan
NA - M10, PM2.5 - Particulate Matter <= 2.5 Microns
NA - M10, PM2.5 - Particulate Matter <= 2.5 Microns
Substances Section Data
Statement of Intent
Use
Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*
No
If 'yes', provide the exact statement of intent:**
If 'no', what rationale is specified in the plan for not using less of this substance?**
PM2.5 - Particulate Matter is not used at the facility

Creation			
Does the plan include a statement substance at their facility?*	that stipulates the	owner or operator's	s intent to create less of this toxic
No			
If 'yes', provide the exact statemen	nt of intent:**		
If 'no', what rationale is specified in	n the plan for not c	reating less of this	substance?:**
PM2.5 - Particulate Matter created boilers, movement of catalysts in f refinery operations. No economica of PM2.5 - Particulate Matter at the	fluid catalytic crack ally and technically	ing unit, during coo	
Objectives, Targets and	l Description		
Plan Objectives	•		
Objectives in plan:*			
PM2.5 - Particulate Matter is creat movement of catalysts in fluid cata and technically feasible options we facility.	alytic cracking unit	and during cooling	tower operations. No economically
Toxic Substance Use Ta	argets		
Reduction target:*			
		Quantity	Unit
☑ No target	or		
Timeframe target:*			
	or		
No target	OI.		years
Description of use targets:			
Tanda Onde dana Onde	T ·		
Toxic Substance Creation	on rargets		
Reduction target:*			
		Quantity	Unit
☑ No target	or		

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Timeframe target:*			
⊠ No target	or	years	
Description of creation targets:			
Reasons for Using this Tox	kic Substance		
This substance is used at the facility:*			
This substance is not used at the facili	ty		
Summarize why this substance is used	at the facility:**		
Reasons for Creating this	Гохіс Substanc	e	
This substance is created at the facility	*		
As a by-product			
Summarize why this substance is create	ted at the facility:**		
PM2.5 - Particulate Matter is created of movement of catalysts in fluid catalyst			nd boilers,
Toxic Reduction Options for	or Implementati	on	
Toxic substance reduction	option(s) to be	implemented:	
Does the plan specify that no toxic red	uction option will be in	nplemented?*	
Yes			
If 'No', record the option(s) under the a Product design or reformulation).If 'Yes	ppropriate categories s', explain why no opti	below (e.g., Materials or feedstock on will be implemented:**	substitution;
PM2.5 - Particulate Matter is created of movement of catalysts in fluid catalytic and technically feasible options were infacility.	cracking unit and dur	ring cooling tower operations. No e	conomically
Materials or feedstock sub	stitution		
Product design or reformul	ation		
Equipment or process mod	lifications		

Spill or leak prevention
On-site reuse, recycling or recovery
Improved inventory management or purchasing techniques
Good operator practice or training
Rationale for choosing these options for implementation:
Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:
License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*
TSRP0071
License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*
TSRP0071
Which version of the plan is reflected in this summary?*
New Plan
NA - M09, PM10 - Particulate Matter <= 10 Microns
NA - M09, PM10 - Particulate Matter <= 10 Microns
Substances Section Data
Statement of Intent
Use
Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*
No
If 'yes', provide the exact statement of intent:**
If 'no', what rationale is specified in the plan for not using less of this substance?**
PM10 - Particulate Matter is not used at the facility

s the o	owner or operator's intent	to create less of this toxic
not cre	eating less of this substar	nce?:**
rackir	ng unit, during cooling tow	ver operations and general
ion		
unit a	nd during cooling tower of	perations. No economically
		,
	•	
	Quantity	Unit
or	Quantity	Unit
	Quantity	
or	Quantity	
or	Quantity	
	not cresult of cracking ically finds	not creating less of this substar sult of combustion processes in the refunit and during cooling tower of to reduce the creation of PM10

Timeframe target:*				
⊠ No target	or			years
Description of creation targets:				
Reasons for Using this Toxi	ic Substar	nce		
This substance is used at the facility:*				
This substance is not used at the facility	/			
Summarize why this substance is used a	at the facility:*	:*		
Reasons for Creating this T	oxic Subs	stance		
This substance is created at the facility:				
As a by-product				
Summarize why this substance is create	ed at the facilit	ty:**		
PM10 - Particulate Matter is created one movement of catalysts in fluid catalyst of				
Toxic Reduction Options for	r Impleme	entation		
Toxic substance reduction of	option(s) t	to be imple	mented	
Does the plan specify that no toxic reduc	ction option wi	ill be implement	ted?*	
Yes				
If 'No', record the option(s) under the ap Product design or reformulation).If 'Yes'	propriate cate , explain why	gories below (e no option will be	e.g., Materia e implemen	uls or feedstock substitution; ted:**
PM10 - Particulate Matter is created on movement of catalysts in fluid catalytic and technically feasible options were ideacility.	cracking unit a	and during cooling	ng tower op	perations. No economically
Materials or feedstock subs	titution			
Product design or reformula	_			
Equipment or process modi				

Spill or leak prevention
On-site reuse, recycling or recovery
Improved inventory management or purchasing techniques
Good operator practice or training
Rationale for choosing these options for implementation:
Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:
License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*
TSRP0071
License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*
TSRP0071
Which version of the plan is reflected in this summary?*
New Plan
7446-09-5, Sulphur dioxide
7446-09-5, Sulphur dioxide
Substances Section Data
Statement of Intent
Use
Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*
No
If 'yes', provide the exact statement of intent:**
If 'no', what rationale is specified in the plan for not using less of this substance?**
Sulphur Diovide is not used at the refinery

Creation					
Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*					
Yes					
If 'yes', provide the exact statement of intent:**					
Imperial Oil intends to reduce the creation of si	ulphur d	dioxide at the facility.			
If 'no', what rationale is specified in the plan for	not cre	eating less of this substance	∍?:**		
Objectives, Targets and Descrip	tion				
Plan Objectives					
Objectives in plan:*					
Sulphur Dioxide is created on site by the combustion processes in the refinery heaters and boilers and combustion of coke in fluid catalytic cracking unit and catalytic reforming unit. Sulphur Dioxide is not used at the refinery. Nanticoke refinery is targeting to reduce the creation of sulphur dioxide onsite by 75 tonnes.					
Toxic Substance Use Targets					
Reduction target:*					
		Quantity	Unit		
⊠ No target	or				
Timeframe target:*					
No target	or		years		
Description of use targets:					
Toxic Substance Creation Targets					
Reduction target:*					
-		Quantity	Unit		
☐ No target	or	75	tonnes		

Timeframe target:*

☐ No target	or	2		years	
Description of creation targets:					
Reasons for Using this Toxic Su	bstar	nce			
This substance is used at the facility:*					
This substance is not used at the facility					
Summarize why this substance is used at the fa	acility:*	*			
Reasons for Creating this Toxic	Subs	tance			
This substance is created at the facility:*					
As a by-product					
Summarize why this substance is created at the	e facility	y:**			
Sulphur Dioxide is created at the facility as a result of combustion of sulphur-containing fuels produced by the refinery (refinery fuel gas (RFG), vacuum off gas (VOG), heavy fuel oil (HFO)). Sulphur Dioxide is also created due to combustion of coke in the fluid catalytic cracking unit (FCCU) and catalytic reforming unit (CRU).					
Toxic Reduction Options for Imp	leme	ntation			
Toxic substance reduction option	า(s) t	o be impl	emented:		
Does the plan specify that no toxic reduction op	otion wi	ll be impleme	ented?*		
No					
If 'No', record the option(s) under the appropria Product design or reformulation). If 'Yes', explain	te cate n why r	gories below no option will	(e.g., Materia be implement	ls or feedstock substitution; ed:**	
Materials or feedstock substitution	on				
Product design or reformulation					
Equipment or process modificati	ons				
Spill or leak prevention					
On-site reuse, recycling or recov	ery				
Improved inventory management or purchasing techniques					

Good operator practice or training Improved maintenance scheduling, record keeping or procedures Which activities will be undertaken to implement these reduction options? Select an option:* Improved maintenance scheduling, record keeping or procedures Describe the option:* site is currently working to increase the sour water stripper (SWS) reliability and reduce acid gas flaring, resulting in less SO2 release. **Estimates** Estimate of the amount by which the use of the toxic substance at the facility will be reduced as a result of implementing the option: % ⊠N/A tonnes Estimate of the amount by which the creation of the toxic substance at the facility will be reduced as a result of implementing the option: □N/A % tonnes 75 1.3 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 75 tonnes 1.3 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: % \square N/A tonnes

estimate of the amount by which the <stro of the toxic substance at the facility will be</stro 	ong>disposals on-site e reduced as a result on implem	(including tailing and waste rock) enting this option:			
⊠N/A	tonnes	%			
Estimate of the amount by which the <strowill a="" as="" be="" implementing<="" on="" reduced="" result="" td=""><td></td><td>of the toxic substance at the facility</td></strowill>		of the toxic substance at the facility			
⊠N/A	tonnes	%			
Estimate of the amount by which total <str facility will be reduced as a result on imple</str 		of the toxic substance at the			
⊠N/A	tonnes	%			
Timelines					
Anticipated timelines for achieving the esti substance:	imated reduction of the <strong< td=""><td>>use of the toxic</td></strong<>	>use of the toxic			
⊠ N/A		years			
Anticipated timelines for achieving the esti substance:	imated reduction of the <strong< td=""><td>>creation of the toxic</td></strong<>	>creation of the toxic			
□ N/A	2	years			
Rationale for choosing these options for implementation:					
Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:					
License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*					
TSRP0071					
License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*					
TSRP0071					

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

New Plan
INCW FIGH
NA - M08, Total Particulate Matter
NA - M08, Total Particulate Matter
Substances Section Data
Statement of Intent
Use
Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*
No
If 'yes', provide the exact statement of intent:**
If 'no', what rationale is specified in the plan for not using less of this substance?**
Total Particulate Matter is not used at the facility
One of the re
Creation
Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*
No
If 'yes', provide the exact statement of intent:**
If 'no', what rationale is specified in the plan for not creating less of this substance?:**
Total Particulate Matter created onsite is a result of combustion processes in the refinery heaters and boilers, movement of catalysts in fluid catalyst cracking unit, during cooling tower operations and general refinery operations. No economically and technically feasible options were identified to reduce the creation of Total Particulate Matter at the facility.
Objectives, Targets and Description
Plan Objectives
Objectives in plan:*

Total Particulate Matter is created onsite by combustion processes in the refinery heaters and boilers, movement of catalysts in fluid catalyst cracking unit and during cooling tower operations. No economically and technically feasible options were identified to reduce the creation of Total Particulate Matter at the facility.

Toxic Substance Use Targets

Reduction target:*				
		Quantity	Unit	
⊠ No target	or			
Timeframe target:*				
Timonamo targot.				
No target ■ No target No target	or		years	
Description of use targets:				
Toxic Substance Creation	n Targets			
Reduction target:*				
		Quantity	Unit	
⊠ No target	or			
Timeframe target:*				
No target	or		years	
Description of creation targets:				
Reasons for Using this T	oxic Substa	ance		
This substance is used at the facility	.*			
This substance is not used at the fa	cility			
Summarize why this substance is us	sed at the facility	.** ·		
Reasons for Creating this	s Toxic Sub	stance		
This substance is created at the faci	lity:*			
As a by-product				

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

Total Particulate Matter is created onsite by combustion processes in the refinery heaters and boilers, movement of catalysts in fluid catalyst cracking unit and during cooling tower operations.

Toxic Reduction Options for Implementation

Toxic substance reduction option(s) to be implemented: Does the plan specify that no toxic reduction option will be implemented?* Yes If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation). If 'Yes', explain why no option will be implemented: ** Total Particulate Matter is created onsite by combustion processes in the refinery heaters and boilers, movement of catalysts in fluid catalytic cracking unit and during cooling tower operations. No economically and technically feasible options were identified to reduce the creation of Total Particulate Matter at the facility. Materials or feedstock substitution Product design or reformulation Equipment or process modifications Spill or leak prevention On-site reuse, recycling or recovery Improved inventory management or purchasing techniques Good operator practice or training Rationale for choosing these options for implementation:

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

TSRP0071

the facility:

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

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

TSRP0071

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

New Plan

Quantity Unit
Reduction target:*
Toxic Substance Use Targets
Acenaphthylene enters the facility in purchased feedstock, and is created as a byproduct of the complex chemical reactions occurring in fluid catalytic cracking unit. No technically and economically feasible options to reduce the use or creation of acenaphthylene were identified.
Objectives in plan:*
Plan Objectives
Objectives, Targets and Description
The acenaphthylene created onsite is a byproduct of the complex chemical reactions occurring in the fluid catalytic cracking unit. No technically and economically feasible options were identified.
If 'no', what rationale is specified in the plan for not creating less of this substance?:**
If 'yes', provide the exact statement of intent:**
No
Does the plan include a statement that stipulates the owner or operator's intent to create less of this toxic substance at their facility?*
Creation
Acenaphthylene 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.
If 'no', what rationale is specified in the plan for not using less of this substance?**
If 'yes', provide the exact statement of intent:**
No
Does the plan include a statement that stipulates the owner or operator's intent to use less of this toxic substance at their facility?*
Use
Statement of Intent
Substances Section Data
208-96-8, Acenaphthylene

⊠ No target	or					
Timeframe target:*						
⊠ No target	or		y	vears		
Description of use targets:						
Toxic Substance Creation	n Targets					
Reduction target:*						
		Quantity		Unit		
⊠ No target	or					
Timeframe target:*						
No target ■	or)	vears		
Description of creation targets:						
Reasons for Using this To	oxic Substai	nce				
This substance is used at the facility:						
As a by-product						
Summarize why this substance is used at the facility:**						
Acenapthylene enters as a byproduct in the refinery's feedstock.						
Reasons for Creating this Toxic Substance This substance is created at the facility:*						
As a by-product						
no a by product						
Summarize why this substance is created at the facility:**						
Acenapthylene is created as a byproduct of the complex chemical reactions occurring in conversion units at the facility.						

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Toxic Reduction Options for Implementation
Toxic substance reduction option(s) to be implemented:
Does the plan specify that no toxic reduction option will be implemented?*
Yes
If 'No', record the option(s) under the appropriate categories below (e.g., Materials or feedstock substitution; Product design or reformulation).If 'Yes', explain why no option will be implemented:**
Acenaphthylene 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. No alternative low acenaphthylene feed available. The acenaphthylene created onsite is a byproduct of the complex chemical reactions occurring in conversion unit onsite. No technically and economically feasible reduction options were identified.
Materials or feedstock substitution
Product design or reformulation
Equipment or process modifications
Spill or leak prevention
On-site reuse, recycling or recovery
Improved inventory management or purchasing techniques
Good operator practice or training
Rationale for choosing these options for implementation:
Summary of actions undertaken outside of the plan to reduce the use and creation of this toxic substance at the facility:
License number of the toxic substance reduction planner who made the recommendations for this substance (format TSRPXXXX):*
TSRP0071
License number of the toxic substance reduction planner who certified the plan for this substance (format TSRPXXXX):*
TSRP0071
Which version of the plan is reflected in this summary?*
New Plan

Highest Ranking Employee
As of, I, Richard Henderson, certify that I have read the toxic substance
reduction plan for the toxic substances referred to below and am familiar with its contents, and to my knowledge the plan is factually accurate and complies with the <i>Toxics Reduction Act</i> , 2009 and Ontario Regulation 455/09 (General) made under that Act.
 110-82-7, Cyclohexane NA - 25, Cycloheptane (all isomers) NA - 27, Cyclooctane (all isomers)
Richard Henderson Refinery Manager, Nanticoke Refinery
Toxic Substance Reduction Planner
As of 12/4/20/3, I, Scott Manser certify that I am familiar with the processes Planner Name 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 12/3/20/3 and that the plan complies with that Act and Ontario Regulation 455/09 (General) made under that Act.
 110-82-7, Cyclohexane NA - 25, Cycloheptane (all isomers) NA - 27, Cyclooctane (all isomers)
Toxic Substance Reduction Planner

Highest Ranking Employee
As of, 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 <i>Toxics Reduction Act</i> , 2009 and Ontario Regulation 455/09 (General) made under that Act.
• 25167-67-3 Butene (all isomers)
Richard Henderson Refinery Manager, Nanticoke Refinery
Toxic Substance Reduction Planner
As of 12/4/2013, I, Scott Manser certify that I am familiar with the processes Planner Name 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 13/3/20/3 and that the plan complies with that Act and Ontario Regulation 455/09 (General) made under that Act.
• 25167-67-3 Butene (all isomers)
15RP007 12/4/2013 Scott Manser License Number Date
Toxic Substance Reduction Planner

As of 6 bec 2017, 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 <i>Toxics Reduction Act</i> , 2009 and Ontario Regulation 455/09 (General) made under that Act.
• 115-07-1, Propylene • 115-07-1, Butane (all isomers) • 74-98-6, Propane Richard Henderson Refinery Manager, Nanticoke Refinery
Toxic Substance Reduction Planner
As of
 113-07-1, Propylene 115-07-1, Butane (all isomers) 74-98-6, Propane
Scott Manser License Number Date Toxic Substance Reduction Planner

As of 6 bec 2017, I, Richard	Henderson, certify th	nat I have read the toxic substance	
reduction plan for the toxic substance referr knowledge the plan is factually accurate and Regulation 455/09 (General) made under the	ed to below and am fa	amiliar with its contents, and to my	0
 NA - M10, PM2.5 - Particulate M NA - M09, PM10 - Particulate M NA - M08, Total Particulate Mat 	latter		
Richard Henderson	6 bec	2013	
Refinery Manager, Nanticoke Refinery	Date		
Toxic Substance Reduction Planner			
As of 12/4/2013, I, Scott M	<u>fanser</u> certify that I a	am familiar with the processes	
at Imperial Oil's Nanticoke Refinery that us with the estimates referred to in subparagraph Act, 2009 that are set out in the plan dated _Act and Ontario Regulation 455/09 (General	e or create the toxic sohs 7 iii, iv and v of su	substances referred to below, that I agrubsection 4 (1) of the <i>Toxics Reductio</i> and that the plan complies with the	n
 NA - M10, PM2.5 - Particulate N NA - M09, PM10 - Particulate M 			
• NA - M08, Total Particulate Mat			
Set Man 15.	RP0071	12/4/2013	
Scott Manser Lic Toxic Substance Reduction Planner	ense Number	Date	

Highest Ranking Employee
As of bec 2013, 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 <i>Toxics Reduction Act</i> , 2009 and Ontario
Regulation 455/09 (General) made under that Act.
• 11104-93-1 Nitrogen oxides (expressed as NO2)
Alle 6 Dec 2013
Refinery Manager, Nanticoke Refinery
Tania Substance Reduction Planner
Toxic Substance Reduction Planner
As of 12/4/2013, I, Scott Manser certify that I am familiar with the processes Planner Name
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 <i>Toxics Reduction</i>
Act, 2009 that are set out in the plan dated $\frac{12/3/26/3}{13}$ and that the plan complies with that Act and Ontario Regulation 455/09 (General) made under that Act.
• 11104-93-1 Nitrogen oxides (expressed as NO2)
St Mann TSRP0071 12/4/2013
Scott Manser License Number Date
Toxic Substance Reduction Planner

Highest Ranking Employee		
As of 6 bec 2017, I, Ric	hard Henderson, certify that	t I have read the toxic substance
reduction plan for the toxic substance r	eferred to below and am far	niliar with its contents, and to my
knowledge the plan is factually accurat		
Regulation 455/09 (General) made und	er that Act.	
• NA - 17 Nitrate Ion in Solut	ion at pH >=6.0	
Richard Henderson	Date Dec	2013
Refinery Manager, Nanticoke Refinery	2000	
Toxic Substance Reduction Planner		
As of <u>ja /4/20/3</u> , I, <u>So</u> Date Pla at Imperial Oil's Nanticoke Refinery th		
with the estimates referred to in subpar		
Act, 2009 that are set out in the plan da	ted 12/3/2013	and that the plan complies with that
Act and Ontario Regulation 455/09 (Ge		
NA - 17 Nitrate Ion in Solut.	ion at pH >=6.0	
91		
Sit Man	15R70071	12/4/2013
Scott Manser	License Number	Date
Toxic Substance Reduction Planner		

Highest Ranking Employee
As of 6 be 2013, 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 <i>Toxics Reduction Act</i> , 2009 and Ontario Regulation 455/09 (General) made under that Act.
 CAS # 110-54-3, n-Hexane CAS # NA-35, Pentane (all isomers) CAS # NA-32, Hexane (all isomers excluding n-Hexane) CAS # NA-31, Heptane (all isomers) CAS # NA-34, Octane (all isomers) CAS # NA-33, Nonane (all isomers) CAS # NA-28, Decane (all isomers) CAS # NA-36, Pentene (all isomers) CAS # 25264-93-1, Hexene (all isomers) Richard Henderson Refinery Manager, Nanticoke Refinery
Toxic Substance Reduction Planner
As of Ja /4/20/3, I, Scott Manser certify that I am familiar with the processes Planner Name 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 12/3/20/3 and that the plan complies with that Act and Ontario Regulation 455/09 (General) made under that Act.
 CAS # 110-54-3, n-Hexane CAS # NA-35, Pentane (all isomers) CAS # NA-32, Hexane (all isomers excluding n-Hexane) CAS # NA-31, Heptane (all isomers) CAS # NA-34, Octane (all isomers) CAS # NA-33, Nonane (all isomers) CAS # NA-28, Decane (all isomers) CAS # NA-36, Pentene (all isomers) CAS # 25264-93-1, Hexene (all isomers)
1.6/1/2013

License Number

Date

Scott Manser

Toxic Substance Reduction Planner

Highest Ranking Employee			
As of, I, R Date reduction plan for the toxic substance			
knowledge the plan is factually accur Regulation 455/09 (General) made un	nder that Act.	Toxics Reduction Act, 2009 and	Ontario
2148878 Hydrogen sulphicNA - M14, Total reduced s		drogen sulphide)	
PARC		2013	
Richard Henderson Refinery Manager, Nanticoke Refine	Date		
Toxic Substance Reduction Planner			
As of 12/4/2013, I, S	Scott Manser_ certify that	I am familiar with the processes	
Date I at Imperial Oil's Nanticoke Refinery	Planner Name that use or create the toxic	substances referred to below, th	at I agre
with the estimates referred to in subpa	aragraphs 7 iii, iv and v of	subsection 4 (1) of the Toxics Re	eduction
Act, 2009 that are set out in the plan of Act and Ontario Regulation 455/09 (0			with tha
21.40070 IIl	1-		
2148878 Hydrogen sulphicNA - M14, Total reduced s		drogen sulphide)	
1 Lul			
Set Man	15RP0071	12/4/2013	
Scott Manser Toxic Substance Reduction Planner	License Number	Date	

Highest Ranking Employee
As of 6 2013, 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 <i>Toxics Reduction Act</i> , 2009 and Ontario Regulation 455/09 (General) made under that Act.
• 75-45-6 HCFC-22
Richard Henderson Date
Refinery Manager, Nanticoke Refinery
Toxic Substance Reduction Planner
As of 12/4/2013, I, Scott Manser 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 <i>Toxics Reduction Act</i> , 2009 that are set out in the plan dated 12/3/2013 and that the plan complies with that Act and Ontario Regulation 455/09 (General) made under that Act.
• 75-45-6 HCFC-22
Toxic Substance Reduction Planner

Highest Ranking Employee
As of 6 locate, 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 <i>Toxics Reduction Act</i> , 2009 and Ontario Regulation 455/09 (General) made under that Act.
• 74-85-1 Ethylene
Richard Henderson Refinery Manager, Nanticoke Refinery
Toxic Substance Reduction Planner
As of
• 74-85-1 Ethylene
Scott Manser License Number Date Toxic Substance Reduction Planner

Highest Ranking Employee
As of bec 313, 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 <i>Toxics Reduction Act</i> , 2009 and Ontario
Regulation 455/09 (General) made under that Act.
• 111-42-2 Diethanolamine (and its salts)
April 6 dec 2013
Richard Henderson Date
Refinery Manager, Nanticoke Refinery
Toxic Substance Reduction Planner
As of 12/41/2013 I Scott Mansar certify that I am familiar with the processes
As of 12/4/2013, I, Scott Manser certify that I am familiar with the processes Planner Name
at Imperial Oil's Nanticoke Refinery that use or create the toxic substances referred to below, that I agre
with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the Toxics Reduction
Act, 2009 that are set out in the plan dated $12/3/20/3$ and that the plan complies with that
Act and Ontario Regulation 455/09 (General) made under that Act.
• 111-42-2 Diethanolamine (and its salts)
15880071 12/4/2013
Scott Manser License Number Date
Toxic Substance Reduction Planner

Highest Ranking Employee	
As of bec 2013, I, Ric	chard Henderson, certify that I have read the toxic substance
reduction plan for the toxic substance r	referred to below and am familiar with its contents, and to my
	te and complies with the Toxics Reduction Act, 2009 and Ontario
Regulation 455/09 (General) made und	ler that Act.
• 1319-77-3 Cresol (all isome	rs, and their salts)
_ffelin	6 Dec 2013
Richard Henderson	Date
Refinery Manager, Nanticoke Refinery	
Toxic Substance Reduction Planner	
at Imperial Oil's Nanticoke Refinery the with the estimates referred to in subpar	cott Manser_certify that I am familiar with the processes unner Name nat use or create the toxic substances referred to below, that I agree ragraphs 7 iii, iv and v of subsection 4 (1) of the <i>Toxics Reduction</i> and that the plan complies with that eneral) made under that Act.
· ·	•
 1319-77-3 Cresol (all isome) 	rs, and their salts)
Scott Manser	15RP0071 12/4/2014. License Number Date
Toxic Substance Reduction Planner	License runner Date
Toda ocosmico reduction i familio	

As of, 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 <i>Toxics Reduction Act</i> , 2009 and Ontario Regulation 455/09 (General) made under that Act.
• 630-08-0 Carbon Monoxide
Richard Henderson Date
Refinery Manager, Nanticoke Refinery
Toxic Substance Reduction Planner
As of
• 630-08-0 Carbon Monoxide
Scott Manser License Number Date Toxic Substance Reduction Planner

As of 6 Dec 2013, 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 <i>Toxics Reduction Act</i> , 2009 and Ontario Regulation 455/09 (General) made under that Act.
NA - 16 Ammonia (total)
Richard Henderson Date
Refinery Manager, Nanticoke Refinery
Toxic Substance Reduction Planner
As of
NA - 16 Ammonia (total)
Scott Manser License Number Date Toxic Substance Reduction Planner

Highest Ranking Employee
As of, 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 <i>Toxics Reduction Act</i> , 2009 and Ontario Regulation 455/09 (General) made under that Act.
• 208-96-8 Acenaphthylene 6 bec 70 13
Richard Henderson Date
Refinery Manager, Nanticoke Refinery
Toxic Substance Reduction Planner
As of
• 208-96-8 Acenaphthylene
1. A Man TSRP0071 12/4/2013
Scott Manser / License Number Date
Toxic Substance Reduction Planner

As of 6 by 2013, 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 <i>Toxics Reduction Act</i> , 2009 and Ontario Regulation 455/09 (General) made under that Act.
 95-63-6, 1,2,4-Trimethylbenzene 25551-13-7, Trimethylbenzene (all isomers excluding 1,2,4-Trimethylbenzene) Richard Henderson Date
Refinery Manager, Nanticoke Refinery
Toxic Substance Reduction Planner
As of 12/4/2013, I, Scott Manser certify that I am familiar with the processes Planner Name 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 12/3/2013 and that the plan complies with that Act and Ontario Regulation 455/09 (General) made under that Act.
 95-63-6, 1,2,4-Trimethylbenzene 25551-13-7, Trimethylbenzene (all isomers excluding 1,2,4-Trimethylbenzene)
Scott Manser TSRP0071 12/4/2013 License Number Date
Toxic Substance Reduction Planner