

Hamilton Works

Toxic Substance Reduction Plan Summary

Name of Substance	CAS # of Substance
Sulphuric Acid	7664-93-9
Zinc	7440-66-6
Mercury	7439-97-6
Benzene	71-43-2
Toluene	108-88-3
Xylene	1330-20-7
7H-dibenzo(c,g)carbazole	194-59-2
Acenaphthene	83-32-9
Acenaphthylene	208-96-8
Anthracene	120-12-7
Benzo(a)anthracene	56-55-3
Benzo(a)phenanthrene (Chrysene)	218-01-9
Benzo(a)Pyrene	50-32-8
Benzo(b)fluoranthene	205-99-2
Benzo(e)pyrene	192-97-2
Benzo(g,h,i)perylene	191-24-2
Benzo(j)fluoranthene	205-82-3
Benzo(k)fluoranthene	207-08-9
Dibenzo(a,j)acridine	224-42-0
Dibenzo(a,h)anthracene	53-70-3
Dibenzo(a,i)pyrene	189-55-9
Fluoranthene	206-44-0
Fluorene	86-73-7
Indeno(1,2,3-c,d)pyrene	193-39-5
Perylene	198-55-0
Phenanthrene	85-01-8
Pyrene	129-00-0
Naphthalene	91-20-3
Phenol	108-95-2

BASIC FACILITY INFORMATION

Facility Identification and Site Address		
Company Name	U. S. Steel Canada Inc.	
Facility Name	Hamilton Works	
Facility Address	Physical Address: 386 Wilcox Street, Hamilton, Ontario L8N 3T1	Mailing Address: (Same as physical address)
Facility Latitude	43.16941	
Facility Longitude	79.49288	
Number of Employees	1109	
NPRI ID	2984	
Ontario MOE ID Number	Not Applicable	

Parent Company (PC) Information	
PC Name & Address	United States Steel Corporation 600 Grant Street, Pittsburgh, PA 15219
Percent Ownership for each PC	100 per cent
Business Number for PC	171240948

Primary North American Industrial Classification System Code (NAICS)	
2 Digit NAICS Code	31-33 - Manufacturing
4 Digit NAICS Code	3311 - Iron & Steel Mills & Ferro-Alloy Manufacturing
6 Digit NAICS Code	331110 - Iron & Steel Mills & Ferro-Alloy Manufacturing

Company Contact Information	
Facility Public Contact	Trevor D Harris
	tdharris@uss.com
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	Fax: (905) 308-7002

Company Contact Information	
Facility Technical Contact	Andrew Sebestyen, <i>Manager - Environmental Affairs</i>
	asebestyen@uss.com
	Phone: (905) 527-8335 ext. 2547
	Fax: (905) 777-7614

BASIC FACILITY INFORMATION (cont.)

Company Contact Information	
Company Coordinator Contact	Emelita Simbahon, P.Eng.
	esimbahon@uss.com
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Company Contact Information	
Highest Ranking Employee	Lawrence Sutherland, <i>Plant Manager</i>
	lwsutherland@uss.com
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Planner Information	
Planner Responsible for Making Recommendations	Emelita Simbahon, P.Eng.
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	Planner License No. TSRP0066
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	Fax: (905) 777-7614

Spatial Coordinates	Map Datum	Zone	Accuracy Estimate	UTM Easting	UTM Northing
Southwest corner of property	NAD83	17	100	594756	4791659.00
Physical location of main entrance	NAD83	17	100	595333	4791386.00

NOTE:

This Plan Summary accuracy reflects the plan of each toxic substance listed in page 1.

Name & CAS # of Substance	Sulphuric Acid	7664-93-9
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STATEMENT OF INTENT

U. S. Steel Canada – Hamilton Works is committed to reducing or, where possible, eliminating the usage of sulphuric acid providing that circumstances permit it, while complying with all Federal and Provincial Regulations.

REDUCTION OBJECTIVES

Our objective is to reduce the usage of sulphuric acid to the extent that circumstances permit.

DESCRIPTION WHY SUBSTANCE IS USED

Concentrated sulphuric acid is used to treat oily wastewater from the cold rolling mills and separate oil from water. Chemical reaction leads to the destruction of sulphuric acid within the process.

Category	Options To Be Considered for Implementation,	Potential Implementation Steps and Time Line
Materials or Feedstock Substitution; Improved Inventory Management or Purchasing Techniques	Use spent acid which has a purity of 88% from a company who wishes to recycle their by-product. (Estimated Reduction = 5.4%)	<ul style="list-style-type: none"> • Arrangement with the company was completed in 2011. • Supply started Feb 2012 and ongoing
Equipment or Process Modification	Try using the centrifuge technology to enhance separation of oil from water and reduce the use of acid. (Estimated Reduction = TBD)	<ul style="list-style-type: none"> • Planning Phase – complete Q3 2012 • Trial Phase – January 2013
Spill and Leak Prevention; Training or Improved Operating Practices	Operator to be trained to conduct additional tests for presence of leaks. (Estimated Reduction = TBD)	<ul style="list-style-type: none"> • Presentation of proposal to management: Q1 2013 • Approval & Planning: Q2 2013 • Implementation Q3 2013
Product Design or Reformulation	No further option can be identified – sulphuric acid is not contained in a product.	
On-site Reuse or Recycling	No further option is identified – sulphuric acid is already recycled.	

Name & CAS # of Substance	Zinc	7440-66-6
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STATEMENT OF INTENT

U. S. Steel Canada – Hamilton Works is committed to reducing or, where possible, eliminating the usage of zinc providing that circumstances permit it, while complying with all Federal and Provincial Regulations.

REDUCTION OBJECTIVES

Our objective is to reduce the usage of zinc to the extent that circumstances permit.

DESCRIPTION WHY SUBSTANCE IS USED

Zinc is incidentally introduced into the cokemaking process as an impurity in coal. Zinc is also a main ingredient of galvanized steel products, which is a core business of U. S. Steel Canada Hamilton Works. Both materials are vital to the operations and company business, hence, it is impossible to eliminate the “usage” of zinc.

Category	Options To Be Considered for Implementation,	Potential Implementation Steps and Time Line
Equipment or Process Modification	Upgrade the master controls at the Z-line entry section to reduce delays. (Estimated Reduction = 0.16%)	<ul style="list-style-type: none"> • Phase 1: Completed July 2012 • Phase 2: Q2 – December 2013
	Upgrade the master controls at the Z-line delivery section to reduce delays. (Estimated Reduction = 0.11%)	<ul style="list-style-type: none"> • Phase 1: Nov. 2012 to Q1 2013 • Phase 2: Q2 – December 2013
On-Site Reuse or Recycling	Collect and recover additional coke dust for recycling. (Estimated Reduction = 0.012%)	<ul style="list-style-type: none"> • Presentation of proposal to management: Q2 2013 • Approval & Planning: Q3 2013 • Implementation Q4 2014
Material or Feedstock Substitution	No option was found feasible – zinc is incidental in coal and essential to the galvanized steel product.	
Product Design or Reformulation	No reduction option can be identified – zinc is incidental in coal and essential to the galvanized steel product.	
Spill and Leak Prevention; Training or Improved Operating Practices	No other option was found feasible – measures already in place.	
Improved Inventory Management or Purchasing Techniques	No other option was found feasible – practices to minimize inventories already in place and incidental zinc from coal is based on the amount of coke produced regardless of coal inventory.	

Name & CAS # of Substance	Mercury	7439-97-6
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STATEMENT OF INTENT

U. S. Steel Canada – Hamilton Works is committed to reducing or, where possible, eliminating the usage of mercury providing that circumstances permit it, while complying with all Federal and Provincial Regulations.

REDUCTION OBJECTIVES

Our objective is to reduce the usage of mercury to the extent that circumstances permit.

DESCRIPTION WHY SUBSTANCE IS USED

Mercury is incidentally introduced into the Hamilton Works cokemaking process as an impurity in coal.

Category	Options To Be Considered for Implementation,	Potential Implementation Steps and Time Line
Spill and Leak Prevention	Complete the installation of charge car weigh scale to reduce spilling of coal. (Estimated Reduction = TBD)	<ul style="list-style-type: none"> • Phase 1: Completed Feb. 2012 • Implementation: Q2 2013
On-Site Reuse or Recycling	Collect and recover additional coke dust for recycling. (Estimated Reduction = 0.006%)	<ul style="list-style-type: none"> • Presentation of proposal to management: Q2 2013 • Approval & Planning: Q3 2013 • Implementation Q4 2014
Materials or Feedstock Substitution	No option can be identified because coal is vital to the cokemaking business and mercury is an incidental impurity in coal.	
Product Design or Reformulation	No further option can be identified since the types of finished products are inherent to the existing coking process, operation and equipment	
Equipment or Process Modification	There is no option for mercury reduction under this category since mercury's incidental use in cokemaking is not affected by equipment or process characteristics.	
Improved Inventory Management or Purchasing Techniques	No further option can be identified since mercury's incidental use in cokemaking is based on the amount of coke produced regardless of coal inventory.	
Training or Improved Operating Practices	No further option can be identified since mercury's incidental use in cokemaking is based on the amount of coke produced.	

Name & CAS # of Substance	Benzene	71-43-2
	Toluene	108-88-3
	Xylene	1330-20-7

STATEMENT OF INTENT

U. S. Steel Canada – Hamilton Works is committed to reducing or, where possible, eliminating the creation of Benzene, Toluene and Xylene providing that circumstances permit it, while complying with all Federal and Provincial Regulations.

REDUCTION OBJECTIVES

Our objective is to reduce the creation of Benzene, Toluene and Xylene to the extent that circumstances permit.

DESCRIPTION WHY SUBSTANCE IS CREATED

The coke battery is designed to convert coal to coke by the destructive thermal distillation. Benzene, toluene and xylene are created incidentally during this process when heavier hydrocarbons present in coal start dissociating. All benzene, toluene and xylene that are created during the coking process are recovered and either sold or recycled on site.

Category	Options To Be Considered for Implementation,	Potential Implementation Steps and Time Line
Materials or Feedstock Substitution	No option can be identified because coal is vital to the cokemaking business. Benzene, toluene and xylene are created incidentally in the production of coke as a result of the chemical structure of coal.	
Product Design or Reformulation	No further option can be identified since the types of finished products are inherent to the existing coking process, operation and equipment.	
Equipment or Process Modification	No further option can be identified since the types of finished products are inherent to the existing coking process, operation and equipment.	
Spill and Leak Prevention	No further option can be identified since the types of finished products are inherent to the existing coking process, operation and equipment.	
On-Site Reuse or Recycling	No further option can be identified since the types of finished products are inherent to the existing coking process, operation and equipment.	
Improved Inventory Management or Purchasing Techniques	Since benzene, toluene and xylene are created based on the amount of coke produced irregardless of coal inventory, no option for reduction under this category would be applicable.	
Training or Improved Operating Practices	Since benzene, toluene and xylene are created in the production of coke, no option for reduction under this category would be applicable.	

Name & CAS # of Substance	7H-dibenzo(c,g)carbazole	194-59-2
	Acenaphthene	83-32-9
	Acenaphthylene	208-96-8
	Anthracene	120-12-7
	Benzo(a)anthracene	56-55-3
	Benzo(a)phenanthrene (Chrysene)	218-01-9
	Benzo(a)Pyrene	50-32-8
	Benzo(b)fluoranthene	205-99-2
	Benzo(e)pyrene	192-97-2
	Benzo(g,h,i)perylene	191-24-2
	Benzo(j)fluoranthene	205-82-3
	Benzo(k)fluoranthene	207-08-9
	Dibenzo(a,j)acridine	224-42-0
	Dibenzo(a,h)anthracene	53-70-3
	Dibenzo(a,i)pyrene	189-55-9
	Fluoranthene	206-44-0
	Fluorene	86-73-7
	Indeno(1,2,3-c,d)pyrene	193-39-5
	Perylene	198-55-0
	Phenanthrene	85-01-8
Pyrene	129-00-0	
Naphthalene	91-20-3	

STATEMENT OF INTENT

U. S. Steel Canada – Hamilton Works is committed to reducing or, where possible, eliminating the creation of PAHs (Polycyclic Aromatic Hydrocarbons) providing that circumstances permit it, while complying with all Federal and Provincial Regulations.

REDUCTION OBJECTIVES

Our objective is to reduce the creation of PAHs (Polycyclic Aromatic Hydrocarbons) to the extent that circumstances permit.

DESCRIPTION WHY SUBSTANCE IS CREATED

The coke battery is designed to convert coal to coke by the destructive thermal distillation. PAHs (Polycyclic Aromatic Hydrocarbons) are created incidentally during this process when heavier hydrocarbons present in coal start dissociating. All PAHs (Polycyclic Aromatic Hydrocarbons) that are created during the coking process are recovered and either sold or recycled on site.

Category	Options To Be Considered for Implementation,	Potential Implementation Steps and Time Line
On-Site Reuse or Recycling	Collect and recover additional coke dust for recycling. (Estimated Reduction = 0.15%)	<ul style="list-style-type: none"> • Presentation of proposal to management: Q2 2013 • Approval & Planning: Q3 2013 • Implementation Q4 2014
Materials or Feedstock Substitution	No option can be identified because coal is vital to the cokemaking business. PAHs are created incidentally in the production of coke as a result of the chemical structure of coal.	
Product Design or Reformulation	No further option can be identified since the types of finished products are inherent to the existing coking process, operation and equipment.	
Equipment or Process Modification	No further option can be identified since the types of finished products are inherent to the existing coking process, operation and equipment.	
Spill and Leak Prevention	No further option can be identified since the types of finished products are inherent to the existing coking process, operation and equipment.	
Improved Inventory Management or Purchasing Techniques	Since PAHs are created based on the amount of coke produced irregardless of coal inventory, no option for reduction under this category would be applicable.	
Training or Improved Operating Practices	Since PAHs are created based on the amount of coke produced, no option for reduction under this category would be applicable.	

Name & CAS # of Substance	Phenol	108-95-2
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STATEMENT OF INTENT

U. S. Steel Canada – Hamilton Works is committed to reducing or, where possible, eliminating the creation of Phenols providing that circumstances permit it, while complying with all Federal and Provincial Regulations.

REDUCTION OBJECTIVES

Our objective is to reduce the creation of Phenols to the extent that circumstances permit.

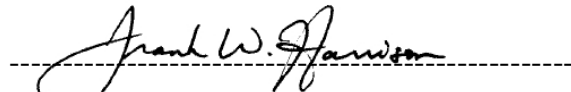
DESCRIPTION WHY SUBSTANCE IS CREATED

Phenols are created incidentally during the destructive thermal distillation process for the conversion of coal into coke. Cokemaking is a core business of U. S. Steel Canada Hamilton Works. Coal and the existing coking process, operations and equipment are vital to the company business, hence, it is impossible to eliminate the “creation” of phenols.

Category	Options To Be Considered for Implementation,	Potential Implementation Steps and Time Line
On-Site Reuse or Recycling	Collect and recover additional coke dust for recycling. (Estimated Reduction = 0.016%)	<ul style="list-style-type: none"> • Presentation of proposal to management: Q2 2013 • Approval & Planning: Q3 2013 • Implementation Q4 2014
Materials or Feedstock Substitution	No option can be identified because coal is vital to the cokemaking business and phenols are created incidentally in the production of coke as a result of the chemical structure of coal.	
Product Design or Reformulation	No further option can be identified since the types of finished products are inherent to the existing coking process, operation and equipment.	
Equipment or Process Modification	No further option can be identified since the types of finished products are inherent to the existing coking process, operation and equipment.	
Spill and Leak Prevention	No further option can be identified since the types of finished products are inherent to the existing coking process, operation and equipment.	
Improved Inventory Mgt. or Purchasing Techniques	Since phenols are created based on the amount of coke produced irregardless of coal inventory, no option for reduction under this category would be applicable	
Training or Improved Operating Practices	Since phenols are created based on the amount of coke produced, no option for reduction under this category would be applicable.	

CERTIFICATION BY HIGHEST RANKING EMPLOYEE

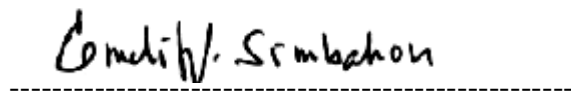
As of 31 December 2012 I certify that I have read the toxic substance reduction plans for all substances listed in the front page of this Summary and am familiar with their contents, and to my knowledge that plans are factually accurate and comply with the Toxics Reduction Act, 2009 and Ontario Regulation 455/09 (General) made under this Act.



Frank W. Harrison – Director, Environmental and Corporate Affairs
U. S. Steel Canada Inc.

CERTIFICATION BY LICENSED PLANNER

As of December 31, 2012, I, Emelita Simbahon, certify that I am familiar with the processes at U. S. Steel Canada – Hamilton Works that use or create toxic substances listed in the front page of this Summary, 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 plans dated December 31, 2012 and that the plans comply with that Act and Ontario Regulation 455/09 (General) made under this Act.



Emelita Simbahon [Planner License #TSRP0066]
Environmental Engineer / Toxic Substance Reduction Planner
U. S. Steel Canada – Hamilton Works