



U. S. Steel Canada
A Subsidiary of United States Steel

Hamilton Works

Toxic Substance Reduction Plan Summary

Name of Substance	CAS # of Substance
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

Updated May 30, 2017

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

Spatial Coordinates (NAD83)	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

Company Contact Information	
Facility Public Contact	Trevor D Harris
	tdharris@uss.com
	Phone: (905) 577-4447
	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
	Phone: (905) 527-8335 ext. 3692
	Fax: (905) 777-7614
Company Contact Information	
Highest Ranking Employee	Gary MacDonald
	GCMacdonald@uss.com
	Phone: (905) 577-4432
	Fax: (905) 777-7649

Planner Information	
Planner Responsible for Making Recommendations	Emelita Simbahon, P.Eng.
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Planner Responsible for Certification	Emelita Simbahon, P.Eng.
	Planner License No. TSRP0066
	esimbahon@uss.com
	Phone: (905) 527-8335 ext. 3692
	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	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 = 1.83)	<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 regardless 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	<p>Collect and recover additional coke dust for recycling. (Estimated Reduction = 0.074%; Target reduction per PAH substance is as follows)</p> <table border="1" data-bbox="505 443 1166 1199"> <thead> <tr> <th data-bbox="505 443 976 527">Substance</th> <th data-bbox="976 443 1166 527">Target Reduction in Creation, Kg</th> </tr> </thead> <tbody> <tr><td data-bbox="505 527 976 558">Naphthalene</td><td data-bbox="976 527 1166 558">2.7900</td></tr> <tr><td data-bbox="505 558 976 590">PAH - 7H-dibenzo(c,g)carbazole</td><td data-bbox="976 558 1166 590">0.2232</td></tr> <tr><td data-bbox="505 590 976 621">PAH - Acenaphthene</td><td data-bbox="976 590 1166 621">0.6014</td></tr> <tr><td data-bbox="505 621 976 653">PAH - Acenaphthylene</td><td data-bbox="976 621 1166 653">716.4720</td></tr> <tr><td data-bbox="505 653 976 684">PAH - Anthracene</td><td data-bbox="976 653 1166 684">506.4408</td></tr> <tr><td data-bbox="505 684 976 716">PAH - Benzo(a)anthracene</td><td data-bbox="976 684 1166 716">232.3512</td></tr> <tr><td data-bbox="505 716 976 747">PAH - Benzo(a)phenanthrene (Chrysene)</td><td data-bbox="976 716 1166 747">356.4504</td></tr> <tr><td data-bbox="505 747 976 779">PAH - Benzo(a)Pyrene</td><td data-bbox="976 747 1166 779">223.2000</td></tr> <tr><td data-bbox="505 779 976 810">PAH - Benzo(b)fluoranthene</td><td data-bbox="976 779 1166 810">219.4056</td></tr> <tr><td data-bbox="505 810 976 842">PAH - Benzo(e)pyrene</td><td data-bbox="976 810 1166 842">8.9280</td></tr> <tr><td data-bbox="505 842 976 873">PAH - Benzo(g,h,i)perylene</td><td data-bbox="976 842 1166 873">6.0264</td></tr> <tr><td data-bbox="505 873 976 905">PAH - Benzo(j)fluoranthene</td><td data-bbox="976 873 1166 905">14.9544</td></tr> <tr><td data-bbox="505 905 976 936">PAH - Benzo(k)fluoranthene</td><td data-bbox="976 905 1166 936">140.8392</td></tr> <tr><td data-bbox="505 936 976 968">PAH - Dibenzo(a,j)acridine</td><td data-bbox="976 936 1166 968">0.2232</td></tr> <tr><td data-bbox="505 968 976 999">PAH - Dibenzo(a,h)anthracene</td><td data-bbox="976 968 1166 999">249.0912</td></tr> <tr><td data-bbox="505 999 976 1031">PAH - Dibenzo(a,i)pyrene</td><td data-bbox="976 999 1166 1031">223.2000</td></tr> <tr><td data-bbox="505 1031 976 1062">PAH - Fluoranthene</td><td data-bbox="976 1031 1166 1062">468.9432</td></tr> <tr><td data-bbox="505 1062 976 1094">PAH - Fluorene</td><td data-bbox="976 1062 1166 1094">2.4775</td></tr> <tr><td data-bbox="505 1094 976 1125">PAH - Indeno(1,2,3-c,d)pyrene</td><td data-bbox="976 1094 1166 1125">84.3696</td></tr> <tr><td data-bbox="505 1125 976 1157">PAH - Perylene</td><td data-bbox="976 1125 1166 1157">59.5944</td></tr> <tr><td data-bbox="505 1157 976 1188">PAH - Phenanthrene</td><td data-bbox="976 1157 1166 1188">731.4264</td></tr> <tr><td data-bbox="505 1188 976 1220">PAH - Pyrene</td><td data-bbox="976 1188 1166 1220">392.6088</td></tr> <tr> <td data-bbox="505 1220 976 1251" style="text-align: center;">TOTAL</td> <td data-bbox="976 1220 1166 1251" style="text-align: center;">4640.6169</td> </tr> </tbody> </table>	Substance	Target Reduction in Creation, Kg	Naphthalene	2.7900	PAH - 7H-dibenzo(c,g)carbazole	0.2232	PAH - Acenaphthene	0.6014	PAH - Acenaphthylene	716.4720	PAH - Anthracene	506.4408	PAH - Benzo(a)anthracene	232.3512	PAH - Benzo(a)phenanthrene (Chrysene)	356.4504	PAH - Benzo(a)Pyrene	223.2000	PAH - Benzo(b)fluoranthene	219.4056	PAH - Benzo(e)pyrene	8.9280	PAH - Benzo(g,h,i)perylene	6.0264	PAH - Benzo(j)fluoranthene	14.9544	PAH - Benzo(k)fluoranthene	140.8392	PAH - Dibenzo(a,j)acridine	0.2232	PAH - Dibenzo(a,h)anthracene	249.0912	PAH - Dibenzo(a,i)pyrene	223.2000	PAH - Fluoranthene	468.9432	PAH - Fluorene	2.4775	PAH - Indeno(1,2,3-c,d)pyrene	84.3696	PAH - Perylene	59.5944	PAH - Phenanthrene	731.4264	PAH - Pyrene	392.6088	TOTAL	4640.6169	<ul style="list-style-type: none"> • Presentation of proposal to management: Q2 2013 • Approval & Planning: Q3 2013 • Implementation Q4 2014
Substance	Target Reduction in Creation, Kg																																																	
Naphthalene	2.7900																																																	
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TOTAL	4640.6169																																																	
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 30 May 2017, 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.



Gary MacDonald
Senior Manager – Hamilton Works
U. S. Steel Canada – Hamilton Works

CERTIFICATION BY LICENSED PLANNER

As of 30 May 2017, 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