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

Hamilton Works
2015 Toxic Substance Accounting Report
(O. Reg. 455/09)

June 1, 2016

Basic Facility Information

Section 1 – Facility Information	
Owner	US Steel Canada
Facility name	Hamilton Works
Address	386 Wilcox St., P.O. Box 2030
City	Hamilton
Province	Ontario
Postal Code	L8N 3T1
Section 2 – Owner's Mailing Address	
Same as above (Y / N)	Yes
Address	
City	
Province	
Postal code	
Section 3 – Owner's Technical Contact Person	
Same as above (Y / N)	Andrew Sebestyen
Title	Manager, Environmental Affairs
Phone	(905) 527-8335 ext 2547
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Basic Facility Information (Cont.)

U. S. Steel Canada Inc. - Hamilton Works, located within the Hamilton industrial zone, produces cold rolled and coated steel sheet and coke. The facility covers an area of about 319 hectares adjacent to Hamilton Harbour.

The facility's environmental management system is registered under ISO 14001. On the quality side, the Rolling & Finishing mills are registered under ISO TS 16949.

Plant operations include Cokemaking, Cold Rolling, and Galvanizing. Production processes are described as follows.

Raw materials in the form of coal received from unloading ships are stored on site until required by the Cokemaking operation.

Cokemaking is the process of converting coal into a carbon mass called coke. During the coking process, coal is heated at 1320°C for 18 hours or more. Heating is indirect, with gas burners situated in compartments between the ovens. Coke is produced along with high calorific gaseous and liquid by-products that are treated and separated in an adjacent chemical By-Products Plant. Coke is used at the Blast Furnace in the Lake Erie Works as a reductant to produce iron. The clean Coke Oven Gas from the By-Products Plant is used to produce steam in the Central Boiler Station, with a small portion of the remaining gas being flared to atmosphere. The process water from the By-Products is directed to the Waste Water Treatment Plant that adopts biological and chemical processes to remove up to 99% of the contaminants prior to discharging to the City of Hamilton sewer.

The Cold Rolling Mill receives flat hot rolled coils from other U. S. Steel facilities for further rolling and finishing into the desired thickness, width and mechanical properties.

The Galvanizing Lines (Z-line and #3 Galv) receive the cold rolled coils and apply zinc coating on the strip surface. These are continuous facilities that consist of series of surface preparation and coating application steps to produce Galvanized or Galvanneal products. The zinc coating weight on these products is controlled to conform to customer specifications as well as to Canadian and International product standards.

Hamilton works discharges non-contact cooling water and filtered water through the four existing outfalls to the Hamilton Bay. The outfalls are strictly monitored based on MISA regulations.

List of Toxic Substances at the Facility

Substance	Chemical Abstracts Service Number
Benzene	71-43-2
Carbon Monoxide	630-08-0
Chromium VI (and its compounds)	1333-82-0
2,3,7,8- Tetrachlorodibenzo-p-dioxin (2378 TCDD)	1746-01-6
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (12378 PCDD)	40321-76-4
2,3,7,8- Tetrachlorodibenzofuran (2378 TCDF)	51207-31-9
1,2,3,7,8-Pentachlorodibenzofuran (12378 PCDF)	57117-41-6
2,3,4,7,8-Pentachlorodibenzofuran (23478 PCDF)	57117-31-4
1,2,3,4,7,8-Hexachlorodibenzofuran (123478 HxCDF)	70648-26-9
1,2,3,6,7,8-Hexachlorodibenzofuran (123678 HxCDF)	57117-44-9
1,2,3,7,8,9-Hexachlorodibenzofuran (123789 HxCDF)	72918-21-9
Ethylene (C2H4)	74-85-1
Hydrochloric Acid	7647-01-0
Hydrogen Sulphide	7783-06-4
Lead	7439-92-1
Manganese	7439-96-5
Mercury	7439-97-6
Methanol	67-56-1
Naphthalene	91-20-3
N-Hexane	110-54-3
Nitrogen oxides (as NO2)	11104-93-1
PAH - Acenaphthylene	208-96-8
PAH - Benzo(a)anthracene	56-55-3
PAH - Benzo(a)phenanthrene (Chrysene)	218-01-9
PAH - Benzo(a)Pyrene	50-32-8
PAH - Benzo(b)fluoranthene	205-99-2
PAH - Benzo(e)pyrene	192-97-2
PAH - Benzo(g,h,i)perylene	191-24-2
PAH - Benzo(j)fluoranthene	205-82-3
PAH - Benzo(k)fluoranthene	207-08-9
PAH - Dibenzo(a,h)anthracene	53-70-3
PAH - Dibenzo(a,i)pyrene	189-55-9
PAH - Fluoranthene	206-44-0
PAH - Indeno(1,2,3-c,d)pyrene	193-39-5
PAH - Perylene	198-55-0
PAH - Phenanthrene	85-01-8
PAH - Pyrene	129-00-0
Phosphorus total	NA-22
PM10 - Particulate Matter <= 10 Microns	N/A - M09
PM2.5 - Particulate Matter <= 2.5 Microns	N/A - M10
Total Particulate Matter or TSP	N/A - M08
Selenium (and its compounds)	7782-49-2
Sulphur Dioxide	7446-09-5
Sulphuric Acid	7664-93-9
Toluene	108-88-3
Total reduced sulphur (as H2S)	NA-M14
VOC	N/A - M16
Zinc	7440-66-6

** N/A - No single CAS number applies to this substance

Indication of Changes in Methods, Significant Process Changes or Non-Routine Events

U. S. Steel Canada – Hamilton Works Ironmaking and Steelmaking facilities were closed in 2013. The Cokemaking & By-Products and the Rolling & Finishing were operational in 2015.

Summary: Tracking and Quantification

Compound	Used, tonnes	Created, tonnes	Destroyed, tonnes	Released to Air, tonnes	Released to City Sewer, tonnes	Released to HW Outfall, tonnes	Recycled Offsite, tonnes	Disposed Offsite, tonnes	Contained in Product/ Process, tonnes
Benzene	> 1000 to 10000	> 1000 to 10000	> 1000 to 10000	> 10 to 100	-	-	> 0 to 1	-	> 1000 to 10000
Carbon Monoxide	> 1000 to 10000	> 100 to 1000	> 1000 to 10000	> 100 to 1000	-	-	-	-	-
Chromium VI (and its compounds)	> 1 to 10	-	-	-	-	-	-	> 0 to 1	> 1 to 10
2,3,7,8- Tetrachlorodibenzo-p-dioxin (2378 TCDD)	> 0 to 1	-	-	-	-	-	> 0 to 1	-	-
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (12378 PCDD)	> 0 to 1	-	-	-	-	-	> 0 to 1	-	-
2,3,7,8-Tetrachlorodibenzofuran (2378 TCDF)	> 0 to 1	-	-	-	-	-	> 0 to 1	-	-
1,2,3,7,8-Pentachlorodibenzofuran (12378 PCDF)	> 0 to 1	-	-	-	-	-	> 0 to 1	-	-
2,3,4,7,8-Pentachlorodibenzofuran (23478 PCDF)	> 0 to 1	-	-	-	-	-	> 0 to 1	-	-
1,2,3,4,7,8-Hexachlorodibenzofuran (123478 HxCDF)	> 0 to 1	-	-	-	-	-	> 0 to 1	-	-
1,2,3,6,7,8-Hexachlorodibenzofuran (123678 HxCDF)	> 0 to 1	-	-	-	-	-	> 0 to 1	-	-
1,2,3,7,8,9-Hexachlorodibenzofuran (123789 HxCDF)	> 0 to 1	-	-	-	-	-	> 0 to 1	-	-
Ethylene (C2H4)	> 1 to 10	> 10 to 100	> 1 to 10	> 10 to 100	-	-	-	-	-
Hydrochloric Acid	> 10 to 100	> 1 to 10	> 10 to 100	-	-	-	-	-	-
Hydrogen Sulphide	> 100 to 1000	> 10 to 100	> 100 to 1000	> 10 to 100	-	-	-	-	-
Lead	> 10 to 100	-	-	> 0 to 1	-	-	> 10 to 100	> 0 to 1	> 1 to 10
Manganese	> 1000 to 10000	-	-	> 1 to 10	-	-	> 100 to 1000	> 0 to 1	> 1000 to 10000
Mercury	> 0 to 1	-	-	> 0 to 1	-	-	> 0 to 1	> 0 to 1	> 0 to 1
Methanol	> 1 to 10	> 1 to 10	-	> 1 to 10	-	-	-	-	-
Naphthalene	> 100 to 1000	> 1000 to 10000	> 100 to 1000	> 1 to 10	-	> 0 to 1	> 0 to 1	> 1 to 10	> 1000 to 10000
N-Hexane	-	> 1 to 10	-	> 1 to 10	-	-	> 0 to 1	-	> 0 to 1
Nitrogen oxides (as NO2)	-	> 1000 to 10000	-	> 1000 to 10000	-	-	-	-	-
PAH - Acenaphthylene	> 10 to 100	> 100 to 1000	> 10 to 100	> 0 to 1	-	-	-	> 0 to 1	> 100 to 1000
PAH - Benzo(a)anthracene	> 10 to 100	> 100 to 1000	> 10 to 100	> 0 to 1	-	-	-	> 0 to 1	> 100 to 1000
PAH - Benzo(a)phenanthrene (Chrysene)	> 10 to 100	> 100 to 1000	> 10 to 100	> 0 to 1	-	-	-	> 0 to 1	> 100 to 1000
PAH - Benzo(a)Pyrene	> 10 to 100	> 100 to 1000	> 10 to 100	> 0 to 1	-	-	-	> 0 to 1	> 100 to 1000

PAH - Benzo(b)fluoranthene	> 10 to 100	> 100 to 1000	> 10 to 100	> 0 to 1	-	-	-	> 0 to 1	> 100 to 1000
PAH - Benzo(e)pyrene	> 0 to 1	> 1 to 10	> 0 to 1	> 0 to 1	-	-	-	> 0 to 1	> 1 to 10
PAH - Benzo(g,h,i)perylene	> 0 to 1	> 1 to 10	> 0 to 1	> 0 to 1	-	-	-	> 0 to 1	> 1 to 10
PAH - Benzo(j)fluoranthene	> 1 to 10	> 10 to 100	> 1 to 10	> 0 to 1	-	-	-	> 0 to 1	> 10 to 100
PAH - Benzo(k)fluoranthene	> 10 to 100	> 100 to 1000	> 10 to 100	> 0 to 1	-	-	-	> 0 to 1	> 100 to 1000
PAH - Dibenzo(a,h)anthracene	> 10 to 100	> 100 to 1000	> 10 to 100	> 0 to 1	-	-	-	> 0 to 1	> 100 to 1000
PAH - Dibenzo(a,i)pyrene	> 10 to 100	> 100 to 1000	> 10 to 100	> 0 to 1	-	-	-	> 0 to 1	> 100 to 1000
PAH - Fluoranthene	> 10 to 100	> 100 to 1000	> 10 to 100	> 0 to 1	-	-	-	> 0 to 1	> 100 to 1000
PAH - Indeno(1,2,3-c,d)pyrene	> 1 to 10	> 10 to 100	> 1 to 10	> 0 to 1	-	-	-	> 0 to 1	> 10 to 100
PAH - Perylene	> 1 to 10	> 10 to 100	> 1 to 10	> 0 to 1	-	-	-	> 0 to 1	> 10 to 100
PAH - Phenanthrene	> 10 to 100	> 100 to 1000	> 10 to 100	> 0 to 1	-	-	-	> 0 to 1	> 100 to 1000
PAH - Pyrene	> 10 to 100	> 100 to 1000	> 10 to 100	> 0 to 1	-	-	-	> 0 to 1	> 100 to 1000
Phosphorus total	> 100 to 1000	-	> 10 to 100	> 0 to 1	> 0 to 1	> 0 to 1	> 0 to 1	> 0 to 1	> 100 to 1000
PM10 - Particulate Matter <= 10 Microns	-	> 100 to 1000	-	> 100 to 1000	-	-	-	-	> 100 to 1000
PM2.5 - Particulate Matter <= 2.5 Microns	-	> 100 to 1000	-	> 100 to 1000	-	-	-	-	> 100 to 1000
Total Particulate Matter or TSP	-	> 1000 to 10000	-	> 100 to 1000	-	-	-	-	> 100 to 1000
Selenium (and its compounds)	> 1 to 10	-	-	> 0 to 1	-	-	> 0 to 1	> 0 to 1	> 1 to 10
Sulphur Dioxide	-	> 1000 to 10000	-	> 1000 to 10000	-	-	-	-	-
Sulphuric Acid	> 100 to 1000	-	> 100 to 1000	-	-	-	-	> 0 to 1	-
Toluene	> 100 to 1000	> 100 to 1000	> 100 to 1000	> 0 to 1	-	-	> 0 to 1	-	> 100 to 1000
Total reduced sulphur (as H2S)	> 100 to 1000	> 10 to 100	> 100 to 1000	> 10 to 100	-	-	-	-	> 10 to 100
VOC	-	> 100 to 1000	-	> 100 to 1000	-	-	-	-	-
Zinc	> 10000 to 100000	-	-	> 0 to 1	-	-	> 1000 to 10000	> 0 to 1	> 10000 to 100000

Comparison of Tracking and Quantification to Previous Reporting Periods

The reported toxic substances quantities were slightly lower in 2015 than in 2014 as a result of decreased production of coke.

Toxic substances quantities are also impacted by the disposal and recycling of secondary materials.

Steps Taken to Achieve Objectives and Assess Effectiveness

The toxic substances reported by Hamilton Works are either required for its products and processes, are generated as unavoidable byproducts, or are incidental trace elements in raw materials. Where feasible, these toxics are managed by recycling and maintaining inventories that are as low as possible.