

**Hamilton Works**  
**2016 Annual Toxic Substances Reduction Report**  
(O. Reg. 455/09)

Issued June 1, 2017

### **Basic Facility Information**

<b>Section 1 – Facility Information</b>	
Owner	U. S. Steel Canada Inc.
Facility name	Hamilton Works
Address	386 Wilcox Street
City	Hamilton
Province	Ontario
Postal Code	L8N 3T1
Spatial Coordinates (NAD83)	UTM Zone: 17 UTM Easting: 595368 UTM Northing: 4791397
<b>Section 2 – Owner’s Mailing Address</b>	
Same as above (Y / N)	Y
Address	
City	
Province	
Postal code	
<b>Section 3 – Owner’s Primary Contact Person</b>	
Name	Andrew Sebestyen
Title	Manager, Environmental Department
Phone	(905) 528-2511 ext 2547
Fax	(905)777-7658
Email address	ASebestyen@uss.com
<b>Section 4 – Additional Facility Information</b>	
NAICS Code	331110
NPRI ID	2984
MOE ID Number (O. Reg 127/01)	5097
# of Employees	818
Licence # of Toxic Substance Reduction Planner	TSRP0066

### **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 Lake Erie Works 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**

<b>Compound</b>	<b>CAS No.</b>
Benzene	71-43-2
Carbon Monoxide	630-08-0
Chlorine - not chloride	7782-50-5
Chromium VI (and its compounds)	1333-82-0
Ethylene (C <sub>2</sub> H <sub>4</sub> )	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 NO <sub>2</sub> )	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
PM <sub>10</sub> - Particulate Matter <= 10 Microns	N/A - M09
PM <sub>2.5</sub> - 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
Total reduced sulphur (as H <sub>2</sub> S)	NA-M14
VOC - see below re speciated VOC	N/A - M16
Zinc	7440-66-6

## 2016 Toxic Substance Accounting

Compound	CAS No.	Used, tonnes	Created, tonnes	Destroyed, tonnes	Released to Air, tonnes	Released to Water CitySewer, tonnes	Released to Water Outfall, tonnes	Transferred/ Recycled Offsite, tonnes	Released to Land (Disposed Offsite), tonnes	Total 'As Contained' in Product and Process
Benzene	71-43-2	> 1000 to 10000	> 1000 to 10000	> 1000 to 10000	> 10 to 100	-	-	> 0 to 1	-	> 1000 to 10000
Carbon Monoxide	630-08-0	> 1000 to 10000	> 100 to 1000	> 1000 to 10000	> 100 to 1000	-	-	-	-	-
Chlorine - not chloride	7782-50-5	-	> 10 to 100	> 10 to 100	> 0 to 1	-	-	-	-	-
Chromium VI (and its compounds)	1333-82-0	> 1 to 10	-	-	-	-	-	-	> 0 to 1	> 1 to 10
Ethylene (C2H4)	74-85-1	> 1 to 10	> 1 to 10	> 1 to 10	> 1 to 10	-	-	-	-	-
Hydrochloric Acid	7647-01-0	> 10 to 100	> 1 to 10	> 10 to 100	-	-	-	-	-	-
Hydrogen Sulphide	7783-06-4	> 100 to 1000	> 1 to 10	> 100 to 1000	> 1 to 10	-	-	-	-	-
Lead	7439-92-1	> 10 to 100	-	-	> 0 to 1	-	-	> 10 to 100	> 0 to 1	> 1 to 10
Manganese	7439-96-5	> 1000 to 10000	-	-	> 1 to 10	-	-	> 1000 to 10000	> 0 to 1	> 1000 to 10000
Mercury	7439-97-6	> 0 to 1	-	-	> 0 to 1	-	-	> 0 to 1	> 0 to 1	> 0 to 1
Methanol	67-56-1	> 1 to 10	> 1 to 10	-	> 1 to 10	-	-	-	-	-
Naphthalene	91-20-3	> 100 to 1000	> 1000 to 10000	> 100 to 1000	> 0 to 1	-	> 0 to 1	> 0 to 1	> 1 to 10	> 1000 to 10000
N-Hexane	110-54-3	-	> 1 to 10	-	> 1 to 10	-	-	> 0 to 1	-	> 0 to 1
Nitrogen oxides (as NO2)	11104-93-1	-	> 100 to 1000	-	> 100 to 1000	-	-	-	-	-
PAH - Acenaphthylene	208-96-8	> 10 to 100	> 100 to 1000	> 10 to 100	> 0 to 1	-	-	-	> 0 to 1	> 100 to 1000
PAH - Benzo(a)anthracene	56-55-3	> 10 to 100	> 100 to 1000	> 10 to 100	> 0 to 1	-	-	-	> 0 to 1	> 100 to 1000
PAH - Benzo(a)phenanthrene (Chrysene)	218-01-9	> 10 to 100	> 100 to 1000	> 10 to 100	> 0 to 1	-	-	-	> 0 to 1	> 100 to 1000
PAH - Benzo(a)Pyrene	50-32-8	> 10 to 100	> 100 to 1000	> 10 to 100	> 0 to 1	-	> 0 to 1	-	> 0 to 1	> 100 to 1000
PAH - Benzo(b)fluoranthene	205-99-2	> 10 to 100	> 100 to 1000	> 10 to 100	> 0 to 1	-	-	-	> 0 to 1	> 100 to 1000
PAH - Benzo(e)pyrene	192-97-2	> 0 to 1	> 1 to 10	> 0 to 1	> 0 to 1	-	-	-	> 0 to 1	> 1 to 10
PAH - Benzo(g,h,i)perylene	191-24-2	> 0 to 1	> 1 to 10	> 0 to 1	> 0 to 1	-	-	-	> 0 to 1	> 1 to 10
PAH - Benzo(j)fluoranthene	205-82-3	> 1 to 10	> 10 to 100	> 1 to 10	> 0 to 1	-	-	-	> 0 to 1	> 10 to 100
PAH - Benzo(k)fluoranthene	207-08-9	> 10 to 100	> 10 to 100	> 10 to 100	> 0 to 1	-	-	-	> 0 to 1	> 10 to 100
PAH - Dibenzo(a,h)anthracene	53-70-3	> 10 to 100	> 100 to 1000	> 10 to 100	> 0 to 1	-	-	-	> 0 to 1	> 100 to 1000
PAH - Dibenzo(a,i)pyrene	189-55-9	> 10 to 100	> 100 to 1000	> 10 to 100	> 0 to 1	-	-	-	> 0 to 1	> 100 to 1000
PAH - Fluoranthene	206-44-0	> 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	193-39-5	> 1 to 10	> 10 to 100	> 1 to 10	> 0 to 1	-	-	-	> 0 to 1	> 10 to 100
PAH - Perylene	198-55-0	> 1 to 10	> 10 to 100	> 1 to 10	> 0 to 1	-	-	-	> 0 to 1	> 10 to 100
PAH - Phenanthrene	85-01-8	> 10 to 100	> 100 to 1000	> 10 to 100	> 0 to 1	-	-	-	> 0 to 1	> 100 to 1000
PAH - Pyrene	129-00-0	> 10 to 100	> 100 to 1000	> 10 to 100	> 0 to 1	-	-	-	> 0 to 1	> 100 to 1000
Phosphorus total	NA-22	> 100 to 1000	-	> 10 to 100	> 0 to 1	> 0 to 1	-	> 0 to 1	> 0 to 1	> 10 to 100
PM10 - Particulate Matter <= 10 Microns	N/A - M09	-	> 100 to 1000	-	> 100 to 1000	-	-	-	-	> 100 to 1000
PM2.5 - Particulate Matter <= 2.5 Microns	N/A - M10	-	> 100 to 1000	-	> 100 to 1000	-	-	-	-	> 100 to 1000
Total Particulate Matter or TSP	N/A - M08	-	> 1000 to 10000	-	> 100 to 1000	-	-	-	-	> 100 to 1000
Selenium (and its compounds)	7782-49-2	> 1 to 10	-	-	> 0 to 1	-	-	> 0 to 1	> 0 to 1	> 1 to 10
Sulphur Dioxide	7446-09-5	-	> 1000 to 10000	-	> 1000 to 10000	-	-	-	-	-
Sulphuric Acid	7664-93-9	> 100 to 1000	-	> 100 to 1000	-	-	-	-	-	-
Total reduced sulphur (as H2S)	NA-M14	> 100 to 1000	> 10 to 100	> 100 to 1000	> 1 to 10	-	-	-	-	> 10 to 100
VOC - see below re speciated VOC	N/A - M16	-	> 10 to 100	-	> 10 to 100	-	-	-	-	-
Zinc	7440-66-6	> 10000 to 1000000	-	-	> 0 to 1	-	-	> 1000 to 10000	> 0 to 1	> 10000 to 1000000

### Comparison of Quantification (2016) to Previous Reporting Period (2015) - % Change

Compound	CAS No.	Used	Created	Destroyed	Released to Air	Released to Water CitySewer	Released to Water Outfall	Transferred/Recycled Offsite	Released to Land (Disposed Offsite)	Total 'As Contained' in Product and Process	Reasons for Changes in Quantities
Benzene	71-43-2	-10.0	-2.6	-10.0	-12.3			-58.3		-2.5	Reduced coke production
Carbon Monoxide	630-08-0	-10.0	1.3	-10.0	1.3						Reduced coke production led to increased nat gas
Chlorine - not chloride	7782-50-5		60.8	60.8	-19.7						Chlorine injection increased with warmer temperature
Chromium VI (and its compounds)	1333-82-0	8.1							116.4	8.1	Changed quantification using target coating instead of minimum values
Ethylene (C2H4)	74-85-1	-10.0	-20.3	-10.0	-20.3						Reduced coke production
Hydrochloric Acid	7647-01-0	-46.1	53.9	-35.0							Reduced WWTP operation. Increased dechlorination.
Hydrogen Sulphide	7783-06-4	-10.0	-20.3	-10.0	-20.3						Reduced coke production in 2015
Lead	7439-92-1	25.1			49.5			32.0	-21.0	-14.7	Accounted shipment of slag fines and mill scales to LEW
Manganese	7439-96-5	-6.7			50.3			43.1	-95.7	-16.0	same
Mercury	7439-97-6	-16.7			-20.3			-35.5	-17.0	-16.1	Reduced coke production and shipment of coke breeze
Methanol	67-56-1	-13.9	-19.7		-15.7						Reduced use of denatured alcohol and lute due to warmer temperature
Naphthalene	91-20-3	-10.4	-13.2	-10.4	-44.4		2.1	-58.3	-20.9	-13.1	Reduced coke production
N-Hexane	110-54-3		11.4		11.4			-58.3		249.0	Increased use of nat gas due to COG shortage
Nitrogen oxides (as NO2)	11104-93-1		-6.0		-6.0						Reduced COG supply to CBS that led to more use of nat gas
PAH - Acenaphthylene	208-96-8	-10.4	-22.0	-10.0	11.3				-21.2	-22.0	Reduced coke production
PAH - Benzo(a)anthracene	56-55-3	-10.4	-22.0	-10.0	-18.4				-21.2	-22.0	Reduced coke production
PAH - Benzo(a)phenanthrene (Chrysenes)	218-01-9	-10.4	-22.0	-10.0	-18.2				-21.2	-22.0	Reduced coke production
PAH - Benzo(a)Pyrene	50-32-8	-10.4	-22.0	-10.0	-19.0				-21.2	-22.0	Reduced coke production
PAH - Benzo(b)fluoranthene	205-99-2	-10.4	-22.0	-10.0	-17.7				-24.6	-22.0	Reduced coke production
PAH - Benzo(e)pyrene	192-97-2	-10.4	-22.0	-10.0	-17.2				-21.2	-22.0	Reduced coke production
PAH - Benzo(g,h,i)perylene	191-24-2	-10.4	-22.0	-10.0	-16.8				-21.2	-22.0	Reduced coke production
PAH - Benzo(j)fluoranthene	205-82-3	-10.4	-22.0	-10.0	-16.7				-21.2	-22.0	Reduced coke production
PAH - Benzo(k)fluoranthene	207-08-9	-10.4	-22.0	-10.0	-17.4				-21.2	-22.0	Reduced coke production
PAH - Dibenzo(a,h)anthracene	53-70-3	-10.4	-22.0	-10.0	-25.2				-21.2	-22.0	Reduced coke production
PAH - Dibenzo(a,i)pyrene	189-55-9	-10.4	-22.0	-10.0	-60.9				-21.2	-22.0	Reduced coke production
PAH - Fluoranthene	206-44-0	-10.4	-22.0	-10.0	-18.6				-21.2	-22.0	Reduced coke production
PAH - Indeno(1,2,3-c,d)pyrene	193-39-5	-10.4	-22.0	-10.0	-15.6				-21.2	-22.0	Reduced coke production
PAH - Perylene	198-55-0	-10.4	-22.0	-10.0	-19.1				-21.2	-22.0	Reduced coke production
PAH - Phenanthrene	85-01-8	-10.4	-22.0	-10.0	-19.6				-21.2	-22.0	Reduced coke production
PAH - Pyrene	129-00-0	-10.4	-22.0	-10.0	-18.6				-21.2	-22.0	Reduced coke production
Phosphorus total	NA-22	-28.6		-32.2	50.3	-85.8	-32.2	-78.9	-21.2	-25.9	Reduced coke production, More dust releases due to lesser rainfall
PM10 - Particulate Matter <= 10 Micrometers	N/A - M09		-8.9		-4.5					-13.0	Reduced coke production, More dust releases due to lesser rainfall
PM2.5 - Particulate Matter <= 2.5 Micrometers	N/A - M10		-6.0		-15.2					3.7	Reduced coke production, More dust releases due to lesser rainfall
Total Particulate Matter or TSP	N/A - M08		-8.6		11.3					-20.7	Reduced coke production, More dust releases due to lesser rainfall
Selenium (and its compounds)	7782-49-2	-19.7			50.3			-58.3	-21.2	-10.0	Reduced coke production, More dust releases due to lesser rainfall
Sulphur Dioxide	7446-09-5		-12.0		-12.0						Reduced COG production
Sulphuric Acid	7664-93-9	-20.9		-20.7					-100.0		Reduced cold rolled steel production
Total reduced sulphur (as H2S)		-10.0	-29.7	-10.0	-20.3					-32.7	Reduced coke production
VOC	N/A - M16		-26.8		-26.8						Reduced coke production
Zinc	7440-66-6	18.3			50.3			27.2	-87.2	16.5	Accounted shipment of slag fines to LEW, Reduced oil leachate from PO

**Comparison of Quantification (2016) to Previous Reporting Period (2015) - Quantity Change**

Compound	CAS No.	Used, tonnes	Created, tonnes	Destroyed, tonnes	Released to Air, tonnes	Released to Water CitySewer, tonnes	Released to Water Outfall, tonnes	Transferred/Recycled Offsite, tonnes	Released to Land (Disposed Offsite), tonnes	Total 'As Contained' in Product and Process
Benzene	71-43-2	(272.93)	(93.18)	(272.99)	(1.87)	-	-	(0.00)	-	(91.31)
Carbon Monoxide	630-08-0	(754.95)	2.18	(754.95)	2.18	-	-	-	-	-
Chlorine - not chloride	7782-50-5	-	4.71	4.71	(0.00)	-	-	-	-	-
Chromium VI (and its compounds)	1333-82-0	0.17	-	-	-	-	-	-	0.00	0.17
Ethylene (C2H4)	74-85-1	(0.23)	(2.23)	(0.23)	(2.23)	-	-	-	-	-
Hydrochloric Acid	7647-01-0	(11.57)	1.69	(9.88)	-	-	-	-	-	-
Hydrogen Sulphide	7783-06-4	(11.72)	(2.54)	(11.72)	(2.54)	-	-	-	-	-
Lead	7439-92-1	11.15	-	-	0.01	-	-	12.15	(0.00)	(0.81)
Manganese	7439-96-5	(312.53)	-	-	1.32	-	-	312.57	(0.11)	(626.31)
Mercury	7439-97-6	(0.01)	-	-	(0.00)	-	-	(0.00)	(0.00)	(0.01)
Methanol	67-56-1	(0.62)	(0.39)	-	(1.02)	-	-	-	-	-
Naphthalene	91-20-3	(29.44)	(345.97)	(29.44)	(0.61)	-	0.00007	(0.00)	(0.75)	(344.61)
N-Hexane	110-54-3	-	0.22	-	0.22	-	-	(0.00)	-	0.00
Nitrogen oxides (as NO2)	11104-93-1	-	(61.77)	-	(61.77)	-	-	-	-	-
PAH - Acenaphthylene	208-96-8	(7.64)	(141.53)	(7.05)	0.00	-	-	-	(0.20)	(141.93)
PAH - Benzo(a)anthracene	56-55-3	(2.48)	(45.90)	(2.29)	(0.00)	-	-	-	(0.06)	(46.03)
PAH - Benzo(a)phenanthrene (Chryse	218-01-9	(3.80)	(70.42)	(3.51)	(0.00)	-	-	-	(0.10)	(70.61)
PAH - Benzo(a)pyrene	50-32-8	(2.38)	(44.09)	(2.20)	(0.00)	-	0.00006	-	(0.06)	(44.21)
PAH - Benzo(b)fluoranthene	205-99-2	(2.34)	(43.36)	(2.16)	(0.00)	-	-	-	(0.07)	(43.46)
PAH - Benzo(e)pyrene	192-97-2	(0.10)	(1.77)	(0.09)	(0.00)	-	-	-	(0.00)	(1.77)
PAH - Benzo(g,h,i)perylene	191-24-2	(0.06)	(1.19)	(0.06)	(0.00)	-	-	-	(0.00)	(1.19)
PAH - Benzo(j)fluoranthene	205-82-3	(0.16)	(2.95)	(0.15)	(0.00)	-	-	-	(0.00)	(2.96)
PAH - Benzo(k)fluoranthene	207-08-9	(1.50)	(27.82)	(1.39)	(0.00)	-	-	-	(0.04)	(27.90)
PAH - Dibenzo(a,h)anthracene	53-70-3	(2.66)	(49.21)	(2.45)	(0.00)	-	-	-	(0.07)	(49.34)
PAH - Dibenzo(a,i)pyrene	189-55-9	(2.38)	(44.09)	(2.20)	(0.00)	-	-	-	(0.06)	(44.21)
PAH - Fluoranthene	206-44-0	(5.00)	(92.64)	(4.61)	(0.01)	-	-	-	(0.13)	(92.89)
PAH - Indeno(1,2,3-c,d)pyrene	193-39-5	(0.90)	(16.67)	(0.83)	(0.00)	-	-	-	(0.02)	(16.71)
PAH - Perylene	198-55-0	(0.64)	(11.77)	(0.59)	(0.00)	-	-	-	(0.02)	(11.81)
PAH - Phenanthrene	85-01-8	(7.80)	(144.51)	(7.20)	(0.03)	-	-	-	(0.20)	(144.89)
PAH - Pyrene	129-00-0	(4.19)	(77.56)	(3.86)	(0.01)	-	-	-	(0.11)	(77.77)
Phosphorus total	NA-22	(58.68)	-	(27.41)	0.06	(0.39)	(0.06)	(0.04)	(0.02)	(30.83)
PM10 - Particulate Matter <= 10 Micron	N/A - M09	-	(50.65)	-	(12.38)	-	-	-	-	(38.27)
PM2.5 - Particulate Matter <= 2.5 Micron	N/A - M10	-	(22.91)	-	(29.87)	-	-	-	-	6.97
Total Particulate Matter or TSP	N/A - M08	-	(119.43)	-	59.69	-	-	-	-	(179.12)
Selenium (and its compounds)	7782-49-2	(0.36)	-	-	0.00	-	-	(0.04)	(0.00)	(0.15)
Sulphur Dioxide	7446-09-5	-	(222.31)	-	(222.31)	-	-	-	-	-
Sulphuric Acid	7664-93-9	(31.21)	-	(30.84)	-	-	-	-	(0.37)	-
Total reduced sulphur (as H2S)		(16.81)	(15.44)	(16.81)	(2.54)	-	-	-	-	(12.90)
VOC	N/A - M16	-	(34.34)	-	(34.34)	-	-	-	-	-
Zinc	7440-66-6	2,386.64	-	-	0.05	-	-	589.32	(0.14)	1,797.44

### Progress of Toxic Substances Reduction Plans

Compound	CAS No.	Objectives Per Current Version of the Plan	Targets, Tonnes	2016 Reduction, tonnes			2015 Reduction, tonnes			Plan Timeline Met?	Additional Plan?	Plan Amendment	Reduction Steps Taken vs. Plan
				Use	Creation	Discharges	Use	Creation	Discharges				
Benzene	71-43-2	to reduce creation to the extent that circumstances permit.	none										
Carbon Monoxide	630-08-0	to reduce creation to the extent that circumstances permit.	24.8		24.3		29.1	29.1	yes	none	none	same	
Chlorine - not chloride	7782-50-5	to reduce creation to the extent that circumstances permit.	16.2		5.7		22.3		yes	none	none	same	
Chromium VI (and its compounds)	1333-82-0	to reduce usage to the extent that circumstances permit.	none										
Ethylene (C2H4)	74-85-1	to reduce creation to the extent that circumstances permit.	none										
Hydrochloric Acid	7647-01-0	to reduce usage to the extent that circumstances permit.	25	24.9	3.9		22.8	3.3	yes	none	none	same	
Hydrogen Sulphide	7783-06-4	to reduce creation to the extent that circumstances permit.	none										
Lead	7439-92-1	to reduce usage to the extent that circumstances permit.	none										
Manganese	7439-96-5	to reduce usage to the extent that circumstances permit.	none										
Mercury	7439-97-6	to reduce usage to the extent that circumstances permit.	0.00118	0.001182			0.001504		yes	none	none	same	
Methanol	67-56-1	to reduce usage to the extent that circumstances permit.	1.15	0			0		no	none	none	same	
Naphthalene	91-20-3	to reduce creation to the extent that circumstances permit.	0.0028		0.001597		0.001927		yes	none	none	same	
N-Hexane	110-54-3	to reduce creation to the extent that circumstances permit.	0.52		0.520	0.520	0.623	0.623	yes	none	none	same	
Nitrogen oxides (as NO2)	11104-93-1	to reduce creation to the extent that circumstances permit.	32.45		31.84	31.84	38.16	38.16	yes	none	none	same	
PAH - Acenaphthylene	208-96-8	to reduce creation to the extent that circumstances permit.	0.7165		0.4102		0.4950		yes	none	Updated targets	same	
PAH - Benzo(a)anthracene	56-55-3	to reduce creation to the extent that circumstances permit.	0.2324		0.1330		0.1605		yes	none	Updated targets	same	
PAH - Benzo(a)phenanthrene (Chrysene)	218-01-9	to reduce creation to the extent that circumstances permit.	0.3565		0.2041		0.2463		yes	none	Updated targets	same	
PAH - Benzo(a)Pyrene	50-32-8	to reduce creation to the extent that circumstances permit.	0.2232		0.1278		0.1542		yes	none	Updated targets	same	
PAH - Benzo(b)fluoranthene	205-99-2	to reduce creation to the extent that circumstances permit.	0.2194		0.1256		0.1516		yes	none	Updated targets	same	
PAH - Benzo(e)pyrene	192-97-2	to reduce creation to the extent that circumstances permit.	0.0089		0.0051		0.0062		yes	none	Updated targets	same	
PAH - Benzo(g,h,i)perylene	191-24-2	to reduce creation to the extent that circumstances permit.	0.0060		0.0035		0.0042		yes	none	Updated targets	same	
PAH - Benzo(j)fluoranthene	205-82-3	to reduce creation to the extent that circumstances permit.	0.0150		0.0086		0.0103		yes	none	Updated targets	same	
PAH - Benzo(k)fluoranthene	207-08-9	to reduce creation to the extent that circumstances permit.	0.1408		0.0806		0.0973		yes	none	Updated targets	same	
PAH - Dibenzo(a,h)anthracene	53-70-3	to reduce creation to the extent that circumstances permit.	0.2491		0.1426		0.1721		yes	none	Updated targets	same	
PAH - Dibenzo(a,i)pyrene	189-55-9	to reduce creation to the extent that circumstances permit.	0.2232		0.1278		0.1542		yes	none	Updated targets	same	
PAH - Fluoranthene	206-44-0	to reduce creation to the extent that circumstances permit.	0.4689		0.2685		0.3240		yes	none	Updated targets	same	
PAH - Indeno(1,2,3-c,d)pyrene	193-39-5	to reduce creation to the extent that circumstances permit.	0.0844		0.0483		0.0583		yes	none	Updated targets	same	
PAH - Perylene	198-55-0	to reduce creation to the extent that circumstances permit.	0.0596		0.0341		0.0412		yes	none	Updated targets	same	
PAH - Phenanthrene	85-01-8	to reduce creation to the extent that circumstances permit.	0.7314		0.4188		0.5053		yes	none	Updated targets	same	
PAH - Pyrene	129-00-0	to reduce creation to the extent that circumstances permit.	0.0844		0.2248		0.2712		yes	none	Updated targets	same	
Phosphorus total	NA-22	to reduce usage to the extent that circumstances permit.	1.75	0.692		0.692	0.565	0.565	yes	none	none	same	
PM10 - Particulate Matter <= 10 Microns	N/A - M09	to reduce creation to the extent that circumstances permit.	121.04		52.21	52.21	56.72	56.72	yes	none	none	same	
PM2.5 - Particulate Matter <= 2.5 Microns	N/A - M10	to reduce creation to the extent that circumstances permit.	121.04		6.09	6.09	6.50	6.50	yes	none	none	same	
Total Particulate Matter or TSP	N/A - M08	to reduce creation to the extent that circumstances permit.	121.04		225.32	225.32	241.56	241.56	yes	none	none	same	
Selenium (and its compounds)	7782-49-2	to reduce usage to the extent that circumstances permit.	none										
Sulphur Dioxide	7446-09-5	to reduce creation to the extent that circumstances permit.	0.19		0.17	0.17	0.21	0.21	yes	none	none	same	
Sulphuric Acid	7664-93-9	to reduce usage to the extent that circumstances permit.	3.6	0			0		no	none	none	same	
Total reduced sulphur (as H2S)	NA-M14	to reduce creation to the extent that circumstances permit.	none										
VOC - see below re speciated VOC	N/A - M16	to reduce creation to the extent that circumstances permit.	none										
Zinc	7440-66-6	to reduce usage to the extent that circumstances permit.	20.2	17.7			22.3		yes	none	Updated targets	same	



Certification

As of *June 1, 2017*, I *Gary MacDonald*, certify that I have read the records created for the purposes of section 11.2 of Ontario Regulation 455/09(General) made under the Toxics Reductions Act, (2009) in respect of the use and creation of the toxic substances referred to above and am familiar with their contents and to my knowledge they are factually accurate.



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