

State of Oregon
Department of Environmental Quality

Memorandum

Date: 11/20/2023

To: File / Julia DeGagné
From: Thomas Rhodes

Subject: Source Test Review Report
Eagle Foundry Company
Permit Number: 03-2631-ST-01

Test Date: March 24, 27-29, 2023
Report Received: June 16, 2023
Revised Report Received: November 2, 2023
Source Testers: Bison Engineering, Inc.
DEQ Observed: Yes

Source Description: Eagle Foundry operates a white iron, manganese and low alloy steel casting facility.

Processes / Emissions Units Tested: Main Foundry building where melting, pouring and cooling activities occur. Emissions are controlled by the Main Foundry Baghouse and the Cooling Bunker Baghouse.

Test Purpose: Compliance with the December 21, 2022 letter that was sent to Eagle Foundry in accordance with OAR 340-245-0030(2) to develop emission factors for metal toxic air contaminants (TACs) from the MELT and POUR/COOL TEUs. Testing was completed for two production scenarios, white iron alloy only and a combination of chrome steel and manganese steel alloy. EPA Method 204 was conducted prior to the beginning of the testing to demonstrate that there were no fugitive emissions and that all emissions generated were captured by the baghouses. Testing was conducted at the inlet and exhaust of each baghouse.

Testing Location:

Main Foundry Baghouse Exhaust:

Diameter: 61"
Distance A (Method 1): 44" (0.7 Diameters)
Distance B (Method 1): 264" (4.3 Diameters)
Number traverse points utilized: 24

Main Foundry Baghouse Inlet:

Diameter: 48"
Distance A (Method 1): 53" (1.1 Diameters)
Distance B (Method 1): 444" (9.3 Diameters)
Number traverse points utilized: 24

Cooling Bunker Baghouse Exhaust:

Diameter: 55.75"
Distance A (Method 1): 45" (0.8 Diameters)
Distance B (Method 1): 246" (4.4 Diameters)
Number traverse points utilized: 24

Cooling Bunker Baghouse Inlet:

Diameter:	48"
Distance A (Method 1):	114" (2.4 Diameters)
Distance B (Method 1):	990" (20.6 Diameters)
Number traverse points utilized:	12

Main Foundry Building

Pressure Differential Measurements Locations

- 1 – NW Loading Door
- 2 – Waste Sand Exit Door
- 3 – Mold Wash
- 4 – NE Man Door
- 5 – SE Man Door
- 6 – East Loading Door
- 7 – Reclaim Loading Door

Testing Methodology: The following testing methods were utilized during the testing program:

Flow Rate, O₂ & CO₂, & Moisture Content: EPA Methods 1, 2, 3A & 4
Metals: EPA Method 29
Hexavalent Chromium: EPA SW-846 Test Method 0061
Permanent Total Enclosure (PTE) Verification: EPA Method 204

Summary of Results: The testing parameters, test results and operating parameters are summarized in the Tables below:

- Table 1: Main Foundry Baghouse Exhaust – White Iron
- Table 2: Cooling Bunker Baghouse Exhaust – White Iron
- Table 3: Main Foundry Baghouse Inlet – White Iron
- Table 4: Cooling Bunker Baghouse Inlet – White Iron
- Table 5: Main Foundry Baghouse Exhaust – Manganese Steel
- Table 6: Cooling Bunker Baghouse Exhaust – Manganese Steel
- Table 7: Main Foundry Baghouse Inlet – Manganese Steel
- Table 8: Cooling Bunker Baghouse Inlet – Manganese Steel
- Table 9: Main Foundry Building PTE Evaluation

Comments:

- 1) A full review was conducted on the test report. Emission calculations from all runs were checked for accuracy using raw values provided in the test report. The resulting DEQ emissions closely matched those stated in the test report. Summary Tables 1-8 below show DEQ calculated emissions and source parameters.
- 2) Actual In-Stack Detection Limits (ISDLs) from all source tests were lower than the estimated ISDLs in the approved source test plan.
- 3) Thallium was the only metal that was below the analytical detection limits for all sample fractions in all test runs.

- 5) The following metals were below the analytical detection limits for all sample fractions in the baghouse exhausts for white iron.

Main Foundry Baghouse	Cooling Bunker Baghouse
Arsenic	Beryllium
Beryllium	Cadmium
Selenium	Selenium
Thallium	Silver
Vanadium	Thallium
	Vanadium

- 6) The following metals were below the analytical detection limits for both sample fractions in the baghouse exhausts for manganese steel.

Main Foundry Baghouse	Cooling Bunker Baghouse
Beryllium	Beryllium
Lead	Selenium
Selenium	Silver
Thallium	Thallium
Vanadium	Vanadium

- 7) Pressure drop measurements were taken at the Foundry Building when only the two baghouses were operating. The Reclaim unit and mold making equipment were not operating during the testing. It is unknown if the operation of these units would have altered the test results.

Overall Evaluation: For the purpose of completing an emissions inventory for the Cleaner Air Oregon program, the data provided is sufficient to establish emissions factors for metal TACs from the activities of melting, pouring and cooling.

TABLE 1: Main Foundry Baghouse Exhaust – White Iron

	Run 1	Run 2	Run 3	Average
Date	3/27/23	3/28/23	3/29/23	
Exhaust Gas Temperature (°F)	46.3	54.0	46.1	48.8
Exhaust Gas Velocity (m/s)	13.8	13.5	13.9	13.7
Exhaust Gas Flow Rate (dscf/m) (M29)	57,282	53,942	56,526	55,917
Exhaust Gas Flow Rate (dscf/m) (0061)	57,252	53,127	55,790	55,390
Sample Volume (dscf) (M29)	254.665	243.587	253.842	250.698
Sample Volume (dscf) (0061)	244.176	230.176	240.430	238.261
Total Metal Melted (tons)	5.978	6.083	5.980	6.014
Chromium/Melt (tons)	1.553	1.562	1.536	1.550
Manganese/Melt (tons)	0.060	0.063	0.061	0.061
Aluminum Emissions:	--	--	--	--
· lb/hr	2.64E-03	3.30E-03	2.83E-03	2.92E-03
· lb/ton	1.76E-03	2.17E-03	1.89E-03	1.94E-03
Antimony Emissions:	--	--	--	--
· lb/hr	2.68E-05	2.17E-05	1.86E-05	2.24E-05
· lb/ton	1.79E-05	1.43E-05	1.25E-05	1.49E-05
Arsenic Emissions:	--	--	--	--
· lb/hr	< 7.77E-05	< 7.47E-05	< 7.49E-05	< 7.58E-05
· lb/ton	< 5.20E-05	< 4.91E-05	< 5.01E-05	< 5.04E-05
Barium Emissions:	--	--	--	--
· lb/hr	1.07E-04	1.71E-04	5.75E-05	1.12E-04
· lb/ton	7.17E-05	1.12E-04	3.85E-05	7.42E-05
Beryllium Emissions:	--	--	--	--
· lb/hr	< 2.23E-06	< 2.13E-06	< 2.15E-06	< 2.17E-06
· lb/ton	< 1.49E-06	< 1.40E-06	< 1.44E-06	< 1.44E-06
Cadmium Emissions:	--	--	--	--
· lb/hr	< 8.16E-06	< 4.27E-06	< 4.29E-06	< 5.57E-06
· lb/ton	< 5.46E-06	< 2.81E-06	< 2.87E-06	< 3.71E-06
Chromium Emissions:	--	--	--	--
· lb/hr	7.79E-05	7.96E-05	1.11E-04	8.95E-05
· lb/ton	5.21E-05	5.24E-05	7.42E-05	5.95E-05
· lb/ton Cr melted	2.01E-04	2.04E-04	2.89E-04	2.31E-04
Hexavalent Chromium Emissions:	--	--	--	--
· lb/hr	2.86E-08	4.34E-07	3.74E-07	2.79E-07
· lb/ton melt	1.89E-08	2.86E-07	2.50E-07	1.85E-07
· lb/ton Cr melted	7.29E-08	1.11E-06	9.74E-07	7.20E-07
· % of total Chromium	0.04%	0.55%	0.34%	0.31%
Cobalt Emissions:	--	--	--	--
· lb/hr	< 3.71E-06	< 3.65E-06	< 3.67E-06	< 3.68E-06
· lb/ton	< 2.48E-06	< 2.40E-06	< 2.46E-06	< 2.45E-06

'<' denotes results calculated using the MDL for front half and/or back half results that were non-detect.

TABLE 1 Continued: Main Foundry Baghouse Exhaust – White Iron

	Run 1	Run 2	Run 3	Average
Copper Emissions:	--	--	--	--
· lb/hr	< 1.27E-04	1.80E-04	1.24E-04	< 1.44E-04
· lb/ton	< 8.50E-05	1.18E-04	8.26E-05	< 9.54E-05
Lead Emissions:	--	--	--	--
· lb/hr	1.40E-04	< 5.33E-05	< 5.35E-05	< 8.24E-05
· lb/ton	9.40E-05	< 3.51E-05	< 3.58E-05	< 5.49E-05
Manganese Emissions:	--	--	--	--
· lb/hr	6.28E-04	3.80E-04	5.82E-04	5.30E-04
· lb/ton	4.20E-04	2.50E-04	3.89E-04	3.53E-04
· lb/ton Mn melted	4.16E-02	2.39E-02	3.79E-02	3.45E-02
Mercury Emissions:	--	--	--	--
· lb/hr	< 2.78E-06	< 3.61E-06	< 2.58E-06	< 2.99E-06
· lb/ton	< 1.86E-06	< 2.37E-06	< 1.72E-06	< 1.99E-06
Nickel Emissions:	--	--	--	--
· lb/hr	3.21E-05	1.51E-04	< 2.58E-04	< 1.47E-04
· lb/ton	2.15E-05	9.92E-05	< 1.73E-04	< 9.78E-05
Phosphorus Emissions:	--	--	--	--
· lb/hr	< 6.13E-04	< 6.72E-05	< 6.70E-05	< 2.49E-04
· lb/ton	< 4.10E-04	< 4.42E-05	< 4.48E-05	< 1.66E-04
Selenium Emissions:	--	--	--	--
· lb/hr	< 1.67E-04	< 1.60E-04	< 1.60E-04	< 1.62E-04
· lb/ton	< 1.11E-04	< 1.05E-04	< 1.07E-04	< 1.08E-04
Silver Emissions:	--	--	--	--
· lb/hr	< 2.22E-05	< 2.13E-05	< 3.53E-05	< 2.63E-05
· lb/ton	< 1.49E-05	< 1.40E-05	< 2.36E-05	< 1.75E-05
Thallium Emissions:	--	--	--	--
· lb/hr	< 1.11E-04	< 1.07E-04	< 1.07E-04	< 1.08E-04
· lb/ton	< 7.43E-05	< 7.02E-05	< 7.16E-05	< 7.20E-05
Vanadium Emissions:	--	--	--	--
· lb/hr	< 1.11E-05	< 1.07E-05	< 1.07E-05	< 1.08E-05
· lb/ton	< 7.43E-06	< 7.02E-06	< 7.16E-06	< 7.20E-06
Zinc Emissions:	--	--	--	--
· lb/hr	5.91E-04	3.04E-04	1.36E-04	3.44E-04
· lb/ton	3.95E-04	2.00E-04	9.11E-05	2.29E-04

'<' denotes results calculated using the MDL for front half and/or back half results that were non-detect.

TABLE 2: Cooling Bunker Baghouse Exhaust – White Iron

	Run 1	Run 2	Run 3	Average
Date	3/27/23	3/28/23	3/29/23	
Exhaust Gas Temperature (°F)	48.4	56.2	49.6	51.4
Exhaust Gas Velocity (m/s)	13.5	12.8	12.9	13.1
Exhaust Gas Flow Rate (dscf/m) (M29)	46,706	42,770	43,729	44,402
Exhaust Gas Flow Rate (dscf/m) (0061)	46,017	43,313	42,256	43,862
Sample Volume (dscf) (M29)	250.084	233.692	236.682	240.153
Sample Volume (dscf) (0061)	239.677	227.989	223.858	230.508
Total Metal Melted (tons)	5.978	6.083	5.980	6.014
Chromium/Melt (tons)	1.553	1.562	1.536	1.550
Manganese/Melt (tons)	0.060	0.063	0.061	0.061
Aluminum Emissions:	--	--	--	--
· lb/hr	2.97E-03	2.45E-03	2.34E-03	2.59E-03
· lb/ton	1.99E-03	1.61E-03	1.57E-03	1.72E-03
Antimony Emissions:	--	--	--	--
· lb/hr	< 1.89E-05	< 1.39E-05	< 1.45E-05	< 1.58E-05
· lb/ton	< 1.26E-05	< 9.13E-06	< 9.71E-06	< 1.05E-05
Arsenic Emissions:	--	--	--	--
· lb/hr	< 6.95E-05	< 6.68E-05	< 6.30E-05	< 6.64E-05
· lb/ton	< 4.65E-05	< 4.39E-05	< 4.21E-05	< 4.42E-05
Barium Emissions:	--	--	--	--
· lb/hr	6.09E-05	7.79E-05	2.86E-05	5.58E-05
· lb/ton	4.07E-05	5.12E-05	1.91E-05	3.70E-05
Beryllium Emissions:	--	--	--	--
· lb/hr	< 2.00E-06	< 1.76E-06	< 1.80E-06	< 1.86E-06
· lb/ton	< 1.34E-06	< 1.16E-06	< 1.21E-06	< 1.23E-06
Cadmium Emissions:	--	--	--	--
· lb/hr	< 3.97E-06	< 3.53E-06	< 3.61E-06	< 3.70E-06
· lb/ton	< 2.66E-06	< 2.32E-06	< 2.41E-06	< 2.46E-06
Chromium Emissions:	--	--	--	--
· lb/hr	4.92E-05	4.56E-05	1.32E-05	3.60E-05
· lb/ton	3.29E-05	3.00E-05	8.84E-06	2.39E-05
· lb/ton Cr melted	1.27E-04	1.17E-04	3.44E-05	9.26E-05
Hexavalent Chromium Emissions:	--	--	--	--
· lb/hr	< 1.42E-07	2.79E-07	9.23E-07	< 4.48E-07
· lb/ton melt	< 9.52E-08	1.84E-07	6.17E-07	< 2.99E-07
· lb/ton Cr melted	< 3.66E-07	7.16E-07	2.40E-06	< 1.16E-06
· % of total Chromium	0.29%	0.61%	6.98%	2.63%
Cobalt Emissions:	--	--	--	--
· lb/hr	< 3.08E-06	< 3.02E-06	< 3.05E-06	< 3.05E-06
· lb/ton	< 2.06E-06	< 1.99E-06	< 2.04E-06	< 2.03E-06

'<' denotes results calculated using the MDL for front half and/or back half results that were non-detect.

TABLE 2 Continued: Cooling Bunker Baghouse Exhaust – White Iron

	Run 1	Run 2	Run 3	Average
Copper Emissions:	--	--	--	--
· lb/hr	1.56E-04	1.31E-04	6.84E-05	1.18E-04
· lb/ton	1.04E-04	8.63E-05	4.58E-05	7.87E-05
Lead Emissions:	--	--	--	--
· lb/hr	< 9.40E-05	< 6.05E-05	< 4.50E-05	< 6.65E-05
· lb/ton	< 6.29E-05	< 3.98E-05	< 3.01E-05	< 4.43E-05
Manganese Emissions:	--	--	--	--
· lb/hr	1.29E-04	1.22E-04	3.12E-04	1.88E-04
· lb/ton	8.61E-05	8.04E-05	2.09E-04	1.25E-04
· lb/ton Mn melted	8.53E-03	7.71E-03	2.03E-02	1.22E-02
Mercury Emissions:	--	--	--	--
· lb/hr	< 2.26E-06	< 2.27E-06	< 2.34E-06	< 2.29E-06
· lb/ton	< 1.51E-06	< 1.49E-06	< 1.57E-06	< 1.52E-06
Nickel Emissions:	--	--	--	--
· lb/hr	1.45E-04	1.13E-04	3.28E-05	9.69E-05
· lb/ton	9.73E-05	7.40E-05	2.19E-05	6.44E-05
Phosphorus Emissions:	--	--	--	--
· lb/hr	< 7.54E-05	< 5.56E-05	< 5.80E-05	< 6.30E-05
· lb/ton	< 5.05E-05	< 3.65E-05	< 3.88E-05	< 4.19E-05
Selenium Emissions:	--	--	--	--
· lb/hr	< 1.49E-04	< 1.32E-04	< 1.35E-04	< 1.39E-04
· lb/ton	< 9.98E-05	< 8.69E-05	< 9.02E-05	< 9.23E-05
Silver Emissions:	--	--	--	--
· lb/hr	< 1.99E-05	< 1.76E-05	< 1.80E-05	< 1.85E-05
· lb/ton	< 1.33E-05	< 1.16E-05	< 1.20E-05	< 1.23E-05
Thallium Emissions:	--	--	--	--
· lb/hr	< 9.93E-05	< 8.82E-05	< 9.00E-05	< 9.25E-05
· lb/ton	< 6.65E-05	< 5.80E-05	< 6.02E-05	< 6.16E-05
Vanadium Emissions:	--	--	--	--
· lb/hr	< 9.93E-06	< 8.82E-06	< 9.00E-06	< 9.25E-06
· lb/ton	< 6.65E-06	< 5.80E-06	< 6.02E-06	< 6.16E-06
Zinc Emissions:	--	--	--	--
· lb/hr	5.25E-04	2.95E-04	9.28E-05	3.04E-04
· lb/ton	3.51E-04	1.94E-04	6.21E-05	2.03E-04

'<' denotes results calculated using the MDL for front half and/or back half results that were non-detect.

TABLE 3: Main Foundry Baghouse Inlet – White Iron

	Run 1	Run 2	Run 3	Average
Date	3/27/23	3/28/23	3/29/23	
Exhaust Gas Temperature (°F)	45.4	53.2	45.0	47.9
Exhaust Gas Flow Rate (dscf/m)	49,714	45,381	53,681	49,592
Sample Volume (dscf)	316.556	297.401	353.895	322.618
Total Metal Melted (tons)	5.978	6.083	5.980	6.014
Chromium/Melt (tons)	1.553	1.562	1.536	1.550
Manganese/Melt (tons)	0.060	0.063	0.061	0.061
Aluminum Emissions:	--	--	--	--
· lb/hr	1.08E-02	1.49E-02	9.86E-03	1.19E-02
· lb/ton	7.23E-03	9.81E-03	6.60E-03	7.88E-03
Antimony Emissions:	--	--	--	--
· lb/hr	< 2.90E-05	3.47E-05	< 1.69E-05	< 2.69E-05
· lb/ton	< 1.94E-05	2.28E-05	< 1.13E-05	< 1.78E-05
Arsenic Emissions:	--	--	--	--
· lb/hr	< 5.63E-05	< 5.25E-05	< 5.20E-05	< 5.36E-05
· lb/ton	< 3.77E-05	< 3.45E-05	< 3.48E-05	< 3.56E-05
Barium Emissions:	--	--	--	--
· lb/hr	1.07E-04	1.30E-04	8.60E-05	1.07E-04
· lb/ton	7.13E-05	8.54E-05	5.76E-05	7.14E-05
Beryllium Emissions:	--	--	--	--
· lb/hr	< 1.62E-06	< 1.49E-06	< 1.48E-06	< 1.53E-06
· lb/ton	< 1.08E-06	< 9.80E-07	< 9.91E-07	< 1.02E-06
Cadmium Emissions:	--	--	--	--
· lb/hr	1.39E-05	< 8.58E-06	9.25E-06	< 1.06E-05
· lb/ton	9.29E-06	< 5.64E-06	6.19E-06	< 7.04E-06
Chromium Emissions:	--	--	--	--
· lb/hr	8.40E-04	8.19E-04	5.80E-04	7.46E-04
· lb/ton	5.62E-04	5.39E-04	3.88E-04	4.96E-04
· lb/ton Cr melted	2.16E-03	2.10E-03	1.51E-03	1.92E-03
Cobalt Emissions:	--	--	--	--
· lb/hr	5.99E-06	< 5.78E-06	4.24E-06	< 5.34E-06
· lb/ton	4.01E-06	< 3.80E-06	2.84E-06	< 3.55E-06
Copper Emissions:	--	--	--	--
· lb/hr	4.01E-04	5.32E-04	6.11E-04	5.15E-04
· lb/ton	2.69E-04	3.50E-04	4.09E-04	3.42E-04
Lead Emissions:	--	--	--	--
· lb/hr	8.87E-04	< 8.42E-04	8.57E-04	< 8.62E-04
· lb/ton	5.94E-04	< 5.54E-04	5.73E-04	< 5.74E-04

'<' denotes results calculated using the MDL for front half and/or back half results that were non-detect.

TABLE 3 Continued: Main Foundry Baghouse Inlet – White Iron

	Run 1	Run 2	Run 3	Average
Manganese Emissions:	--	--	--	--
· lb/hr	5.89E-03	1.05E-02	9.31E-03	8.56E-03
· lb/ton	3.94E-03	6.90E-03	6.23E-03	5.69E-03
· lb/ton Mn melted	3.90E-01	6.61E-01	6.06E-01	5.53E-01
Mercury Emissions:	--	--	--	--
· lb/hr	< 6.53E-07	< 7.45E-08	0.00E+00	< 2.42E-07
· lb/ton	< 4.37E-07	< 4.90E-08	0.00E+00	< 1.62E-07
Nickel Emissions:	--	--	--	--
· lb/hr	< 1.98E-04	< 1.31E-04	< 2.18E-04	< 1.82E-04
· lb/ton	< 1.33E-04	< 8.62E-05	< 1.46E-04	< 1.22E-04
Phosphorus Emissions:	--	--	--	--
· lb/hr	2.56E-04	< 3.41E-04	< 2.02E-04	< 2.66E-04
· lb/ton	1.71E-04	< 2.24E-04	< 1.35E-04	< 1.77E-04
Selenium Emissions:	--	--	--	--
· lb/hr	< 1.21E-04	< 1.12E-04	< 1.12E-04	< 1.15E-04
· lb/ton	< 8.07E-05	< 7.39E-05	< 7.46E-05	< 7.64E-05
Silver Emissions:	--	--	--	--
· lb/hr	< 4.78E-05	< 4.96E-05	< 5.41E-05	< 5.05E-05
· lb/ton	< 3.20E-05	< 3.26E-05	< 3.62E-05	< 3.36E-05
Thallium Emissions:	--	--	--	--
· lb/hr	< 8.04E-05	< 7.49E-05	< 7.43E-05	< 7.65E-05
· lb/ton	< 5.38E-05	< 4.93E-05	< 4.97E-05	< 5.09E-05
Vanadium Emissions:	--	--	--	--
· lb/hr	< 1.61E-05	< 1.28E-05	< 1.09E-05	< 1.33E-05
· lb/ton	< 1.08E-05	< 8.44E-06	< 7.27E-06	< 8.82E-06
Zinc Emissions:	--	--	--	--
· lb/hr	9.60E-03	8.01E-03	1.16E-02	9.73E-03
· lb/ton	6.43E-03	5.27E-03	7.75E-03	6.48E-03

'<' denotes results calculated using the MDL for front half and/or back half results that were non-detect.

TABLE 4: Cooling Bunker Baghouse Inlet – White Iron

	Run 1	Run 2	Run 3	Average
Date	3/27/23	3/28/23	3/29/23	
Exhaust Gas Temperature (°F)	42.9	52.4	44.3	46.5
Exhaust Gas Flow Rate (dscf/m)	44,687	41,884	48,602	45,058
Sample Volume (dscf)	292.607	274.574	318.950	295.377
Total Metal Melted (tons)	5.978	6.083	5.980	6.014
Chromium/Melt (tons)	1.553	1.562	1.536	1.550
Manganese/Melt (tons)	0.060	0.063	0.061	0.061
Aluminum Emissions:	--	--	--	--
· lb/hr	1.18E-02	6.89E-02	3.75E-02	3.94E-02
· lb/ton	7.93E-03	4.53E-02	2.51E-02	2.61E-02
Antimony Emissions:	--	--	--	--
· lb/hr	< 1.20E-05	< 1.46E-05	< 1.28E-05	< 1.31E-05
· lb/ton	< 8.03E-06	< 9.60E-06	< 8.54E-06	< 8.72E-06
Arsenic Emissions:	--	--	--	--
· lb/hr	< 5.21E-05	< 5.58E-05	< 5.31E-05	< 5.36E-05
· lb/ton	< 3.48E-05	< 3.67E-05	< 3.55E-05	< 3.57E-05
Barium Emissions:	--	--	--	--
· lb/hr	1.16E-04	3.18E-04	2.12E-04	2.16E-04
· lb/ton	7.78E-05	2.09E-04	1.42E-04	1.43E-04
Beryllium Emissions:	--	--	--	--
· lb/hr	< 1.49E-06	< 2.07E-06	< 1.51E-06	< 1.69E-06
· lb/ton	< 9.98E-07	< 1.36E-06	< 1.01E-06	< 1.12E-06
Cadmium Emissions:	--	--	--	--
· lb/hr	3.88E-05	< 7.97E-06	< 8.25E-06	< 1.83E-05
· lb/ton	2.60E-05	< 5.24E-06	< 5.52E-06	< 1.22E-05
Chromium Emissions:	--	--	--	--
· lb/hr	6.00E-04	7.52E-04	5.19E-04	6.24E-04
· lb/ton	4.01E-04	4.95E-04	3.47E-04	4.14E-04
· lb/ton Cr melted	1.54E-03	1.93E-03	1.35E-03	1.61E-03
Cobalt Emissions:	--	--	--	--
· lb/hr	4.27E-06	9.16E-06	< 5.91E-06	< 6.45E-06
· lb/ton	2.86E-06	6.02E-06	< 3.96E-06	< 4.28E-06
Copper Emissions:	--	--	--	--
· lb/hr	2.88E-04	5.32E-04	5.23E-04	4.48E-04
· lb/ton	1.93E-04	3.50E-04	3.50E-04	2.98E-04
Lead Emissions:	--	--	--	--
· lb/hr	4.98E-04	< 3.99E-04	< 3.69E-04	< 4.22E-04
· lb/ton	3.33E-04	< 2.62E-04	< 2.47E-04	< 2.81E-04

'<' denotes results calculated using the MDL for front half and/or back half results that were non-detect.

TABLE 4 Continued: Cooling Bunker Baghouse Inlet – White Iron

	Run 1	Run 2	Run 3	Average
Manganese Emissions:	--	--	--	--
· lb/hr	2.69E-03	8.70E-03	8.38E-03	6.59E-03
· lb/ton	1.80E-03	5.72E-03	5.61E-03	4.37E-03
· lb/ton Mn melted	1.78E-01	5.48E-01	5.46E-01	4.24E-01
Mercury Emissions:	--	--	--	--
· lb/hr	< 1.23E-06	< 1.89E-06	< 1.49E-06	< 1.54E-06
· lb/ton	< 8.23E-07	< 1.24E-06	< 1.00E-06	< 1.02E-06
Nickel Emissions:	--	--	--	--
· lb/hr	9.25E-05	2.20E-04	1.45E-04	1.52E-04
· lb/ton	6.19E-05	1.44E-04	9.72E-05	1.01E-04
Phosphorus Emissions:	--	--	--	--
· lb/hr	< 1.99E-04	< 7.87E-04	< 5.82E-04	< 5.22E-04
· lb/ton	< 1.33E-04	< 5.17E-04	< 3.89E-04	< 3.46E-04
Selenium Emissions:	--	--	--	--
· lb/hr	< 1.11E-04	< 1.19E-04	< 1.14E-04	< 1.15E-04
· lb/ton	< 7.46E-05	< 7.85E-05	< 7.60E-05	< 7.64E-05
Silver Emissions:	--	--	--	--
· lb/hr	< 2.82E-05	< 2.93E-05	< 2.72E-05	< 2.82E-05
· lb/ton	< 1.89E-05	< 1.92E-05	< 1.82E-05	< 1.88E-05
Thallium Emissions:	--	--	--	--
· lb/hr	< 7.44E-05	< 7.95E-05	< 7.58E-05	< 7.66E-05
· lb/ton	< 4.98E-05	< 5.23E-05	< 5.07E-05	< 5.09E-05
Vanadium Emissions:	--	--	--	--
· lb/hr	< 9.49E-06	< 4.48E-05	< 3.01E-05	< 2.81E-05
· lb/ton	< 6.35E-06	< 2.95E-05	< 2.01E-05	< 1.87E-05
Zinc Emissions:	--	--	--	--
· lb/hr	3.88E-03	3.91E-03	5.33E-03	4.37E-03
· lb/ton	2.60E-03	2.57E-03	3.57E-03	2.91E-03

'<' denotes results calculated using the MDL for front half and/or back half results that were non-detect.

TABLE 5: Main Foundry Baghouse Exhaust – Manganese Steel

	Run 1	Run 2	Run 3	Average
Date	3/27/2023	3/28/2023	3/29/2023	
Exhaust Gas Temperature (°F)	62.6	57.7	59.6	60.0
Exhaust Gas Velocity (m/s)	13.7	13.9	13.5	13.7
Exhaust Gas Flow Rate (dscf/m) (M29)	54,841	55,180	53,473	54,498
Exhaust Gas Flow Rate (dscf/m) (0061)	54,064	54,509	52,716	53,763
Sample Volume (dscf) (M29)	254.573	256.754	250.476	253.935
Sample Volume (dscf) (0061)	241.415	241.935	234.338	239.230
Total Metal Melted (tons)	6.101	6.101	6.039	6.080
Chromium/Melt (tons)	0.105	0.101	0.101	0.102
Manganese/Melt (tons)	0.417	0.417	0.411	0.415
Nickel/Melt (tons)	0.037	0.035	0.035	0.036
Aluminum Emissions:	--	--	--	--
· lb/hr	3.04E-03	2.70E-03	2.55E-03	2.76E-03
· lb/ton	2.07E-03	1.84E-03	1.76E-03	1.89E-03
Antimony Emissions:	--	--	--	--
· lb/hr	< 1.85E-05	< 2.71E-05	< 2.47E-05	< 2.34E-05
· lb/ton	< 1.26E-05	< 1.85E-05	< 1.70E-05	< 1.60E-05
Arsenic Emissions:	--	--	--	--
· lb/hr	< 8.90E-05	< 8.07E-05	< 9.34E-05	< 8.77E-05
· lb/ton	< 6.08E-05	< 5.51E-05	< 6.45E-05	< 6.01E-05
Barium Emissions:	--	--	--	--
· lb/hr	1.94E-04	1.83E-04	1.86E-04	1.88E-04
· lb/ton	1.32E-04	1.25E-04	1.28E-04	1.29E-04
Beryllium Emissions:	--	--	--	--
· lb/hr	< 2.10E-06	< 2.07E-06	< 2.06E-06	< 2.08E-06
· lb/ton	< 1.44E-06	< 1.41E-06	< 1.42E-06	< 1.42E-06
Cadmium Emissions:	--	--	--	--
· lb/hr	< 1.75E-05	< 1.13E-05	5.38E-06	< 1.14E-05
· lb/ton	< 1.19E-05	< 7.71E-06	3.71E-06	< 7.78E-06
Chromium Emissions:	--	--	--	--
· lb/hr	1.17E-04	8.80E-05	4.89E-05	8.46E-05
· lb/ton	7.98E-05	6.01E-05	3.37E-05	5.79E-05
· lb/ton Cr melted	4.64E-03	3.64E-03	2.02E-03	3.43E-03
Hexavalent Chromium Emissions:	--	--	--	--
· lb/hr	3.64E-07	2.00E-07	4.06E-07	3.24E-07
· lb/ton	2.49E-07	1.37E-07	2.80E-07	2.22E-07
· lb/ton Cr melted	1.45E-05	8.27E-06	1.68E-05	1.32E-05
· % of total Chromium	0.31%	0.23%	0.83%	0.46%
Cobalt Emissions:	--	--	--	--
· lb/hr	< 3.55E-06	< 3.55E-06	< 3.52E-06	< 3.54E-06
· lb/ton	< 2.43E-06	< 2.42E-06	< 2.43E-06	< 2.43E-06

'<' denotes results calculated using the MDL for front half and/or back half results that were non-detect.

TABLE 5 Continued: Main Foundry Baghouse Exhaust – Manganese Steel

	Run 1	Run 2	Run 3	Average
Copper Emissions:	--	--	--	--
· lb/hr	1.36E-04	1.43E-04	< 6.96E-05	< 1.16E-04
· lb/ton	9.28E-05	9.78E-05	< 4.80E-05	< 7.96E-05
Lead Emissions:	--	--	--	--
· lb/hr	5.26E-05	< 5.18E-05	5.14E-05	< 5.19E-05
· lb/ton	3.59E-05	< 3.54E-05	3.55E-05	< 3.56E-05
Manganese Emissions:	--	--	--	--
· lb/hr	3.88E-04	4.90E-04	3.52E-04	4.10E-04
· lb/ton	2.65E-04	3.34E-04	2.43E-04	2.81E-04
· lb/ton Mn melted	3.87E-03	4.89E-03	3.57E-03	4.11E-03
Mercury Emissions:	--	--	--	--
· lb/hr	< 5.32E-06	< 7.46E-06	< 5.46E-06	< 6.08E-06
· lb/ton	< 3.63E-06	< 5.10E-06	< 3.76E-06	< 4.16E-06
Nickel Emissions:	--	--	--	--
· lb/hr	< 1.93E-04	2.66E-04	< 4.89E-05	< 1.70E-04
· lb/ton	< 1.32E-04	1.82E-04	< 3.37E-05	< 1.16E-04
· lb/ton Ni melted	< 2.17E-02	3.15E-02	< 5.86E-03	< 1.97E-02
Phosphorus Emissions:	--	--	--	--
· lb/hr	3.66E-04	< 2.52E-04	< 3.18E-04	< 3.12E-04
· lb/ton	2.50E-04	< 1.72E-04	< 2.19E-04	< 2.14E-04
Selenium Emissions:	--	--	--	--
· lb/hr	< 1.58E-04	< 1.55E-04	< 1.54E-04	< 1.56E-04
· lb/ton	< 1.08E-04	< 1.06E-04	< 1.06E-04	< 1.07E-04
Silver Emissions:	--	--	--	--
· lb/hr	< 2.41E-05	< 2.07E-05	< 2.06E-05	< 2.18E-05
· lb/ton	< 1.65E-05	< 1.41E-05	< 1.42E-05	< 1.49E-05
Thallium Emissions:	--	--	--	--
· lb/hr	< 1.05E-04	< 1.04E-04	< 1.03E-04	< 1.04E-04
· lb/ton	< 7.19E-05	< 7.07E-05	< 7.10E-05	< 7.12E-05
Vanadium Emissions:	--	--	--	--
· lb/hr	< 1.05E-05	< 1.04E-05	< 1.03E-05	< 1.04E-05
· lb/ton	< 7.19E-06	< 7.07E-06	< 7.10E-06	< 7.12E-06
Zinc Emissions:	--	--	--	--
· lb/hr	4.59E-04	2.58E-04	2.32E-04	3.17E-04
· lb/ton	3.14E-04	1.76E-04	1.60E-04	2.17E-04

'<' denotes results calculated using the MDL for front half and/or back half results that were non-detect.

TABLE 6: Cooling Bunker Baghouse Exhaust – Manganese Steel

	Run 1	Run 2	Run 3	Average
Date	3/27/2023	3/28/2023	3/29/2023	
Exhaust Gas Temperature (°F)	69.2	65.4	66.3	67.0
Exhaust Gas Velocity (m/s)	12.7	12.5	12.7	12.7
Exhaust Gas Flow Rate (dscf/m) (M29)	42,269	41,014	41,470	41,584
Exhaust Gas Flow Rate (dscf/m) (0061)	42,973	43,619	40,922	42,505
Sample Volume (dscf) (M29)	241.318	233.771	237.319	237.469
Sample Volume (dscf) (0061)	235.729	239.564	224.174	233.156
Total Metal Melted (tons)	6.101	6.101	6.039	6.080
Chromium/Melt (tons)	0.105	0.101	0.101	0.102
Manganese/Melt (tons)	0.417	0.417	0.411	0.415
Nickel/Melt (tons)	0.037	0.035	0.035	0.036
Aluminum Emissions:	--	--	--	--
· lb/hr	1.70E-03	2.38E-03	2.25E-03	2.11E-03
· lb/ton	1.16E-03	1.63E-03	1.55E-03	1.45E-03
Antimony Emissions:	--	--	--	--
· lb/hr	< 2.88E-05	< 2.28E-05	< 1.33E-05	< 2.16E-05
· lb/ton	< 1.97E-05	< 1.56E-05	< 9.15E-06	< 1.48E-05
Arsenic Emissions:	--	--	--	--
· lb/hr	< 7.91E-05	< 7.91E-05	< 7.95E-05	< 7.92E-05
· lb/ton	< 5.40E-05	< 5.40E-05	< 5.48E-05	< 5.43E-05
Barium Emissions:	--	--	--	--
· lb/hr	4.21E-05	9.37E-05	7.24E-05	6.94E-05
· lb/ton	2.88E-05	6.40E-05	4.99E-05	4.76E-05
Beryllium Emissions:	--	--	--	--
· lb/hr	< 1.69E-06	< 1.69E-06	< 1.68E-06	< 1.69E-06
· lb/ton	< 1.15E-06	< 1.15E-06	< 1.16E-06	< 1.16E-06
Cadmium Emissions:	--	--	--	--
· lb/hr	< 4.51E-06	< 5.58E-06	< 3.67E-06	< 4.59E-06
· lb/ton	< 3.08E-06	< 3.81E-06	< 2.53E-06	< 3.14E-06
Chromium Emissions:	--	--	--	--
· lb/hr	3.09E-05	2.21E-05	1.63E-05	2.31E-05
· lb/ton	2.11E-05	1.51E-05	1.12E-05	1.58E-05
· lb/ton Cr melted	1.23E-03	9.13E-04	6.73E-04	9.38E-04
Hexavalent Chromium Emissions:				
· lb/hr	7.00E-07	5.51E-07	1.32E-07	4.61E-07
· lb/ton	4.78E-07	3.79E-07	9.10E-08	3.15E-07
· lb/ton Cr melted	2.78E-05	2.28E-05	5.45E-06	1.87E-05
· % of total Chromium	2.27%	2.50%	0.81%	1.86%
Cobalt Emissions:	--	--	--	--
· lb/hr	< 2.89E-06	< 2.89E-06	< 2.88E-06	< 2.89E-06
· lb/ton	< 1.97E-06	< 1.98E-06	< 1.99E-06	< 1.98E-06

'<' denotes results calculated using the MDL for front half and/or back half results that were non-detect.

TABLE 6 Continued: Cooling Bunker Baghouse Exhaust – Manganese Steel

	Run 1	Run 2	Run 3	Average
Copper Emissions:	--	--	--	--
· lb/hr	< 4.73E-05	1.01E-04	< 1.76E-04	< 1.08E-04
· lb/ton	< 3.23E-05	6.86E-05	< 1.22E-04	< 7.42E-05
Lead Emissions:	--	--	--	--
· lb/hr	< 4.48E-05	6.79E-05	< 4.78E-05	< 5.35E-05
· lb/ton	< 3.06E-05	4.63E-05	< 3.30E-05	< 3.66E-05
Manganese Emissions:	--	--	--	--
· lb/hr	1.20E-04	1.42E-04	3.92E-04	2.18E-04
· lb/ton	8.18E-05	9.67E-05	2.71E-04	1.50E-04
· lb/ton Mn melted	1.20E-03	1.41E-03	3.97E-03	2.20E-03
Mercury Emissions:	--	--	--	--
· lb/hr	< 5.72E-06	< 2.87E-06	< 4.18E-06	< 4.26E-06
· lb/ton	< 3.91E-06	< 1.96E-06	< 2.88E-06	< 2.92E-06
Nickel Emissions:	--	--	--	--
· lb/hr	2.72E-05	8.41E-05	4.13E-05	5.08E-05
· lb/ton	1.86E-05	5.74E-05	2.85E-05	3.48E-05
· lb/ton Ni melted	3.05E-03	9.94E-03	4.95E-03	5.98E-03
Phosphorus Emissions:	--	--	--	--
· lb/hr	< 2.50E-04	< 2.59E-04	< 2.53E-04	< 2.54E-04
· lb/ton	< 1.71E-04	< 1.77E-04	< 1.75E-04	< 1.74E-04
Selenium Emissions:	--	--	--	--
· lb/hr	< 1.26E-04	< 1.27E-04	< 1.26E-04	< 1.26E-04
· lb/ton	< 8.61E-05	< 8.65E-05	< 8.71E-05	< 8.65E-05
Silver Emissions:	--	--	--	--
· lb/hr	< 1.68E-05	< 1.69E-05	< 1.68E-05	< 1.68E-05
· lb/ton	< 1.15E-05	< 1.15E-05	< 1.16E-05	< 1.15E-05
Thallium Emissions:	--	--	--	--
· lb/hr	< 8.39E-05	< 8.45E-05	< 8.42E-05	< 8.42E-05
· lb/ton	< 5.73E-05	< 5.77E-05	< 5.81E-05	< 5.77E-05
Vanadium Emissions:	--	--	--	--
· lb/hr	< 8.39E-06	< 8.45E-06	< 8.42E-06	< 8.42E-06
· lb/ton	< 5.73E-06	< 5.77E-06	< 5.81E-06	< 5.77E-06
Zinc Emissions:	--	--	--	--
· lb/hr	3.45E-04	3.53E-04	2.51E-04	3.16E-04
· lb/ton	2.36E-04	2.41E-04	1.73E-04	2.17E-04

'<' denotes results calculated using the MDL for front half and/or back half results that were non-detect.

TABLE 7: Main Foundry Baghouse Inlet – Manganese Steel

	Run 1	Run 2	Run 3	Average
Date	3/27/2023	3/28/2023	3/29/2023	
Exhaust Gas Temperature (°F)	60.8	56.8	56.5	58.0
Exhaust Gas Flow Rate (dscf/m)	45,161	44,481	48,655	46,099
Sample Volume (dscf)	299.334	305.504	333.170	312.669
Total Metal Melted (tons)	6.101	6.101	6.039	6.080
Chromium/Melt (tons)	0.105	0.101	0.101	0.102
Manganese/Melt (tons)	0.417	0.417	0.411	0.415
Nickel/Melt (tons)	0.037	0.035	0.035	0.036
Aluminum Emissions:	--	--	--	--
· lb/hr	3.33E-02	2.47E-02	2.43E-02	2.74E-02
· lb/ton	2.27E-02	1.69E-02	1.68E-02	1.88E-02
Antimony Emissions:	--	--	--	--
· lb/hr	7.15E-05	< 1.58E-05	6.19E-05	< 4.97E-05
· lb/ton	4.88E-05	< 1.08E-05	4.27E-05	< 3.41E-05
Arsenic Emissions:	--	--	--	--
· lb/hr	< 1.93E-04	< 1.85E-04	< 1.85E-04	< 1.88E-04
· lb/ton	< 1.32E-04	< 1.26E-04	< 1.27E-04	< 1.29E-04
Barium Emissions:	--	--	--	--
· lb/hr	2.55E-04	2.20E-04	2.13E-04	2.29E-04
· lb/ton	1.74E-04	1.50E-04	1.47E-04	1.57E-04
Beryllium Emissions:	--	--	--	--
· lb/hr	< 1.91E-06	< 1.48E-06	< 1.43E-06	< 1.61E-06
· lb/ton	< 1.31E-06	< 1.01E-06	< 9.84E-07	< 1.10E-06
Cadmium Emissions:	--	--	--	--
· lb/hr	3.69E-05	3.02E-05	3.72E-05	3.48E-05
· lb/ton	2.52E-05	2.06E-05	2.57E-05	2.38E-05
Chromium Emissions:	--	--	--	--
· lb/hr	2.16E-03	1.76E-03	1.58E-03	1.83E-03
· lb/ton	1.47E-03	1.20E-03	1.09E-03	1.26E-03
· lb/ton Cr melted	8.57E-02	7.29E-02	6.54E-02	7.47E-02
Cobalt Emissions:	--	--	--	--
· lb/hr	8.76E-06	6.82E-06	8.10E-06	7.89E-06
· lb/ton	5.98E-06	4.66E-06	5.59E-06	5.41E-06
Copper Emissions:	--	--	--	--
· lb/hr	< 1.20E-03	1.01E-03	1.10E-03	< 1.10E-03
· lb/ton	< 8.17E-04	6.92E-04	7.58E-04	< 7.56E-04
Lead Emissions:	--	--	--	--
· lb/hr	< 2.70E-03	< 2.80E-03	< 2.42E-03	< 2.64E-03
· lb/ton	< 1.85E-03	< 1.91E-03	< 1.67E-03	< 1.81E-03

'<' denotes results calculated using the MDL for front half and/or back half results that were non-detect.

TABLE 7 Continued: Main Foundry Baghouse Inlet – Manganese Steel

	Run 1	Run 2	Run 3	Average
Manganese Emissions:	--	--	--	--
· lb/hr	1.15E-01	1.28E-01	1.03E-01	1.16E-01
· lb/ton	7.89E-02	8.76E-02	7.11E-02	7.92E-02
· lb/ton Mn melted	1.15E+00	1.28E+00	1.04E+00	1.16E+00
Mercury Emissions:	--	--	--	--
· lb/hr	< 5.01E-06	< 2.62E-06	< 3.14E-06	< 3.59E-06
· lb/ton	< 3.42E-06	< 1.79E-06	< 2.17E-06	< 2.46E-06
Nickel Emissions:	--	--	--	--
· lb/hr	< 1.62E-04	1.85E-04	2.11E-04	< 1.86E-04
· lb/ton	< 1.11E-04	1.27E-04	1.46E-04	< 1.28E-04
· lb/ton Ni melted	< 1.82E-02	2.19E-02	2.53E-02	< 2.18E-02
Phosphorus Emissions:	--	--	--	--
· lb/hr	< 7.53E-04	< 7.54E-04	< 7.50E-04	< 7.52E-04
· lb/ton	< 5.14E-04	< 5.15E-04	< 5.18E-04	< 5.16E-04
Selenium Emissions:	--	--	--	--
· lb/hr	< 1.15E-04	< 1.10E-04	< 1.06E-04	< 1.11E-04
· lb/ton	< 7.88E-05	< 7.53E-05	< 7.34E-05	< 7.58E-05
Silver Emissions:	--	--	--	--
· lb/hr	< 5.38E-05	< 3.49E-05	< 3.96E-05	< 4.28E-05
· lb/ton	< 3.68E-05	< 2.39E-05	< 2.73E-05	< 2.93E-05
Thallium Emissions:	--	--	--	--
· lb/hr	< 7.69E-05	< 7.19E-05	< 7.09E-05	< 7.32E-05
· lb/ton	< 5.25E-05	< 4.91E-05	< 4.89E-05	< 5.02E-05
Vanadium Emissions:	--	--	--	--
· lb/hr	< 1.57E-05	< 1.14E-05	< 8.77E-06	< 1.20E-05
· lb/ton	< 1.07E-05	< 7.81E-06	< 6.05E-06	< 8.20E-06
Zinc Emissions:	--	--	--	--
· lb/hr	2.24E-02	2.00E-02	1.69E-02	1.98E-02
· lb/ton	1.53E-02	1.37E-02	1.17E-02	1.36E-02

'<' denotes results calculated using the MDL for front half and/or back half results that were non-detect.

TABLE 8: Cooling Bunker Baghouse Inlet – Manganese Steel

	Run 1	Run 2	Run 3	Average
Date	3/27/2023	3/28/2023	3/29/2023	
Exhaust Gas Temperature (°F)	65.0	61.0	60.6	62.2
Exhaust Gas Flow Rate (dscf/m)	43,333	39,985	43,254	42,191
Sample Volume (dscf)	291.102	274.536	295.934	287.191
Total Metal Melted (tons)	6.101	6.101	6.039	6.080
Chromium/Melt (tons)	0.105	0.101	0.101	0.102
Manganese/Melt (tons)	0.417	0.417	0.411	0.415
Nickel/Melt (tons)	0.037	0.035	0.035	0.036
Aluminum Emissions:	--	--	--	--
· lb/hr	6.17E-02	1.05E-01	1.09E-01	9.18E-02
· lb/ton	4.21E-02	7.15E-02	7.52E-02	6.30E-02
Antimony Emissions:	--	--	--	--
· lb/hr	< 1.99E-05	< 4.34E-05	< 4.53E-05	< 3.62E-05
· lb/ton	< 1.36E-05	< 2.96E-05	< 3.13E-05	< 2.48E-05
Arsenic Emissions:	--	--	--	--
· lb/hr	< 1.98E-04	< 2.60E-04	< 3.28E-04	< 2.62E-04
· lb/ton	< 1.35E-04	< 1.78E-04	< 2.26E-04	< 1.80E-04
Barium Emissions:	--	--	--	--
· lb/hr	3.37E-04	5.80E-04	5.50E-04	4.89E-04
· lb/ton	2.30E-04	3.96E-04	3.79E-04	3.35E-04
Beryllium Emissions:	--	--	--	--
· lb/hr	< 1.93E-06	< 2.58E-06	< 2.47E-06	< 2.32E-06
· lb/ton	< 1.32E-06	< 1.76E-06	< 1.70E-06	< 1.59E-06
Cadmium Emissions:	--	--	--	--
· lb/hr	7.25E-05	3.17E-05	1.87E-05	4.10E-05
· lb/ton	4.95E-05	2.17E-05	1.29E-05	2.80E-05
Chromium Emissions:	--	--	--	--
· lb/hr	1.47E-03	1.02E-03	9.31E-04	1.14E-03
· lb/ton	1.00E-03	6.95E-04	6.42E-04	7.80E-04
· lb/ton Cr melted	5.83E-02	4.21E-02	3.85E-02	4.63E-02
Cobalt Emissions:	--	--	--	--
· lb/hr	7.94E-06	1.10E-05	9.28E-06	9.40E-06
· lb/ton	5.42E-06	7.50E-06	6.40E-06	6.44E-06
Copper Emissions:	--	--	--	--
· lb/hr	6.06E-04	9.07E-04	< 9.97E-04	< 8.37E-04
· lb/ton	4.14E-04	6.19E-04	< 6.88E-04	< 5.74E-04
Lead Emissions:	--	--	--	--
· lb/hr	7.39E-04	< 8.57E-04	9.05E-04	< 8.34E-04
· lb/ton	5.05E-04	< 5.86E-04	6.24E-04	< 5.72E-04

'<' denotes results calculated using the MDL for front half and/or back half results that were non-detect.

TABLE 8 Continued: Cooling Bunker Baghouse Inlet – Manganese Steel

	Run 1	Run 2	Run 3	Average
Manganese Emissions:	--	--	--	--
· lb/hr	5.07E-02	4.14E-02	4.06E-02	4.42E-02
· lb/ton	3.46E-02	2.83E-02	2.80E-02	3.03E-02
· lb/ton Mn melted	5.07E-01	4.13E-01	4.11E-01	4.44E-01
Mercury Emissions:	--	--	--	--
· lb/hr	< 2.69E-06	< 2.16E-06	< 3.46E-06	< 2.77E-06
· lb/ton	< 1.84E-06	< 1.47E-06	< 2.39E-06	< 1.90E-06
Nickel Emissions:	--	--	--	--
· lb/hr	1.29E-04	1.55E-04	1.48E-04	1.44E-04
· lb/ton	8.82E-05	1.06E-04	1.02E-04	9.88E-05
· lb/ton Ni melted	1.45E-02	1.83E-02	1.78E-02	1.69E-02
Phosphorus Emissions:	--	--	--	--
· lb/hr	8.28E-04	< 1.07E-03	< 1.39E-03	< 1.09E-03
· lb/ton	5.65E-04	< 7.29E-04	< 9.56E-04	< 7.50E-04
Selenium Emissions:	--	--	--	--
· lb/hr	< 1.09E-04	< 1.06E-04	< 1.06E-04	< 1.07E-04
· lb/ton	< 7.42E-05	< 7.27E-05	< 7.31E-05	< 7.33E-05
Silver Emissions:	--	--	--	--
· lb/hr	< 6.99E-05	< 4.32E-05	< 3.94E-05	< 5.08E-05
· lb/ton	< 4.77E-05	< 2.95E-05	< 2.72E-05	< 3.48E-05
Thallium Emissions:	--	--	--	--
· lb/hr	< 7.25E-05	< 7.09E-05	< 7.06E-05	< 7.14E-05
· lb/ton	< 4.95E-05	< 4.85E-05	< 4.87E-05	< 4.89E-05
Vanadium Emissions:	--	--	--	--
· lb/hr	< 2.43E-05	< 4.05E-05	< 3.87E-05	< 3.45E-05
· lb/ton	< 1.66E-05	< 2.77E-05	< 2.67E-05	< 2.37E-05
Zinc Emissions:	--	--	--	--
· lb/hr	7.12E-03	7.04E-03	8.25E-03	7.47E-03
· lb/ton	4.86E-03	4.81E-03	5.69E-03	5.12E-03

'<' denotes results calculated using the MDL for front half and/or back half results that were non-detect.

TABLE 9: EPA Method 204 Criteria for Permanent Total Enclosure

Method Section Requirement	Results	Pass/Fail
5.1 Any NDO shall be at least four equivalent opening diameters from each emitting point	≥ 4.2	Pass
5.3 Total area of all NDO's shall not exceed 5 percent of the surface area of the enclosure's four walls, floor and ceiling	0.4%	Pass
5.4 The facial velocity shall be at least 200 fpm (0.007 "H ₂ O). The direction of air flow through all NDO's shall be into the enclosure	0.0071 – 0.1160 Inward	Pass Pass
5.5 All access doors and windows not included in section 5.3 and 5.4 shall be closed during routine operation	Closed	Pass