

LRF #1 & 2 Emissions Test Report

Prepared for:

Severstal Dearborn, LLC

Dearborn, Michigan

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Executive Summary

BT Environmental Consulting, Inc. (BTEC) was retained by Severstal Dearborn, LLC (Severstal) to evaluate air pollutant emission rates from the two Ladle Refining Facilities (LRF 1 & 2) at the Severstal facility located in Dearborn, Michigan. The test project consisted of evaluating exhaust gas flowrates, filterable particulate matter (PM), and manganese emissions. Testing for this project was conducted from August 20th through August 22nd, 2013.

The test program consisted of six tests at each LRF stack, approximately 96 minutes in duration, while the ladle refining facilities were operating under normal conditions. Sampling was performed utilizing United States Environmental Protection Agency (USEPA) reference test methods. The average results of the emissions test program are summarized by Table 1.

Test Demonstra	LI	RF #1	LRF #2		
Test Parameter	Limit	Results	Limit	Results	
Filterable Particulate Matter (PM)	6.8 lb/hr	0.72 lb/hr	3.87 lb/hr	0.49 lb/hr	
Filterable Particulate Matter (PM)	0.005 gr/dscf	0.001 gr/dscf	0.005 gr/dscf	0.001 gr/dscf	
Total Manganese (Mn) ¹	NA	5.91 x 10 ⁻³ lb/hr	NA	4.84 x 10 ⁻³ lb/hr	
Total Manganese (Mn) ¹	NA	9.21 x 10 ⁻⁶ gr/dscf	NA	9.42 x 10 ⁻⁶ gr/dscf	

Table 1Overall Emission Summary

¹ Please note that despite high values being determined for manganese in the front half of the full field blanks conducted at each of the LRF stacks, the values presented in Table 1 represent uncorrected test run results



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Figure 2 – LRF #2 Baghouse Exhaust Stack Traverse Point Diagram

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APPENDICES

- Appendix A Field and Computer Generated Raw Data and Field Notes
- Appendix B Equipment Calibration Data
- Appendix C Example Calculations

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1.0 Introduction

BT Environmental Consulting, Inc. (BTEC) was retained by Severstal Dearborn, LLC (Severstal) to evaluate air pollutant emission rates from the two (2) exhaust stacks associated with the Ladle Refining Facilities (LRF 1 & 2) at the Severstal facility located in Dearborn, Michigan. The test project consisted of evaluating exhaust gas flowrates, filterable particulate matter (PM) and Manganese emission rates. Testing for this project was conducted from August 20th through August 22nd, 2013.

The following BTEC professionals participated in conducting this study: Ken Lievense, Matthew Young and Todd Wessel, Project Managers; and Paul Molenda and Paul Diaper, Environmental Technicians. Mr. Thomas Maza with the Michigan Department of Environmental Quality was onsite to witness the test program.

The purpose of the project was to evaluate the exhaust gas flow rates, PM concentrations, manganese concentrations and calculate the resultant emission rates from two independent exhaust stacks. The emissions data will be utilized for compliance and engineering purposes. Mr. Ted Bishop, and Mr. James Earl with Severstal's Environmental Engineering department, provided the on-site coordination for this project.

2.0 Process Description

The purpose of the LRFs is to prepare the steel for casting through final temperature and chemistry adjustments. The LRFs receive molten steel from the basic oxygen furnace (BOF). The steel is reheated by electricity and, if necessary, manganese or other alloys are added to achieve the required alloy composition. Emissions from LRFs are controlled by their own individual pulse-jet baghouses, each equipped with a bag leak detection system that continuously monitors the particulate matter loading in the exhaust to ensure proper operation.

3.0 Sampling and Analytical Methodologies

Sampling and analytical methodologies for the emissions test program can be separated into two categories as follows:

- (1) Measurement of exhaust gas velocity, molecular weight, and moisture content; and,
- (2) Measurement of filterable particulate matter and Manganese using Methods 5 and 29.

Descriptions of sampling and analytical methodologies by category are summarized by Sections 3.1 through 3.2, respectively.

3.1 Exhaust Gas Velocity, Molecular Weight, and Moisture Content

Measurement of exhaust gas velocity, molecular weight, and moisture content were conducted using the following reference test methods codified at 40 CFR 60, Appendix A:

Method 1 - "Location of the Sampling Site and Sampling Points" Method 2 - "Determination of Stack Gas Velocity and Volumetric Flow rate"



Method 3 - "Determination of Molecular Weight of Dry Stack Gas" (Fyrite) Method 4 - "Determination of Moisture Content in Stack Gases"

Stack gas velocity traverses were conducted in accordance with the procedures outlined in Methods 1 and 2 (see Figures 1-2 for exhaust stack traverse point diagrams). An S-type pitot tube with a thermocouple assembly, calibrated in accordance with Method 2, Section 4.1.1, was used to measure exhaust gas velocity pressures (using a manometer) and temperatures during testing. The S-type pitot tube dimensions were within specified limits, therefore, a baseline pitot tube coefficient of 0.84 (dimensionless) was assigned.

Molecular weight was determined according to USEPA Method 3, "Gas Analysis for the Determination of Dry Molecular Weight." The equipment used for this evaluation consisted of a one-way squeeze bulb with connecting tubing and a set of Fyrite[®] combustion gas analyzers. Carbon dioxide and oxygen content were analyzed using the Fyrite[®] procedure.

Exhaust gas moisture content was evaluated using Method 4. Exhaust gas was extracted as part of the PM sampling train (see figure 3 for a schematic of the sampling train) and passed through (i) two impingers each with 100 ml of a 5% $HNO_3/10\%$ H₂O₂ solution (ii) an empty impinger, (iii) and an impinger filled with approximately 300 grams of silica gel. Exhaust gas moisture content is then determined gravimetrically.

3.2 Select Metals (USEPA Methods 5/29)

40 CFR 60, Appendix A, Method 29, "Determination of Metals Emissions From Stationary Sources" was used to measure predetermined metals concentrations and calculate appropriate emission rates (see Figure 3 for a schematic of the sampling train). Six test runs were conducted on each LRF under normal operating condition. The Method 5 sampling was completed in conjunction with the Method 29 metals sampling.

BTEC's Nutech[®] Model 2010 modular isokinetic stack sampling system consisted of (1) a borosilicate glass nozzle, (2) a glass probe, (3) a set of four Greenburg-Smith (GS) impingers with the first two with 100 ml of a 5% HNO₃ / 10% H₂O₂ solution (ii) an empty impinger, (iii) and an impinger filled with approximately 300 grams of silica gel, (4) a length of sample line, and (5) a Nutech[®] control case equipped with a pump, dry gas meter, and calibrated orifice.

Note that the Method 29 impingers that normally contain a potassium permanganate (KMnO₄) solution (which is analyzed for mercury emissions) were omitted from the sampling train because mercury was not being tested for. This was done to prevent potential contamination with the results for manganese during the testing.

Upon completion of the final leak test for each test run, the filter was recovered, and the nozzle and the front half of the filter holder assembly were brushed and triple rinsed with 100 ml of 0.1N HNO₃. The rinses were collected in a pre-cleaned sample container and prepared for transport.



The back half of the filter housing and first two impingers were a triple rinsed with 100 ml of 0.1N HNO and placed in a clean sample container The third impinger (empty) was not rinsed for this test program.

BTEC labeled each container with the test number, test location, and test date, then marked the level of liquid on the outside of the container. Train blanks were taken at each source in addition to blank samples of the filter, acetone, DI water, O.1N HNO3, and 5% HNO3 / 10% H2O2 solutions were collected. The samples were curried by Maxxam Analytics (Maxxam) personnel to Maxxam's laboratory in Mississauga, Ontario to be analyzed.

4.0 Test Results

The results of the emissions test program are summarized by Table 1. Please note that the emission estimates are based on uncorrected laboratory analytical data. No attempt was made to reduce the analytical test run results to account for reagent blanks or field blank results.

Test Devenueten	LF	2F #1	LRF #2		
Test Parameter	Limit	Results	Limit	Results	
Filterable Particulate Matter (PM)	6.8 lb/hr	0.72 lb/hr	3.87 lb/hr	0.49 lb/hr	
Filterable Particulate Matter (PM)	0.005 gr/dscf	0.001 gr/dscf	0.005 gr/dscf	0.001 gr/dscf	
Total Manganese (Mn) ¹	NA	5.91 x 10 ⁻³ lb/hr	NA	4.84 x 10 ⁻³ lb/hr	
Total Manganese (Mn) ¹	NA	9.21 x 10 ⁻⁶ gr/dscf	NA	9.42 x 10 ⁻⁶ gr/dscf	

Table 1Overall Emission Summary

¹ Please note that despite high values being determined for manganese in the front half of the full field blanks conducted at each of the LRF stacks, the values presented in Table 1 represent uncorrected test run results

Field and computer generated data for each test run are available in Appendix A, as well as all other applicable field data. Equipment calibration information is presented in Appendix B. Example calculations for equations used to determine emission rates are presented in Appendix C. Laboratory analysis is available in Appendix D. Process data and Method 9 visible emission reading data are available in Appendix E and Appendix F, respectively.



5.0 Audit Sample

An audit sample for USEPA Method 29 was sent to Maxxam Analytics. All audit sample results were acceptable. Audit sample results are available in Appendix D.

Limitations

The information and opinions rendered in this report are exclusively for use by Severstal Dearborn, LLC. BTEC will not distribute or publish this report without Severstal's consent except as required by law or court order. BTEC accepts responsibility for the competent performance of its duties in executing the assignment and preparing reports in accordance with the normal standards of the profession, but disclaims any responsibility for consequential damages.

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Tables

Table 2
Ladle Refining Facility #1 Particulate Matter and Manganese Emission Rates

Company Source Designation Test Date	Servestal NA LRF1 8/20/2013	8/20/2013	8/20/2013	8/21/2013	8/21/2013	8/21/2013	
			0,20,2010				
Meter/Nozzle Information	P-1	P-2	P-3	P-4	P-5	P-6	Averag
Meter Temperature Tm (F)	91.0	105.5	101.1	91.8	106.6	102.4	99.7
Meter Pressure - Pm (in. Hg)	29.6	29.5	29.5	29.5	29.5	29.5	29.5
Measured Sample Volume (Vm)	83.6	65.9	77.7	73.7	73.2	74.1	74.7
Sample Volume (Vm-Std ft3)	79.1	60.7	72.1	69.5	67.3	68.6	69.5
Sample Volume (Vm-Std m3)	2.24	1.72	2,04	1.97	1.90	1.94	1.97
Condensate Volume (Vw-std)	1.537	1.264	1,504	1.561	1.518	1.679	1.510
Gas Density (Ps(std) lbs/ft3) (wet)	0.0740	0.0740	0.0740	0.0739	0.0739	0.0739	0.0739
Gas Density (Ps(std) lbs/ft3) (dry)	0.0745	0.0745	0.0745	0.0745	0.0745	0.0745	0.0745
Total weight of sampled gas (m g lbs) (wet)	5.96	4.58	5.44	5.26	5.08	5.19	5.25
Total weight of sampled gas (m g lbs) (dry)	5.89	4.52	5.37	5.18	5.01	5.11	5.18
Nozzle Size - An (sq. ft.)	0.000627	0.000601	0.000601	0.000623	0.000623	0.000623	0.00061
Isokinetic Variation - 1	99.7	100.3	101.3	99.7	100.2	100.9	100.4
Stack Data							
Average Stack Temperature - Ts (F)	138.8	136.2	147.4	149.0	148.9	133.0	142.2
Molecular Weight Stack Gas- dry (Md)	28.8	28.8	28.8	28.8	28.8	28.8	28,8
Molecular Weight Stack Gas-wet (Ms)	28.6	28.6	28.6	28.6	28.6	28.6	28.6
Stack Gas Specific Gravity (Gs)	0.989	0.988	0.988	0.988	0.987	0.987	0.988
Percent Moisture (Bws)	1.91	2.04	2.04	2.20	2.21	2.39	2.13
Water Vapor Volume (fraction)	0.0191	0.0204	0.0204	0.0220	0.0221	0.0239	0.0213
Pressure - Ps ("Hg)	29.4	29.4	29.4	29.4	29.4	29.4	29.4
Average Stack Velocity -Vs (ft/sec) Area of Stack (ft2)	23.8 63.6	23.3 63.6	22.4 63.6	22.8 63.6	23.3 63.6	22.9 63.6	23.1 63.6
· ·			03.0				
Exhaust Gas Flowrate	······						
Flowrate ft ³ (Actual)	90,972	88,972	85,601	87,156	89,032	87,306	88,173
Flowrate ft' (Standard Wet)	78,826	77,437	73,122	74,260	75,875	76,395	75,986
Flowrate ft ⁴ (Standard Dry)	77,323	75,857	71,627	72,630	74,200	74,570	74,368
Flowrate m ⁴ (standard dry)	2,190	2,148	2,028	2,057	2,101	2,112	2,106
Total Particulate Weights (mg)							
fotal Nozzle/Probe/Filter	5.9	5.5	5.1	4.8	6.0	3.0	5,1
Fotal Metals Weights (ug) ¹							
Front Half Manganese	70.5	38,5	46.7	20.0	25.4	20.6	40.3
Back Half Manganese	2.59	1,12		39.9 1.60	25,4 1.90	1.10	40.5
Totals	73.09	39.62	2.46 49.16	41.50	27.30	21.70	42.06
Particulate Concentration			<u>u</u>		<u> </u>		
b/1000 lb (wet)	0,002	0.003	0.002	0.002	0.003	0.001	0.002
lb/1000 lb (dry)	0.002	0.003	0.002	0.002	0.003	0.001	0.002
ng/dscm (dry)	2.6	3.2	2.5	2.4	3.1	1.5	2.6
r/dscf ?articulate Emission Rate	0.0012	0.0014	0.0011	0.0011	0.0014	0.0007	0,0011
b' hr	0.77	0.91	0.67	0.67	0.88	0.43	0.72
ront Half Manganese Concentrations							
b/1000 lb (wet)	2.61E-05	1.85E-05	1.89E-05	1.67E-05	1.10E-05	8.75E-06	1.67E-0
b/1000 lb (dry)	2.64E-05	1.88E-05	1.92E-05	1.70E-05	1.12E-05	8.88E-06	1.69E-0
ng/dscm (dry)	3.15E-02	2.24E-02	2.29E-02	2.03E-02	1.33E-02	1.06E-02	2.02E-0
r/dscf ront Half Manganese Emission Rate	1.38E-05	9.80E-06	1.00E-05	8.86E-06	5.83E-06	4.63E-06	8.81E-0
b'hr	9.15E-03	6.39E-03	6.16E-03	5.53E-03	3.72E-03	2.97E-03	5.66E-0
Back Half Manganese Concentrations b/1000 lb (wet)	9.57E-07	5 200 07	0.075.07	6,71E-07	8 2412 07	4.67E-07	7.43E-0
b/1000 fb (wet) b/1000 fb (dry)		5.39E-07	9.97E-07 1.01E-06		8.24E-07		
18/dscm (dry)	9.69E-07	5.46E-07 6.52E-04	1.01E-06 1.21E-03	6.81E-07	8.35E-07	4,74E-07 5,66E-04	7,53E-0 9 09E-0
g/dscfi (uy)	1.16E-03 5.06E-07	6.52E-04 2.85E-07	5.27E-03	8.13E-04 3.55E-07	9.97E-04 4.36E-07	2.47E-07	8.98E-0- 3.93E-0
ack Half Manganese Emission Rate	5.005-01	2,070,01	5.471-07	0.0012-01	1.301-07	2.712 V/	5.5550
b/hr	3.36E-04	1.86E-04	3.25E-04	2.22E-04	2.78E-04	1.59E-04	2.51E-0
otal Manganese Concentrations	2.70E-05	1018.05	1 000 05	1 74E 05	1.18E-05	9.22E-06	1746 0
b/1000 lb (wet)	2. IUE-UJ	1.91E-05	1.99E-05	1.74E-05			1.74E-0.
b/1000 lb (wet)		1 020 05	2 026 05	1 770 00	1 1012 00	0 260 06	1 9677 (1
b/1000 lb (dry)	2.73E-05	1.93E-05	2.02E-05	1.77E-05	1.20E-05	9,36E-06	1.76E-0.
b/1000 lb (dry) g/dsem (dry)	2.73E-05 3.26E-02	2.31E-02	2.41E-02	2.11E-02	1.43E-02	1.12E-02	2.11E-0
b/1000 lb (dry)	2.73E-05						

¹Note: Lab analysis weights have not been corrected to account for PM and Mn weights found in either full Field Blank train or reagent blanks.

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Table 3
Ladle Refining Facility #2 Particulate Matter and Manganese Emission Rates

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Anter/Nezzle Information P-1 P-2 P-3 P-4 P-5 P-6 Meter Temperature Tin (P) 001 002 905 906 906 90745 00745 <t< th=""><th>y Designation</th><th>Severstal LRF 2</th><th>phoniss</th><th>0000012</th><th>\$760013</th><th>epshire</th><th>8/22/2013</th><th></th></t<>	y Designation	Severstal LRF 2	phoniss	0000012	\$760013	epshire	8/22/2013	
After Temperature Tin (F) 90.1 90.8 95.0 99.9 86.5 96.5 Meter Temperature Tin (F) 20.5 29.5 29.5 29.5 29.4 30.8 91.1 30.8 91.1 30.8 91.1 30.8 91.1 30.8 91.1 30.8 91.1 30.8 91.1 30.8 91.1 30.8 91.1 30.8 91.1 30.8 91.1 30.8 70.8 91.1 30.8 70.1 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.		8/19/2013	8/20/2013	8/20/2013	8/20/2013	8/22/2013	8/22/2013	1.016 miles an
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	ozzle Information	P-1	P-2	P-3	P-4	P-5	P-6	Average
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	emperature Tm (F)	90.1	90.8	95.0	99.9	86.5	96.5	93.1
Sample Volume (Ym-Sd fil) 48.6 73.8 73.1 43.8 85.8 94.1 Sample Volume (Ym-Sd fil) 0.8 2.26 2.13 1.38 2.26 2.13 1.38 2.26 2.13 1.38 2.26 2.13 1.38 2.26 2.13 1.38 2.26 2.13 1.38 2.26 2.13 1.38 2.26 2.13 1.38 2.26 2.13 1.38 2.26 2.13 1.38 2.26 0.739 0.0749 0.0739 0.0739 0.0739 0.0739 0.0739 0.0739 0.0739 0.0739 0.0739 0.0739 0.0739 0.0714 0.0739 0.0714 0.0739 0.0714 0.0739 0.0714 0.0739 0.0714 0.0739 0.0714 0.0739 0.0714 0.0739 0.0714 0.0739 0.0714 0.0739 0.0714 0.0739 0.0714 0.0739 0.0714 0.0739 0.0714 0.0739 0.0714 0.0739 0.0714 0.0739 0.0714 0.0738 0.07							29.4	29.5
Sample Volume (Ym-Sid m3) 1.38 2.26 2.13 1.38 2.67 Cano Daristy (Pack) Ibor13 (vol) 0.0741 0.0740 0.0739 0.0745 0	d Sample Volume (Vm)		84.8	80.4		90.8	101.4	76,9
Candensate Volume (Va-ada) 0.922 1.410 1.594 0.934 1.886 2.065 Candensate Volume (Va-ada) 0.0739 0.0745 0.0745 0.0745 0.0739 0.0739 0.0739 Candensky (#2648) Bo/13) (day) 0.0745 0.0745 0.0745 0.0745 0.0745 0.0745 0.0745 Candensky (#2648) Bo/13) (day) 0.0739 0.0730 0.0739 0.0730 0.0739 0.0739 Candensky (#2648) Bo/13) (day) 0.0739 0.0730 0.0739 0.0739 0.0739 0.0739 0.0739 Candensky (#2648) Bo/13) (day) 0.0739 0.0739 0.0745 0.0745 0.0745 0.0745 0.0745 0.0745 0.0745 0.0745 0.0745 0.0745 0.0745 0.0745 0.000392 0.000374 0.000392 0.0003 0.0018 0.0215 0.025 0.0215 0.025 0.0215 0.025 0.02	/olume (Vm-Std ft3)	48.6	79.8	75.1	48.8	85.8	94.1	72.1
Gas Dessig (*feds) Bio/13 (over) 0.071 0.0739 0.0739 0.0739 0.0739 0.0735 0.0745	/olume (Vm-Std m3)	1,38	2.26	2.13	1.38	2.43	2.67	2.04
Gas Density (Pedga) (Pe		0.802			0.934	1,886		1.448
Total weigh of sampled gas (mg Bis) (we) 3.66 6.02 5.67 3.68 6.48 7.11 Nozde Size - An (eq. R.) 0.000392 0.0038 0.038 0.038 0.038 0.038 0.038 0.038 0.038 0.038 0.03								0.0740
Total vegital of sampled gat of ga lbs/ (dvy) 3.63 5.95 0.59 3.64 6.40 702 Jockinetic Variation - I 99.97 99.9 100.7 100.1 100.2 100.2 Jockinetic Variation - I 99.7 99.9 100.7 100.1 100.2 100.2 Stack Data								0.0745
Nezzle Size - An (sp. A) 0.000392 0.00038 0.00038 0.0013 0.0015 Pressour - Set (Figuration in the interm of the int								5.44
Isokinetic Variation - I 99.7 99.9 100.7 100.1 100.2 100.2 Stack Data								5.37
Stack Data Average Slack Temperature - Ts (F) 141.5 153.5 164.4 163.5 150.4 158.6 Molecular Weight Stack Gas- dry (Md) 28.8 28.3 28.3 28.3 28.3 28.3 28.3 28.3 28.3 28.3 28.3 28.3 28.3 42.3 42.2 42.3 42.2 42.3 42.2 42.3 42.2 42.3 42.2 42.3 42.2 42.3 42.5 15.9 59.323 69.18 59.230 59.323 69.18 59.230 59.230 59.230 59.230								0.000386 100.1
Average Stack Temperature - Ts (F) 141.5 153.5 164.4 163.5 150.4 158.6 Molecular Weight Stack Gaz-edy (M4) 28.8 28.1 22.1 22.1 22.3 22.1 22.3 22.2 29.2 2		99.7	77.7	300.7		100.2	100.2	
Molecular Weight Stack Gas- dy (Md) 22.8 28.8	ita							
Molecular Weight Stack Gasswei (Als) 28.7 28.6 28.6 28.6 28.6 Sack Gas Specific Gravity (Gs) 0.990 0.989 0.988 0.999 0.0215 Percent Molasture (Bass) 1.62 1.73 2.03 1.88 0.018 0.0215 Percent Molasture (Bass) 0.203 29.3 29.3 29.3 29.2 29.2 Arceage Stack Velority-Vs (Masc) 38.4 27.7 34.5 42.5 42.2 Arceage Stack Velority-Vs (Masc) 34.8 42.7 43.5 42.5 42.2 Arceage Stack Velority-Vs (Masc) 34.84 60.688 60.692 59.32.0 60.894 Powrate ff (Standard Dry) 62.452 59.653 59.43.0 58.219 58.894 58.62.3 Powrate ff (Standard Dry) 62.452 59.653 1.643 1.648 1.648 Powrate ff (Standard Dry) 1.768 1.689 1.643 1.648 3.5 Total Particulate Weights (mg) ¹ Total 3.8 2.3 6.6 4.1 4.8 3.5 Total Motals Weights (mg) ¹ Totals 3.02 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>155,3</td>								155,3
Stack Gas Specific Gravity (Gs) 0.990 0.982 0.988 0.988 0.988 0.988 0.988 0.988 0.988 0.988 0.988 0.9215								28.8
Percent Moisture (Bos) 1 62 1.73 2.08 1.88 2.15 2.15 Water Vaper Volume (Traction) 0.0168 0.0175 0.0288 0.0125 0.0215 0.0215 Pressure -Ps ("Hg) 29.3 29.3 29.3 29.3 29.2 29.2 Arcage Stack (Petrity-Vs (Wisec) 3.8 4.27 4.35 4.25 4.23 4.22 Arcas of Stock (ft2) 28.1 28.1 28.1 28.1 28.1 28.1 28.1 28.1 28.1 28.1 28.1 28.1 28.1 28.1 28.1 28.1 28.1 28.1 28.1 28.5 59.332 60.189 59.295								28.6
Water Vapor Volume (fraction) 0.0162 0.0173 0.0208 0.0188 0.0215 0.0215 Average Stack Velocity -Vs (frásc) 43.8 42.7 43.5 42.5 42.3 42.2 Average Stack Velocity -Vs (frásc) 28.1 38.2 30.2 30.2 40.68 29.26 19.3 29.6 19.3 29.6 19.3 29.6 19.3 29.6 19.3 29.6								0.988
Pressare Ps (Fig) Pressare Ps								1.93
Average Stack Velocity -Vs (fr/sec) 43.8 42.7 43.5 42.5 42.3 42.2 Area of Stack (fi2) 28.1 16.6								0.0193
Area of Stack (ft2) 28.1 <th28.1< th=""> 28.1 28.1<td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>29.3</td></th28.1<>								29.3
Exhaust Gas Flowrate Flowrate fl\(Actual) 73,787 71,958 73,233 71,497 71,249 71,125 Flowrate fl\(Standard Wet) 63,454 60,688 60,692 59,332 60,189 59,266 Flowrate fl\(Standard Dry) 62,426 59,635 59,430 58,219 58,894 58,023 Flowrate fl\(Standard Dry) 1,768 1,689 1,649 1,649 1,643 Total Particulate Weights (mg) ¹ Total Nozzle/Probe/Filter 3,8 2,3 6,6 4,1 4,8 3,5 Total Metals Weights (mg) ¹ Total Socie/Probe/Filter 3,8 2,3 1,6,6 1,9,0 1,02 Stack Half Manganese 38,2 30,0 49,0 43,9 29,6 19,3 Back Half Manganese 5,72 3,74 2,56 1,96 1,20 1,02 Particulate Concentration 1,700 0,002 0,001 0,002 0,001 0,002 0,001 0,002 0,001 0,002 0,001 0,002 0,001 0,002								42.8 28.1
Flowrate fl'(Actual) 73,787 71,958 73,233 71,497 71,249 71,125 Flowrate fl'(Standard Dy) 63,454 60,658 60,692 59,332 60,189 59,236 Flowrate fl'(Standard Dy) 62,426 59,635 59,430 58,219 58,804 58,023 Flowrate fl'(Standard Dy) 1,768 1,683 1,643 1,643 1,643 Total Particulate Weights (org) ¹ 71 71 71 2,66 1,643 1,643 Total Metals Weights (org) ¹ 71 71 2,66 1,93 3,5 71 2,66 1,93 3,62 1,93 3,64 1,92 2,96 19,3 3,74 2,56 1,56 1,270 1,02 Stack Half Manganese 38,2 30,0 49,0 43,9 2,96 19,3 3,86 43,92 3,74 51,56 45,86 42,30 20,32 Particulate Concentration 1,100,00 0,002 0,001 0,003 0,002 0,001 0,003 0,002 0,001 0,003 0,002 0,001 0,003 0,002 <t< td=""><td>· ·</td><td>20.1</td><td></td><td></td><td></td><td>20.1</td><td>-</td><td></td></t<>	· ·	20.1				20.1	-	
Flow rate Ω ¹ (Standard Wert) 63,454 60,685 59,332 60,189 59,296 Flow rate Ω ¹ (Standard Dry) 62,426 59,635 59,430 58,219 58,894 58,603 Total Particulate Weights (mg) ¹ 1,768 1,683 1,649 1,649 1,643 Total Particulate Weights (mg) ¹ 3.8 2.3 6.6 4.1 4.8 3.5 Total Metals Weights (mg) ¹	Gas Flowrate							
Flowrate n ⁴ (Standard Dry) 62,426 59,635 59,430 58,219 58,894 58,023 Flowrate n ⁴ (standard dry) 1,768 1,689 1,683 1,649 1,668 1,643 Total Particulate Weights (ng) ¹		73,787	71,958	73,233	71,497	71,249	71,125	72,142
Flowrate m ⁴ (standard dry) 1,768 1,689 1,683 1,649 1,668 1,643 Total Particulate Weights (mg) ⁴		63,454	60,688	60,692	59,332	60,189	59,296	60,608
Total Particulate Weights (mg) ¹ Total Nozzle/Probe/Filter 3.8 2.3 6.6 4.1 4.8 3.5 Total Nozzle/Probe/Filter 3.8 2.3 6.6 4.1 4.8 3.5 Total Metals Weights (ug) ¹								59,438
Total Nozzle/Probe/Filter 3.8 2.3 6.6 4.1 4.8 3.5 Total Metals Weights (ug) ¹ Front Half Manganese 38.2 30.0 49.0 43.9 29.6 19.3 Back Half Manganese 37.2 3.74 2.56 1.96 12.70 1.02 Particulate Concentration Totals 43.92 33.74 51.56 45.86 42.30 20.32 Particulate Concentration 0.002 0.001 0.003 0.002 0.001 0.003 0.002 0.001 By fdscn (dy) 2.8 1.0 3.1 3.0 2.0 1.3 gr/dscf 0.0012 0.0004 0.0014 0.0013 0.0009 0.0006 Particulate Emission Rate 10 10 0.65 0.23 0.69 0.65 0.24 0.29 Front Half Manganese Concentrations 110E-05 1.91E-05 2.63E-05 1.01E-05 5.98E-06 Ib/ ho 0.65 0.23 0.69 0.65 0.44	m ² (standard dry)	1,768	1,689	1,683	1,649	1,668	1,643	1,683
Total Metals Weights (ag) ¹ Front Half Manganese 38.2 30.0 49.0 43.9 29.6 19.3 Back Half Manganese 5.72 3.74 2.56 1.96 12.70 1.02 Totals 43.92 33.74 51.56 45.86 42.30 20.32 Particulate Concentration	rticulate Weights (mg) ¹		.u.,					
Front Half Manganese 38.2 30.0 49.0 43.9 29.6 19.3 Back Half Manganese 5.72 3.74 2.56 1.96 12.70 1.02 Totals 43.92 33.74 51.56 45.86 42.30 20.32 Particulate Concentration 0.002 0.001 0.003 0.002 0.001 0.003 0.002 0.001 1b/1000 lb (vet) 0.002 0.001 0.003 0.002 0.001 0.003 0.002 0.001 gr/dscf 0.0012 0.0004 0.0014 0.0013 0.0009 0.0006 Particulate Emission Rate 10 3.1 3.0 2.0 1.3 Br/foot Ib (wet) 2.30E-05 1.10E-05 1.91E-05 2.63E-05 1.01E-05 5.98E-06 Br/1000 Ib (wet) 2.30E-05 1.10E-05 1.99E-05 2.63E-05 1.01E-05 5.98E-06 Br/1000 Ib (wet) 2.34E-06 1.31E-02 2.31E-02 1.24E-03 3.16E-06 Front Half Manganese Emiss	zzle/Probe/Filter	3.8	2.3	6.6	4.1	4.8	3.5	4.2
Back Half Manganese 5.72 3.74 2.56 1.96 12.70 1.02 Particulate Concentration	tals Weights (ug)							
Back Half Manganese 5.72 3.74 2.56 1.96 12.70 1.02 Particulate Concentration	E Managanaga	20.0	20.0	10.0	12.0	20.4	10.2	35.0
Totals 43.92 33.74 51.56 45.86 42.30 20.32 Particulate Concentration 0.002 0.001 0.003 0.002 0.001 1b/1000 lb (wet) 0.002 0.001 0.003 0.002 0.001 g/dsern (dry) 2.8 1.0 3.1 3.0 2.0 1.3 gr/dser 0.0012 0.0014 0.0013 0.002 0.000 0.0004 Particulate Emission Rate 0.055 0.23 0.69 0.65 0.44 0.29 Front Half Manganese Concentrations 2.30E-05 1.10E-05 1.91E-05 2.63E-05 1.01E-05 5.98E-06 lb/loo0 lb (wet) 2.32E-05 1.11E-05 1.91E-05 2.63E-05 1.02E-05 6.06E-06 gr/dser 1.21E-05 5.80E-06 1.01E-05 1.39E-02 1.31E-02 3.18E-02 1.21E-03 3.6E-06 Front Half Manganese Emission Rate Ib/hr 6.51E-03 2.98E-03 5.15E-03 6.95E-03 2.70E-03 1.58E-03 lb								4.62
Ik/1000 lb (wet) 0.002 0.001 0.003 0.002 0.001 0.003 0.002 0.001 Ib/1000 lb (dry) 0.002 0.001 0.003 0.002 0.001 0.003 0.002 0.001 ng/dscm (dry) 2.8 1.0 3.1 3.0 2.0 1.3 yr/dscf 0.0012 0.0004 0.0013 0.0009 0.0006 Particulate Emission Rate 0.65 0.23 0.69 0.65 0.44 0.29 Front Half Manganese Concentrations 0.65 1.01E-05 1.91E-05 2.63E-05 1.01E-05 5.98E-06 Ib/1000 lb (wet) 2.30E-05 1.10E-05 1.93E-05 2.66E-05 1.02E-05 6.06E-06 ng/dscm (dry) 2.37E-02 1.33E-02 2.12E-02 7.24E-03 y/dsch gr/dscf 1.21E-05 5.08E-06 1.01E-05 1.39E-03 3.16E-06 Front Half Manganese Concentrations 1.21E-05 5.08E-06 1.17E-06 4.32E-06 3.16E-07 Ib/1000 lb (wet)	+							39,62
Ib/1000 ib (dry) 0.002 0.001 0.003 0.002 0.001 0.003 0.002 0.001 ng/dsem (dry) 2.8 1.0 3.1 3.0 2.0 1.3 gr/dsef 0.0012 0.0004 0.0013 0.0009 0.0006 Particulate Emission Rate 0.65 0.23 0.69 0.65 0.44 0.29 Ib/ In 0.65 0.23 0.69 0.65 0.44 0.29 Front Half Manganese Concentrations 2.30E-05 1.10E-05 1.91E-05 2.63E-05 1.01E-05 5.98E-06 lb/1000 lb (dry) 2.32E-05 1.11E-05 1.93E-05 2.66E-05 1.02E-05 6.06E-06 gr/dsef 1.21E-05 5.80E-06 1.01E-05 1.39E-05 5.32E-06 3.16E-06 Front Half Manganese Emission Rate	te Concentration							
ng/dscm (dry) 2.8 1.0 3.1 3.0 2.0 1.3 yr/dscf 0.0012 0.0004 0.0014 0.0013 0.0009 0.0006 Particulate Emission Rate			0.001		0.002	0.002		0.002
gr/dscf 0.0012 0.0014 0.0013 0.0009 0.0006 Particulate Entission Rate 0.65 0.23 0.69 0.65 0.44 0.29 Pront Half Manganese Concentrations 2.30E-05 1.10E-05 1.91E-05 2.63E-05 1.01E-05 5.98E-06 Ib/1000 Ib (wet) 2.30E-05 1.11E-05 1.93E-05 2.66E-05 1.02E-05 6.06H-06 ng/dscm (dry) 2.77E-02 1.33E-02 2.31E-02 3.18E-02 1.22E-05 6.06H-06 r/dscf 1.21E-05 5.80E-06 1.01E-05 5.32E-06 3.16E-06 Front Half Manganese Emission Rate	b (dry)	0.002	0.001	0.003	0.002	0.002	0.001	0.002
Particulate Emission Rate 0.65 0.23 0.69 0.65 0.44 0.29 Front Half Manganese Concentrations 2.30E-05 1.10E-05 1.91E-05 2.63E-05 1.01E-05 5.98E-06 1b/1000 lb (dry) 2.32E-05 1.11E-05 1.93E-05 2.63E-05 1.01E-05 5.98E-06 ng/dscm (dry) 2.77E-02 1.33E-02 2.31E-02 3.18E-02 1.22E-02 7.24E-03 ng/dscf 1.21E-05 5.80E-06 1.01E-05 1.39E-02 2.70E-03 1.58E-03 1b/ hr 6.51E-03 2.98E-03 5.15E-03 6.95E-03 2.70E-03 1.58E-03 1b/ hr 6.51E-03 2.98E-03 5.15E-03 6.95E-03 2.70E-03 1.58E-03 1b/ 1000 lb (wet) 3.44E-06 1.37E-06 9.96E-07 1.17E-06 4.32E-06 3.16E-07 1b/ 1000 lb (wet) 3.44E-06 1.39E-06 1.01E-06 1.91E-03 5.23E-03 3.83E-04 ng/dscm (dry) 4.15E-03 1.65E-03 1.20E-03 1.42E-03 5.23E-03 3.83E-0	(dry)							2.2
lb/hr 0.65 0.23 0.69 0.65 0.44 0.29 Front Half Manganese Concentrations 2.30E-05 1.10E-05 1.91E-05 2.63E-05 1.01E-05 5.98E-06 Ib/1000 lb (wet) 2.32E-05 1.11E-05 1.93E-05 2.63E-05 1.02E-05 6.06E/06 ng/dscm (dry) 2.37E-02 1.33E-02 2.31E-02 3.18E-02 1.22E-03 7.24E/03 gr/dscf 1.21E-05 5.80E-06 1.01E-05 1.39E-05 5.32E-06 3.16E/06 Front Half Manganese Emission Rate	to Emission Bato	0.0012	0.0004	0.0014	0.0013	0.0009	0,0006	0.0010
lb/1000 lb (wet) 2.30E-05 1.10E-05 1.91E-05 2.63E-05 1.01E-05 5.98E-06 lb/1000 lb (dry) 2.32E-05 1.11E-05 1.93E-05 2.66E-05 1.02E-05 6.06E-06 ng/dscr 1.21E-05 5.80E-06 1.01E-05 3.18E-02 1.22E-02 7.24E-03 r/dscf 1.21E-05 5.80E-06 1.01E-05 1.39E-05 5.32E-06 3.16E-06 Front Half Manganese Emission Rate	******	0.65	0.23	0.69	0,65	0.44	0.29	0.49
lb/1000 lb (dry) 2.32E-05 1.11E-05 1.93E-05 2.66E-05 1.02E-05 6.06E-06 ng/dscm (dry) 2.77E-02 1.33E-02 2.31E-02 3.18E-02 1.22E-02 7.24E-03 g/dscf 1.21E-05 5.80E-06 1.01E-05 1.39E-05 5.32E-06 3.16E-06 Front Half Manganese Emission Rate 6.51E-03 2.98E-03 5.15E-03 6.95E-03 2.70E-03 1.58E-03 Back Half Manganese Concentrations 3.44E-06 1.37E-06 9.96E-07 1.17E-06 4.32E-06 3.16E-07 bb/1000 lb (wet) 3.44E-06 1.37E-06 9.96E-07 1.17E-06 4.32E-06 3.16E-07 ng/dscm (dry) 3.48E-06 1.39E-03 1.62E-03 1.62E-03 1.62E-03 3.88E-04 ng/dscm (dry) 4.15E-03 1.65E-03 1.20E-03 1.42E-03 5.23E-03 3.83E-04 ng/dscm (dry) 4.15E-03 1.65E-03 1.20E-04 1.42E-03 5.23E-03 3.83E-04 ng/dscm (dry) 4.15E-03 1.65E-03 1.20E-04 3.10E-04 1.67E-07 Dack Half Manganese Emission Rate								1.605.00
ng/dscm (dry) 2.77E-02 1.33E-02 2.31E-02 3.18E-02 1.22E-02 7.24E-03 gr/dscf 1.21E-05 5.80E-06 1.01E-05 1.39E-05 5.32E-06 3.16E-06 Front Half Manganese Emission Rate 6.51E-03 2.98E-03 5.15E-03 6.95E-03 2.70E-03 1.58E-03 Bb/ hr 6.51E-03 2.98E-03 5.15E-03 6.95E-03 2.70E-03 1.58E-03 Bb/1000 lb (wet) 3.44E-06 1.37E-06 9.96E-07 1.17E-06 4.32E-06 3.16E-07 Ib/1000 lb (wet) 3.48E-06 1.39E-06 1.01E-06 1.19E-06 4.38E-06 3.21E-07 ng/dscm (dry) 4.15E-03 1.65E-03 1.20E-03 1.42E-03 5.23E-03 3.83E-04 r/dscf 1.81E-06 7.23E-07 5.26E-07 6.20E-07 2.28E-06 1.67E-07 Jack Half Manganese Emission Rate 9.75E-04 3.71E-04 2.69E-04 3.10E-04 1.16E-03 8.35E-05 Ib/100 lb (wet) 2.64E-05 1.24E-05 2.01E-05 2.75E-05 1.44E-05 6.30E-06 Ib/100 lb (dry) 2.64E-05 1.24E-05 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>1,59E-05</td>								1,59E-05
Instruction Instruction <thinstruction< th=""> <thinstruction< th=""></thinstruction<></thinstruction<>								1.61E-05
Front Half Manganese Emission Rate Ib' hr 6.51E-03 2.98E-03 5.15E-03 6.95E-03 2.70E-03 1.58E-03 Back Half Manganese Concentrations 3.44E-06 1.37E-06 9.96E-07 1.17E-06 4.32E-06 3.16E-07 Ib'1000 Ib (wet) 3.44E-06 1.37E-06 9.96E-07 1.17E-06 4.32E-06 3.16E-07 Ib'1000 Ib (dry) 3.48E-06 1.39E-06 1.01E-06 1.19E-06 4.38E-06 3.21E-07 ng/dscm (dry) 4.15E-03 1.65E-03 1.20E-03 1.42E-03 5.23E-03 3.83E-04 gr/dscf 1.81E-06 7.23E-07 5.26E-07 6.20E-07 2.28E-06 1.67E-07 Jack Half Manganese Emission Rate	(dry)							1.92E-02 8.39E-06
Back Half Manganese Concentrations 3.44E-06 1.37E-06 9.96E-07 1.17E-06 4.32E-06 3.16E-07 lb/1000 lb (vet) 3.44E-06 1.37E-06 9.96E-07 1.17E-06 4.32E-06 3.21E-07 lb/1000 lb (dry) 3.44E-06 1.37E-06 9.96E-07 1.17E-06 4.32E-06 3.21E-07 ng/dscm (dry) 4.15E-03 1.65E-03 1.20E-03 1.42E-03 5.23E-03 3.83E-04 yr/dscf 1.81E-06 7.23E-07 5.26E-07 6.20E-07 2.28E-06 1.67E-07 Back Half Manganese Emission Rate 9.75E-04 3.71E-04 2.69E-04 3.10E-04 1.16E-03 8.35E-05 Total Manganese Concentrations 9.75E-04 3.71E-05 2.01E-05 1.44E-05 6.30E-06 b/1000 lb (wet) 2.64E-05 1.24E-05 2.01E-05 2.75E-05 1.44E-05 6.30E-06 b/1000 lb (dry) 2.67E-05 1.25E-05 2.03E-05 1.46E-05 6.38E-06 ng/dsem (dry) 3.19E-02 1.49E-02 3.32E-02 1.74E-02 7.62E-03	If Manganese Emission Rate	1.21E-03	5.80E-00	1.016-05	1.39E-05	5.32E-00	3.106-00	
bb/1000 lb (wet) 3.44E-06 1.37E-06 9.96E-07 1.17E-06 4.32E-06 3.16E-07 bb/1000 lb (dry) 3.48E-06 1.39E-06 1.01E-06 1.19E-06 4.32E-06 3.21E-07 ng/dscm (dry) 4.15E-03 1.65E-03 1.20E-03 1.42E-03 5.23E-03 3.83E-04 r/dscf 1.81E-06 7.23E-07 5.26E-07 6.20E-07 2.28E-06 1.67E-07 Jack Half Manganese Emission Rate 9.75E-04 3.71E-04 2.69E-04 3.10E-04 1.16E-03 8.35E-05 lot 10 b (dry) 2.64E-05 1.24E-05 2.01E-05 2.75E-05 1.44E-05 6.30E-06 b/1000 lb (dry) 2.67E-05 1.24E-05 2.03E-05 1.44E-05 6.38E-06 ng/dscm (dry) 3.19E-02 1.49E-02 3.32E-02 1.74E-02 7.62E-03	f Manganasa Concentrations	6.51E-03	2.98E-03	5.15E-03	6.95E-03	2.70E-03	1.58E-03	4.31E-03
lb/1000 lb (dry) 3.48E-06 1.39E-06 1.01E-06 1.19E-06 4.38E-06 3.21E-07 ng/dscm (dry) 4.15E-03 1.65E-03 1.20E-03 1.42E-03 5.23E-03 3.83E-04 ng/dscm (dry) 1.81E-06 7.23E-07 5.26E-07 6.20E-07 2.28E-06 1.67E-07 Jack Half Manganese Emission Rate 9.75E-04 3.71E-04 2.69E-04 3.10E-04 1.16E-03 8.35E-05 Total Manganese Concentrations 9.75E-04 3.71E-04 2.69E-04 3.10E-04 1.16E-03 8.35E-05 b/1000 lb (wet) 2.64E-05 1.24E-05 2.01E-05 2.75E-05 6.30E-06 b/1000 lb (dry) 2.67E-05 1.25E-05 2.03E-05 1.46E-05 6.38E-06 ng/dscm (dry) 3.19E-02 1.49E-02 3.32E-02 1.74E-02 7.62E-03		3,44E-06	1.37E-06	9.96E-07	1.17E-06	4.32E-06	3.16E-07	1.94E-06
ng/dscm (dry) 4.15E-03 1.65E-03 1.20E-03 1.42E-03 5.23E-03 3.83E-04 gr/dscf 1.81E-06 7.23E-07 5.26E-07 6.20E-07 2.28E-06 1.67E-07 Jack Half Manganese Emission Rate 9.75E-04 3.71E-04 2.69E-04 3.10E-04 1.16E-03 8.35E-05 Fotal Manganese Concentrations 2.64E-05 1.24E-05 2.01E-05 2.75E-05 1.44E-05 6.30E-06 lb/1000 lb (wet) 2.67E-05 1.25E-05 2.03E-05 2.78E-05 1.46E-05 6.38E-06 ng/dsem (dry) 3.19E-02 1.49E-02 2.43E-02 3.32E-02 1.74E-02 7.62E-03								1.96E-06
Index 1.81E-06 7.23E-07 5.26E-07 6.20E-07 2.28E-06 1.67E-07 Jack Half Manganese Emission Rate 9.75E-04 3.71E-04 2.69E-04 3.10E-04 1.16E-03 8.35E-05 Jord Manganese Concentrations 9.75E-04 3.71E-04 2.69E-04 3.10E-04 1.16E-03 8.35E-05 Jord Manganese Concentrations 2.64E-05 1.24E-05 2.01E-05 2.75E-05 1.44E-05 6.30E-06 Jb/1000 lb (wet) 2.67E-05 1.25E-05 2.03E-05 2.78E-05 1.46E-05 6.38E-06 Jb/1000 lb (dry) 3.19E-02 1.49E-02 2.43E-02 3.32E-02 1.74E-02 7.62E-03								2.34E-03
b/ hr 9.75E-04 3.71E-04 2.69E-04 3.10E-04 1.16E-03 8.35E-05 fold Manganese Concentrations								1.02E-06
Bornov 2.64E-05 1.24E-05 2.01E-05 2.75E-05 1.44E-05 6.30E-06 Bornov 2.67E-05 1.25E-05 2.03E-05 2.78E-05 1.44E-05 6.30E-06 Bornov 2.67E-05 1.25E-05 2.03E-05 2.78E-05 1.44E-05 6.38E-06 ng/dscm (dry) 3.19E-02 1.49E-02 2.43E-02 3.32E-02 1.74E-02 7.62E-03	f Manganese Emission Rate	0.765 0.4	2 711: 04	2 (01) 24	2 100 04	1.1/17.00	8.36E.05	coor of
b/1000 lb (wet) 2.64E-05 1.24E-05 2.01E-05 2.75E-05 1.44E-05 6.30E-06 b/1000 lb (dry) 2.67E-05 1.25E-05 2.03E-05 2.78E-05 1.46E-05 6.38E-06 ng/dsem (dry) 3.19E-02 1.49E-02 2.43E-02 3.32E-02 1.74E-02 7.62E-03	nganese Concentrations	9.75E-04	3.71E-04	2.098-04	5.10E-04	1.10E-03	8.30E-05	5.28E-04
b/1000 lb (dry) 2.67E-05 1.25E-05 2.03E-05 1.46E-05 6.38E-06 ng/dsem (dry) 3.19E-02 1.49E-02 2.43E-02 3.32E-02 1.74E-02 7.62E-03		2.64E-05	1.24E-05	2.01E-05	2,75E-05	1.44E-05	6.30E-06	1.78E-05
ng/dscm (dry) 3.19E-02 1.49E-02 2.43E-02 3.32E-02 1.74E-02 7.62E-03								1.80E-05
÷ · · · ·								2.15E-02
	· •,	1.39E-05	6.52E-06	1.06E-05	1.45E-05	7.61E-06	3.33E-06	9.42E-06
otal Manganese Emission Rate	nganese Emission Rate							
b'hr 7.48E-03 3.35E-03 5.42E-03 7.26E-03 3.85E-03 1.66E-03		7.48E-03	3.35E-03	5.42E-03	7.26E-03	3.85E-03	1.66E-03	4.84E-03

⁴ Note: Lab analysis weights have not been corrected to account for PM and Mn weights found in either full Field Blank train or reagent blanks.

Figures





