AP32 Section:	12.5.1
Background Chapter	3
Reference:	29
Title:	Source Emissions Test. Performed for Beta Steel Corporation, Portage, IN. Meltshop Baghouse Outlet, Portage, IN. November 13-14, 2000. G/SA Project No. 00-T-118. Prepared for: Mr. Joe Gazarkiewicz, Beta Steel Corporation, Portage, IN.

G/SA

GUENTHER / SHACKELFORD ASSOCIATES

ENVIRONMENTAL CONSULTANTS & TESTING CONTRACTORS

SOURCE EMISSIONS TEST

PERFORMED FOR
BETA STEEL CORPORATION
PORTAGE, INDIANA

MELTSHOP BAGHOUSE OUTLET

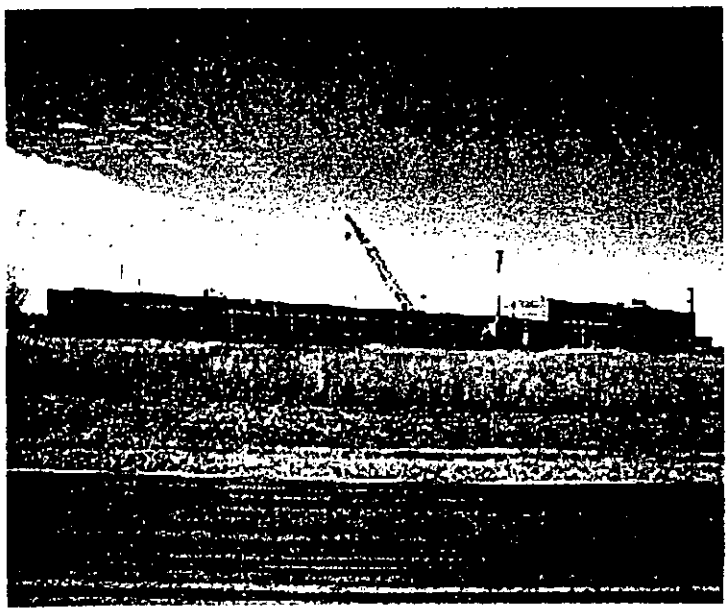
PORTAGE, INDIANA

EPA METHODS 1, 2, 3A, 5, 6C, 7E, 9, 10, 25A AND 202

NOVEMBER 13-14, 2000
G/SA PROJECT NO. 00-T-118

Prepared for:

Mr. Joe Gazarkiewicz
BETA Steel Corporation
6500 South Boundary Road
Portage, IN 46368



BETA STEEL

COMPLIANCE TEST REPORT

SOURCE EMISSIONS COMPLIANCE TESTING
EPA Methods 1, 2, 3A, 5, 6C, 7E, 9, 10, 25A and 202
Performed on the
Meltshop
Baghouse Stack
at
Beta Steel Corporation
Portage, Indiana

November 13 and 14, 2000

Project No. 00-T-118

1.0 INTRODUCTION

This report presents the results of the source emissions compliance testing conducted by Guenther/Shackelford Associates (G/SA) for Beta Steel Corporation (Beta Steel), near Portage, Indiana.

The primary purpose of this testing program was to obtain PM_{10} (particulate matter ≤ 10 microns in particle size) samples of particulate matter (PM) and condensible particulate matter (CPM) , and to perform continuous emissions monitoring (CEM) to determine sulfur dioxide (SO_2), nitrogen oxides (NO_X), carbon monoxide (CO), total gaseous organics (TGO) or volatile organic compounds (VOC) a.k.a. total hydrocarbons (THC) concentrations from the effluent gas stream of the baghouse serving the Meltshop and associated equipment at Beta Steel's hot rolled coil steel operation to establish outlet emission rates, and to determine if the emissions discharged into the atmosphere from the facility meet the Indiana Department of Environmental Management (IDEM) source

emission limits and the U.S. Environmental Protection Agency (EPA) standards of performance for steel plants utilizing an electric arc furnace (EAF). Also, to conduct visible emissions (VE) observations to determine plume opacities of the gases from the Meltshop Baghouse Stack.

G/SA's responsibility was to collect and analyze PM/CPM samples, conduct VE observations and instrument monitoring for SO_2, NO_X, CO and VOC, and perform data reduction for emission concentrations evaluation. Beta Steel's responsibility was to maintain process operating parameters and to provide process operating data per compliance test requirements.

The following report provides information pertaining to Beta Steel's process operations, emissions testing and analytical results.

The emissions testing conducted on the Meltshop Baghouse Stack was performed on Monday, November 13, 2000 from 11:00 A.M. to 10:00 P.M. and Tuesday, November 14, 2000 from 09:35 A.M. to 02:45 P.M.

The following requirements were specific for the testing program:

1. Equipment calibrations performed and calibration data provided.
2. Three (3), four (4)-hour, minimum, PM/CPM emissions test runs with a sample volume of at least 160 dry standard cubic feet (dscf) per run

performed at the outlet (exhaust stack) of the Meltshop Baghouse, which shall include an integral number of complete process heat cycles, pursuant to EPA, Title 40, Code of Federal Regulations, Part 60 (40 CFR 60), Subpart AAa, Section 60.275a.

3. Three (3), consecutive, one (1)-hour, minimum, SO_2, NO_X, CO and VOC emissions test runs performed, simultaneously, at the outlet (exhaust stack) of the Meltshop Baghouse pursuant to IDEM Construction Permit #CP 127-2326-00036.

4. Three (3), one (1)-hour, minimum, VE observations performed on the outlet exhaust of the Meltshop Baghouse pursuant to EPA, 40 CFR 60, Subpart AAa, Section 60.275a.

5. Process manufacturing capacities and control devices maintained at required operating conditions, and production rates recorded during the emissions testing periods.

6. All testing and analyses performed in accordance with current EPA test methodologies and analytical procedures for PM/CPM, SO_2, NO_X, CO and VOC emissions, and VE observations determinations.

7. PM/CPM emissions from the Meltshop Baghouse shall not exceed an average concentration of 0.0052 grains per dry standard cubic foot (gr/dscf), and a visual opacity or VE limit of 3% pursuant to EPA New Source Performance Standards (NSPS), 40 CFR 60, Subpart AAa, Section 60.272a, Paragraph (a).

8. SO_2 emissions from the Meltshop Baghouse Stack shall not exceed an average emission rate of 5.9 pounds per hour (lb/hr), and an average concentration of 0.047 pounds per ton process weight (lb/tpw) pursuant to IDEM Construction Permit #CP 127-2326-00036.

9. NO_X emissions from the Meltshop Baghouse Stack shall not exceed an average emission rate of 22.2 lb/hr pursuant to IDEM Construction Permit #CP 127-2326-00036.

10. CO emissions from the Meltshop Baghouse Stack shall not exceed an average emission rate of 817.0 lb/hr pursuant to IDEM Construction Permit #CP 127-2326-00036.

11. VOC emissions from the Meltshop Baghouse Stack shall not exceed an average emission rate of 16.8 pounds per hour (lb/hr), and an average concentration of 0.13 pounds per ton process weight (lb/tpw) pursuant to IDEM Construction Permit #CP 127-2326-00036.

Note: EPA Method 5 (PM) and 201A/202 (PM_{10}/CPM) testing were not required to be performed separately because all of the PM as well as the CPM emissions from the Meltshop Baghouse are assumed to be ≤ 10 microns in particle size. Therefore, only EPA Method 5/202 (PM/CPM) sampling was conducted per IDEM's approval.

The emissions testing program was supervised in part by G/SA, whose headquarters is in Crown Point, Indiana. G/SA also performed the PM/CPM emissions testing and VE

observations on the Meltshop Baghouse Stack, VE data reduction, overall emissions data review and prepared in part the final report. The PM/CPM emissions testing conducted at the Meltshop Baghouse Stack sampling location was supervised in part by G/SA's affiliate, Source Assessment Technologies, LLC (S.A.T.), whose headquarters is in Wheatland, Missouri. S.A.T. also performed the PM analysis and the PM/CPM. SO_2, NO_X, CO and VOC data reduction, and in part the final report preparation. The CEM testing for SO_2, NO_X, CO and VOC, and carbon dioxide (CO_2) and oxygen (O_2) content as well at the Meltshop Baghouse Stack sampling location was performed by G/SA's subcontractor, Grace Consulting, Inc. (GCI), whose headquarters is in Wellington, Ohio. The CPM analysis was subcontractor to EMSL Analytical, whose laboratory is in Indianapolis, Indiana.

The emissions testing was performed in accordance with EPA Reference Methods 1, 2, 3A, 5 (PM), 6C (SO_2), 7E (NO_X), 9 (VE), 10 (CO), and 25A (VOC), 40 CFR 60, Appendix A, and Method 202 (CPM), Title 40, Part 51, Appendix M of the U.S. Code of Federal Regulations (40 CFR 51).

The testing program was approved by and/or coordinated with the following personnel:

Joe Gazarkiwicz, Manager Environmental Services, Beta Steel

Les Chapman, Project Manager, Industrial Environmental Management Consultants, Inc. (IEMC)

Berto Guerra, Pulpit Operator, Beta Steel

Stacy Sphechter, Pulpit Operator, Beta Steel

Herb Stepherson, Pulpit Operator, Beta Steel

The emissions testing was performed by the following personnel:

Fred Guenther, Test Supervisor, G/SA

Terry Shackelford, Senior Test Engineer, G/SA (S.A.T.)

Amir Beheshti, Test Engineer, G/SA

Brandon Peyton, Senior Test Technician, G/SA

Jersey Theobold, Test Technician, G/SA

Gerardo Gonzalez, Test Technician, G\SA

Scott Teague, Test Engineer, GCI

The emissions testing was observed by the following personnel:

Jarod Fisher, Environmental Scientist, Air Compliance Section, IDEM

2.0 TEST RESULTS SUMMARY

The source emissions testing was performed utilizing EPA Methods 1, 2, 3A, 5, 6C, 7E, 9, 10, 25A and 202 at the Meltshop Baghouse Stack sampling location. A summary of the test results is given below:

SAMPLING LOCATION	RUN NO.	PM/CPM (Gr/DSCF)	OPACITY (%)
Meltshop	1	0.00068	0
Baghouse	2	0.00100	0
Stack	3	0.00077	0
	Avg.	0.00082	Avg. 0
	(Limit:	0.0052 Gr/DSCF)	(Limit: 3%)

SAMPLING LOCATION	RUN NO.	SO_2 (Lb/Hr)	SO_2 (Lb/TPW)
Meltshop	1	50.11	0.3840
Baghouse	2	39.25	0.3401
Stack	3	34.76	0.2868
	Avg.	41.37	Avg. 0.3370
	(Limit:	5.9 Lb/Hr)	(Limit: 0.047 Lb/TPW)

SAMPLING LOCATION	RUN NO.	NO_x (Lb/Hr)	CO (Lb/Hr)
Meltshop	1	52.41	246.08
Baghouse	2	38.63	217.55
Stack	3	59.89	222.10
	Avg.	50.31	Avg. 228.57
	(Limit:	22.2 Lb/Hr)	(Limit: 817.0 Lb/Hr)

SAMPLING LOCATION	RUN NO.	VOC (Lb/Hr)	VOC (Lb/TPW)
Meltshop	1	34.98	0.268
Baghouse	2	28.41	0.246
Stack	3	26.22	0.216
	Avg.	29.87	Avg. 0.244
	(Limit:	16.8 Lb/Hr)	(Limit: 0.13 Lb/TPW)

A complete list of test parameters for each Method 5/202 (PM/CPM), 6C (SO_2), 7E (NO_X), 10 (CO) and 25A (VOC) emissions test run performed at the stack sampling location can be found in Tables 1 through 5.

Sample calculations and examples of the equations used to generate the test results can be found in Appendix F.

TABLES

G/SA ..... ENVIRONMENTAL TESTING CONSULTANTS
P.O. Box 807, Crown Point, IN 46307 TEL (219) 663-5394 / FAX (219) 662-7037

TABLE 1
EPA METHOD 5 / 202
TOTAL PARTICULATE EMISSIONS TEST RESULTS

CLIENT: BETA STEEL CORPORATION — JOB NO.: 00-T-118
SOURCE TESTED: MELTSHOP – BAGHOUSE OUTLET — DATA INPUT BY: TLS

INPUT DATA

Run Number	1	2	3
Date	13-Nov-00	13-Nov-00	14-Nov-00
Sampling Location	**Exhaust Stack**	**Exhaust Stack**	**Exhaust Stack**
Test Time, Start-Stop (24 Hour)	1100-1545	1700-2200	0935-1425
Sampling Time (Minutes)	260	270	255
Average Process Weight Rate (TPH)	***130.5***	***115.4***	***121.2***
Stack Area (Ft^2)	240.5	240.5	240.5
Pitot Tube Coefficient (Unitless)	0.84	0.84	0.84
Dry Gas Meter Correction Factor (Unitless)	1.001	1.001	1.001
Nozzle Area (Ft^2)	0.000322	0.000322	0.000322
Barometric Pressure (In. Hg)	29.19	29.19	29.25
Static Pressure (In. H2O)	3.0	3.0	3.0
Dry Gas Meter Sample Volume (DCF)	318.860	324.292	308.480
Average Dry Gas Meter Temperature (°F)	53.8	52.9	54.9
Average Orifice Meter Delta H (In. H2O)	5.385	5.148	5.311
Volume Condensate Collected (Ml)	81.4	96.2	90.0
Average CO2 Concentration (%)	0.7	0.9	0.8
Average O2 Concentration (%)	20.8	20.7	20.8
Average Square Root of Delta P (In. $H2O^{1/2}$)	1.168	1.148	1.160
Average Stack Gas Temperature (°F)	119.1	125.5	116.3
Total Particulate Matter (Grams, G)	**0.0143**	**0.0213**	**0.0157**

CALCULATED DATA

Absolute Pressure (In. Hg)	29.41	29.41	29.47
Dry Gas Meter Sample Volume at Standard Conditions (DSCF)	324.401	330.324	313.769
Water Vapor Volume at Standard Conditions (SCF)	3.831	4.528	4.236
Moisture Fraction (Unitless)	0.012	0.014	0.013
Dry Molecular Weight of Stack Gas (Lb/Lb-Mole)	28.94	28.97	28.96
Wet Molecular Weight of Stack Gas (Lb/Lb-Mole)	28.82	28.82	28.81
Stack Gas Velocity (FPS)	69.3	68.5	68.6
Stack Gas Flow Rate at Actual Conditions (ACFM)	999,999	988,455	989,898
Stack Gas Flow Rate at Dry Standard Conditions (DSCFM)	885,610	864,065	881,828
Isokinetic Sampling (%)	105.2	105.7	104.3
TPM Emission Concentration (Gr/DSCF)	0.00068	0.00100	0.00077
TPM Emission Concentration (Lb/DSCF)	9.72E-08	1.42E-07	1.10E-07
TPM Emission Rate (Lb/Hr)	5.16	7.37	5.84
TPM Emission Concentration (Lb/Ton Process Weight)	*0.040*	*0.064*	*0.048*

Average Stack Gas Flow Rate at Actual Conditions (ACFM)	**992,784**
Average Stack Gas Flow Rate at Dry Standard Conditions (DSCFM)	**877,168**
Average TPM Emission Concentration (Gr/DSCF)	**0.00082**
Average TPM Emission Concentration (Lb/DSCF)	**1.17E-07**
Average TPM Emission Rate (Lb/Hr)	**6.12**
Average TPM Emission Concentration (Lb/Ton Process Weight)	***0.051***

Signature of Reviewer:

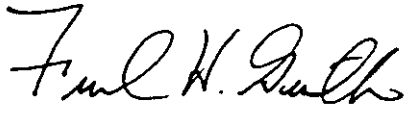


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TABLE 1A
EPA METHOD 5 / 202
PARTICULATE EMISSIONS TEST RESULTS (FRONT-HALF)

CLIENT: BETA STEEL CORPORATION — JOB NO.: 00-T-118
SOURCE TESTED: MELTSHOP - BAGHOUSE OUTLET — DATA INPUT BY: TLS

INPUT DATA

Run Number	1	2	3
Date	13-Nov-00	13-Nov-00	14-Nov-00
Sampling Location	**Exhaust Stack**	**Exhaust Stack**	**Exhaust Stack**
Test Time, Start-Stop (24 Hour)	1100-1545	1700-2200	0935-1425
Sampling Time (Minutes)	260	270	255
Average Process Weight Rate (TPH)	***130.5***	***115.4***	***121.2***
Stack Area (Ft^2)	240.5	240.5	240.5
Pitot Tube Coefficient (Unitless)	0.84	0.84	0.84
Dry Gas Meter Correction Factor (Unitless)	1.001	1.001	1.001
Nozzle Area (Ft^2)	0.000322	0.000322	0.000322
Barometric Pressure (In. Hg)	29.19	29.19	29.25
Static Pressure (In. H2O)	3.0	3.0	3.0
Dry Gas Meter Sample Volume (DCF)	318.860	324.292	308.480
Average Dry Gas Meter Temperature (°F)	53.8	52.9	54.9
Average Orifice Meter Delta H (In. H2O)	5.385	5.148	5.311
Volume Condensate Collected (Ml)	81.4	96.2	90.0
Average CO2 Concentration (%)	0.7	0.9	0.8
Average O2 Concentration (%)	20.8	20.7	20.8
Average Square Root of Delta P (In. $H2O^{1/2}$)	1.168	1.148	1.160
Average Stack Gas Temperature (°F)	119.1	125.5	116.3
Filtered Particulate Matter (Grams, G)	**0.0118**	**0.0117**	**0.0102**

CALCULATED DATA

Absolute Pressure (In. Hg)	29.41	29.41	29.47
Dry Gas Meter Sample Volume at Standard Conditions (DSCF)	324.401	330.324	313.769
Water Vapor Volume at Standard Conditions (SCF)	3.831	4.528	4.236
Moisture Fraction (Unitless)	0.012	0.014	0.013
Dry Molecular Weight of Stack Gas (Lb/Lb-Mole)	28.94	28.97	28.96
Wet Molecular Weight of Stack Gas (Lb/Lb-Mole)	28.82	28.82	28.81
Stack Gas Velocity (FPS)	69.3	68.5	68.6
Stack Gas Flow Rate at Actual Conditions (ACFM)	999,999	988,455	989,898
Stack Gas Flow Rate at Dry Standard Conditions (DSCFM)	885,610	864,065	881,828
Isokinetic Sampling (%)	105.2	105.7	104.3
FPM Emission Concentration (Gr/DSCF)	0.00056	0.00055	0.00050
FPM Emission Concentration (Lb/DSCF)	8.02E-08	7.81E-08	7.17E-08
FPM Emission Rate (Lb/Hr)	4.26	4.05	3.79
FPM Emission Concentration (Lb/Ton Process Weight)	*0.033*	*0.035*	*0.031*

Average Stack Gas Flow Rate at Actual Conditions (ACFM)	**992,784**
Average Stack Gas Flow Rate at Dry Standard Conditions (DSCFM)	**877,168**
Average FPM Emission Concentration (Gr/DSCF)	**0.00054**
Average FPM Emission Concentration (Lb/DSCF)	**7.67E-08**
Average FPM Emission Rate (Lb/Hr)	**4.03**
Average FPM Emission Concentration (Lb/Ton Process Weight)	***0.033***

Signature of Reviewer: Frank H. Gerdes

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TABLE 1B
EPA METHOD 5 / 202
PARTICULATE EMISSIONS TEST RESULTS (BACK-HALF)

CLIENT: BETA STEEL CORPORATION — JOB NO.: 00-T-118
SOURCE TESTED: MELTSHOP - BAGHOUSE OUTLET — DATA INPUT BY: TLS

INPUT DATA

Run Number	1	2	3
Date	13-Nov-00	13-Nov-00	14-Nov-00
Sampling Location	**Exhaust Stack**	**Exhaust Stack**	**Exhaust Stack**
Test Time, Start-Stop (24 Hour)	1100-1545	1700-2200	0935-1425
Sampling Time (Minutes)	260	270	255
Average Process Weight Rate (TPH)	***130.5***	***115.4***	***121.2***
Stack Area (Ft^2)	240.5	240.5	240.5
Pitot Tube Coefficient (Unitless)	0.84	0.84	0.84
Dry Gas Meter Correction Factor (Unitless)	1.001	1.001	1.001
Nozzle Area (Ft^2)	0.000322	0.000322	0.000322
Barometric Pressure (In. Hg)	29.19	29.19	29.25
Static Pressure (In. H2O)	3.0	3.0	3.0
Dry Gas Meter Sample Volume (DCF)	318.860	324.292	308.480
Average Dry Gas Meter Temperature (°F)	53.8	52.9	54.9
Average Orifice Meter Delta H (In. H2O)	5.385	5.148	5.311
Volume Condensate Collected (Ml)	81.4	96.2	90.0
Average CO2 Concentration (%)	0.7	0.9	0.8
Average O2 Concentration (%)	20.8	20.7	20.8
Average Square Root of Delta P (In. H2O½)	1.168	1.148	1.160
Average Stack Gas Temperature (°F)	119.1	125.5	116.3
Condensed Particulate Matter (Grams, G)	**0.0025**	**0.0096**	**0.0055**

CALCULATED DATA

Absolute Pressure (In. Hg)	29.41	29.41	29.47
Dry Gas Meter Sample Volume at Standard Conditions (DSCF)	324.401	330.324	313.769
Water Vapor Volume at Standard Conditions (SCF)	3.831	4.528	4.236
Moisture Fraction (Unitless)	0.012	0.014	0.013
Dry Molecular Weight of Stack Gas (Lb/Lb-Mole)	28.94	28.97	28.96
Wet Molecular Weight of Stack Gas (Lb/Lb-Mole)	28.82	28.82	28.81
Stack Gas Velocity (FPS)	69.3	68.5	68.6
Stack Gas Flow Rate at Actual Conditions (ACFM)	999,999	988,455	989,898
Stack Gas Flow Rate at Dry Standard Conditions (DSCFM)	885,610	864,065	881,828
Isokinetic Sampling (%)	105.2	105.7	104.3
CPM Emission Concentration (Gr/DSCF)	0.00012	0.00045	0.00027
CPM Emission Concentration (Lb/DSCF)	1.70E-08	6.41E-08	3.87E-08
CPM Emission Rate (Lb/Hr)	0.90	3.32	2.05
CPM Emission Concentration (Lb/Ton Process Weight)	*0.0069*	*0.029*	*0.017*

Average Stack Gas Flow Rate at Actual Conditions (ACFM)	**992,784**
Average Stack Gas Flow Rate at Dry Standard Conditions (DSCFM)	**877,168**
Average CPM Emission Concentration (Gr/DSCF)	**0.00028**
Average CPM Emission Concentration (Lb/DSCF)	**3.99E-08**
Average CPM Emission Rate (Lb/Hr)	**2.09**
Average CPM Emission Concentration (Lb/Ton Process Weight)	***0.018***

Signature of Reviewer:

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TABLE 1C
EPA METHOD 5 / 202
PARTICULATE EMISSIONS TEST RESULTS (INORGANICS)

CLIENT: BETA STEEL CORPORATION — JOB NO.: 00-T-118
SOURCE TESTED: MELTSHOP - BAGHOUSE OUTLET — DATA INPUT BY: TLS

INPUT DATA

Run Number	1	2	3
Date	13-Nov-00	13-Nov-00	14-Nov-00
Sampling Location	**Exhaust Stack**	**Exhaust Stack**	**Exhaust Stack**
Test Time, Start-Stop (24 Hour)	1100-1545	1700-2200	0935-1425
Sampling Time (Minutes)	260	270	255
Average Process Weight Rate (TPH)	***130.5***	***115.4***	***121.2***
Stack Area (Ft^2)	240.5	240.5	240.5
Pitot Tube Coefficient (Unitless)	0.84	0.84	0.84
Dry Gas Meter Correction Factor (Unitless)	1.001	1.001	1.001
Nozzle Area (Ft^2)	0.000322	0.000322	0.000322
Barometric Pressure (In. Hg)	29.19	29.19	29.25
Static Pressure (In. H2O)	3.0	3.0	3.0
Dry Gas Meter Sample Volume (DCF)	318.860	324.292	308.480
Average Dry Gas Meter Temperature (°F)	53.8	52.9	54.9
Average Orifice Meter Delta H (In. H2O)	5.385	5.148	5.311
Volume Condensate Collected (Ml)	81.4	96.2	90.0
Average CO2 Concentration (%)	0.7	0.9	0.8
Average O2 Concentration (%)	20.8	20.7	20.8
Average Square Root of Delta P (In. H2O½)	1.168	1.148	1.160
Average Stack Gas Temperature (°F)	119.1	125.5	116.3
Inorganic Particulate Matter (Grams, G)	***0.0020***	***0.0041***	***0.0047***

CALCULATED DATA

Absolute Pressure (In. Hg)	29.41	29.41	29.47
Dry Gas Meter Sample Volume at Standard Conditions (DSCF)	324.401	330.324	313.769
Water Vapor Volume at Standard Conditions (SCF)	3.831	4.528	4.236
Moisture Fraction (Unitless)	0.012	0.014	0.013
Dry Molecular Weight of Stack Gas (Lb/Lb-Mole)	28.94	28.97	28.96
Wet Molecular Weight of Stack Gas (Lb/Lb-Mole)	28.82	28.82	28.81
Stack Gas Velocity (FPS)	69.3	68.5	68.6
Stack Gas Flow Rate at Actual Conditions (ACFM)	999,999	988,455	989,898
Stack Gas Flow Rate at Dry Standard Conditions (DSCFM)	885,610	864,065	881,828
Isokinetic Sampling (%)	105.2	105.7	104.3
IPM Emission Concentration (Gr/DSCF)	0.00010	0.00019	0.00023
IPM Emission Concentration (Lb/DSCF)	1.36E-08	2.74E-08	3.30E-08
IPM Emission Rate (Lb/Hr)	0.72	1.42	1.75
IPM Emission Concentration (Lb/Ton Process Weight)	*0.0055*	*0.012*	*0.014*

Average Stack Gas Flow Rate at Actual Conditions (ACFM)	**992,784**
Average Stack Gas Flow Rate at Dry Standard Conditions (DSCFM)	**877,168**
Average IPM Emission Concentration (Gr/DSCF)	**0.00017**
Average IPM Emission Concentration (Lb/DSCF)	**2.47E-08**
Average IPM Emission Rate (Lb/Hr)	**1.30**
Average IPM Emission Concentration (Lb/Ton Process Weight)	***0.011***

Signature of Reviewer:

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TABLE 1D
EPA METHOD 5 / 202
PARTICULATE EMISSIONS TEST RESULTS (ORGANICS)

CLIENT: BETA STEEL CORPORATION — JOB NO.: 00-T-118
SOURCE TESTED: MELTSHOP - BAGHOUSE OUTLET — DATA INPUT BY: TLS

INPUT DATA

Run Number	1	2	3
Date	13-Nov-00	13-Nov-00	14-Nov-00
Sampling Location	**Exhaust Stack**	**Exhaust Stack**	**Exhaust Stack**
Test Time, Start-Stop (24 Hour)	1100-1545	1700-2200	0935-1425
Sampling Time (Minutes)	260	270	255
Average Process Weight Rate (TPH)	***130.5***	***115.4***	***121.2***
Stack Area (Ft^2)	240.5	240.5	240.5
Pitot Tube Coefficient (Unitless)	0.84	0.84	0.84
Dry Gas Meter Correction Factor (Unitless)	1.001	1.001	1.001
Nozzle Area (Ft^2)	0.000322	0.000322	0.000322
Barometric Pressure (In. Hg)	29.19	29.19	29.25
Static Pressure (In. H2O)	3.0	3.0	3.0
Dry Gas Meter Sample Volume (DCF)	318.860	324.292	308.480
Average Dry Gas Meter Temperature (°F)	53.8	52.9	54.9
Average Orifice Meter Delta H (In. H2O)	5.385	5.148	5.311
Volume Condensate Collected (Ml)	81.4	96.2	90.0
Average CO2 Concentration (%)	0.7	0.9	0.8
Average O2 Concentration (%)	20.8	20.7	20.8
Average Square Root of Delta P (In. $H2O^{1/2}$)	1.168	1.148	1.160
Average Stack Gas Temperature (°F)	119.1	125.5	116.3
Organic Particulate Matter (Grams, G)	**0.0005**	**0.0055**	**0.0008**

CALCULATED DATA

Absolute Pressure (In. Hg)	29.41	29.41	29.47
Dry Gas Meter Sample Volume at Standard Conditions (DSCF)	324.401	330.324	313.769
Water Vapor Volume at Standard Conditions (SCF)	3.831	4.528	4.236
Moisture Fraction (Unitless)	0.012	0.014	0.013
Dry Molecular Weight of Stack Gas (Lb/Lb-Mole)	28.94	28.97	28.96
Wet Molecular Weight of Stack Gas (Lb/Lb-Mole)	28.82	28.82	28.81
Stack Gas Velocity (FPS)	69.3	68.5	68.6
Stack Gas Flow Rate at Actual Conditions (ACFM)	999,999	988,455	989,898
Stack Gas Flow Rate at Dry Standard Conditions (DSCFM)	885,610	864,065	881,828
Isokinetic Sampling (%)	105.2	105.7	104.3
OPM Emission Concentration (Gr/DSCF)	0.000024	0.00026	0.000039
OPM Emission Concentration (Lb/DSCF)	3.40E-09	3.67E-08	5.62E-09
OPM Emission Rate (Lb/Hr)	0.18	1.90	0.30
OPM Emission Concentration (Lb/Ton Process Weight)	*0.0014*	*0.016*	*0.0025*

Average Stack Gas Flow Rate at Actual Conditions (ACFM)	**992,784**
Average Stack Gas Flow Rate at Dry Standard Conditions (DSCFM)	**877,168**
Average OPM Emission Concentration (Gr/DSCF)	**0.00011**
Average OPM Emission Concentration (Lb/DSCF)	**1.52E-08**
Average OPM Emission Rate (Lb/Hr)	**0.79**
Average OPM Emission Concentration (Lb/Ton Process Weight)	***0.0068***

Signature of Reviewer:

G/SA..... ENVIRONMENTAL TESTING CONSULTANTS
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TABLE 2
EPA METHOD 6C
SULFUR DIOXIDE EMISSIONS TEST RESULTS

CLIENT: BETA STEEL CORPORATION — JOB NO.: 00-T-118
SOURCE TESTED: MELTSHOP - BAGHOUSE OUTLET — DATA INPUT BY: TLS

INPUT DATA

Run Number	1	2	3
Date	13-Nov-00	13-Nov-00	14-Nov-00
Sampling Location	**Exhaust Stack**	**Exhaust Stack**	**Exhaust Stack**
Test Time, Start-Stop (24 Hour)	1100-1545	1700-2200	0935-1425
Sampling Time (Minutes)	60	60	60
Average Process Weight Rate (TPH)	***130.5***	***115.4***	***121.2***
Stack Area (Ft^2)	240.5	240.5	240.5
Pitot Tube Coefficient (Unitless)	0.84	0.84	0.84
Dry Gas Meter Correction Factor (Unitless)	1.001	1.001	1.001
Barometric Pressure (In. Hg)	29.19	29.19	29.25
Static Pressure (In. H2O)	3.0	3.0	3.0
Dry Gas Meter Sample Volume (DCF)	318.860	324.292	308.480
Average Dry Gas Meter Temperature (°F)	53.8	52.9	54.9
Average Orifice Meter Delta H (In. H2O)	5.385	5.148	5.311
Volume Condensate Collected (Ml)	81.4	96.2	90.0
Average CO2 Concentration (%)	0.7	0.9	0.8
Average O2 Concentration (%)	20.8	20.7	20.8
Average Square Root of Delta P (In. H2O½)	1.168	1.148	1.160
Average Stack Gas Temperature (°F)	119.1	125.5	116.3
Average Corrected SO2 Concentration (PPMV)	**5.71**	**4.54**	**3.99**

CALCULATED DATA

Absolute Pressure (In. Hg)	29.41	29.41	29.47
Dry Gas Meter Sample Volume at Standard Conditions (DSCF)	324.401	330.324	313.769
Water Vapor Volume at Standard Conditions (SCF)	3.831	4.528	4.236
Moisture Fraction (Unitless)	0.012	0.014	0.013
Dry Molecular Weight of Stack Gas (Lb/Lb-Mole)	28.94	28.97	28.96
Wet Molecular Weight of Stack Gas (Lb/Lb-Mole)	28.82	28.82	28.81
Stack Gas Velocity (FPS)	69.3	68.5	68.6
Stack Gas Flow Rate at Actual Conditions (ACFM)	999,999	988,455	989,898
Stack Gas Flow Rate at Dry Standard Conditions (DSCFM)	885,610	864,065	881,828
SO2 Emission Concentration (Gr/DSCF)	0.0066	0.0053	0.0046
SO2 Emission Concentration (Lb/DSCF)	9.43E-07	7.57E-07	6.57E-07
SO2 Emission Rate (Lb/Hr)	50.11	39.25	34.76
SO2 Emission Concentration (Lb/Ton Process Weight)	*0.3840*	*0.3401*	*0.2868*

Average Stack Gas Flow Rate at Actual Conditions (ACFM)	**992,784**
Average Stack Gas Flow Rate at Dry Standard Conditions (DSCFM)	**877,168**
Average SO2 Emission Concentration (Gr/DSCF)	**0.0055**
Average SO2 Emission Concentration (Lb/DSCF)	**7.86E-07**
Average SO2 Emission Rate (Lb/Hr)	**41.37**
Average SO2 Emission Concentration (Lb/Ton Process Weight)	***0.3370***

Signature of Reviewer:

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TABLE 3
EPA METHOD 7E
NITROGEN OXIDES EMISSIONS TEST RESULTS

CLIENT: BETA STEEL CORPORATION — JOB NO.: 00-T-118
SOURCE TESTED: MELTSHOP – BAGHOUSE OUTLET — DATA INPUT BY: TLS

INPUT DATA

Run Number	1	2	3
Date	13-Nov-00	13-Nov-00	14-Nov-00
Sampling Location	**Exhaust Stack**	**Exhaust Stack**	**Exhaust Stack**
Test Time, Start-Stop (24 Hour)	1100-1545	1700-2200	0935-1425
Sampling Time (Minutes)	60	60	60
Average Process Weight Rate (TPH)	***130.5***	***115.4***	***121.2***
Stack Area (Ft^2)	240.5	240.5	240.5
Pitot Tube Coefficient (Unitless)	0.84	0.84	0.84
Dry Gas Meter Correction Factor (Unitless)	1.001	1.001	1.001
Barometric Pressure (In. Hg)	29.19	29.19	29.25
Static Pressure (In. H2O)	3.0	3.0	3.0
Dry Gas Meter Sample Volume (DCF)	318.860	324.292	308.480
Average Dry Gas Meter Temperature (°F)	53.8	52.9	54.9
Average Orifice Meter Delta H (In. H2O)	5.385	5.148	5.311
Volume Condensate Collected (Ml)	81.4	96.2	90.0
Average CO2 Concentration (%)	0.7	0.9	0.8
Average O2 Concentration (%)	20.8	20.7	20.8
Average Square Root of Delta P (In. $H2O^{1/2}$)	1.168	1.148	1.160
Average Stack Gas Temperature (°F)	119.1	125.5	116.3
Average Corrected NOx Concentration as NO2 (PPMV)	**8.26**	**6.24**	**9.48**

CALCULATED DATA

Absolute Pressure (In. Hg)	29.41	29.41	29.47
Dry Gas Meter Sample Volume at Standard Conditions (DSCF)	324.401	330.324	313.769
Water Vapor Volume at Standard Conditions (SCF)	3.831	4.528	4.236
Moisture Fraction (Unitless)	0.012	0.014	0.013
Dry Molecular Weight of Stack Gas (Lb/Lb-Mole)	28.94	28.97	28.96
Wet Molecular Weight of Stack Gas (Lb/Lb-Mole)	28.82	28.82	28.81
Stack Gas Velocity (FPS)	69.3	68.5	68.6
Stack Gas Flow Rate at Actual Conditions (ACFM)	999,999	988,455	989,898
Stack Gas Flow Rate at Dry Standard Conditions (DSCFM)	885,610	864,065	881,828
NOx Emission Concentration (Gr/DSCF)	0.0069	0.0052	0.0079
NOx Emission Concentration (Lb/DSCF)	9.86E-07	7.45E-07	1.13E-06
NOx Emission Rate (Lb/Hr)	52.41	38.63	59.89
NOx Emission Concentration (Lb/Ton Process Weight)	*0.40*	*0.33*	*0.49*

Average Stack Gas Flow Rate at Actual Conditions (ACFM)	**992,784**
Average Stack Gas Flow Rate at Dry Standard Conditions (DSCFM)	**877,168**
Average NOx Emission Concentration (Gr/DSCF)	**0.0067**
Average NOx Emission Concentration (Lb/DSCF)	**9.54E-07**
Average NOx Emission Rate (Lb/Hr)	**50.31**
Average NOx Emission Concentration (Lb/Ton Process Weight)	***0.41***

Signature of Reviewer:

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TABLE 4
EPA METHOD 10
CARBON MONOXIDE EMISSIONS TEST RESULTS

CLIENT: BETA STEEL CORPORATION — JOB NO.: 00-T-118
SOURCE TESTED: MELTSHOP - BAGHOUSE OUTLET — DATA INPUT BY: TLS

INPUT DATA

Run Number	1	2	3
Date	13-Nov-00	13-Nov-00	14-Nov-00
Sampling Location	**Exhaust Stack**	**Exhaust Stack**	**Exhaust Stack**
Test Time, Start-Stop (24 Hour)	1100-1545	1700-2200	0935-1425
Sampling Time (Minutes)	60	60	60
Average Process Weight Rate (TPH)	***130.5***	***115.4***	***121.2***
Stack Area (Ft^2)	240.5	240.5	240.5
Pitot Tube Coefficient (Unitless)	0.84	0.84	0.84
Dry Gas Meter Correction Factor (Unitless)	1.001	1.001	1.001
Barometric Pressure (In. Hg)	29.19	29.19	29.25
Static Pressure (In. H2O)	3.0	3.0	3.0
Dry Gas Meter Sample Volume (DCF)	318.860	324.292	308.480
Average Dry Gas Meter Temperature (°F)	53.8	52.9	54.9
Average Orifice Meter Delta H (In. H2O)	5.385	5.148	5.311
Volume Condensate Collected (Ml)	81.4	96.2	90.0
Average CO2 Concentration (%)	0.7	0.9	0.8
Average O2 Concentration (%)	20.8	20.7	20.8
Average Square Root of Delta P (In. $H2O^{1/2}$)	1.168	1.148	1.160
Average Stack Gas Temperature (°F)	119.1	125.5	116.3
Average Corrected CO Concentration (PPMV)	**63.70**	**57.72**	**57.74**

CALCULATED DATA

Absolute Pressure (In. Hg)	29.41	29.41	29.47
Dry Gas Meter Sample Volume at Standard Conditions (DSCF)	324.401	330.324	313.769
Water Vapor Volume at Standard Conditions (SCF)	3.831	4.528	4.236
Moisture Fraction (Unitless)	0.012	0.014	0.013
Dry Molecular Weight of Stack Gas (Lb/Lb-Mole)	28.94	28.97	28.96
Wet Molecular Weight of Stack Gas (Lb/Lb-Mole)	28.82	28.82	28.81
Stack Gas Velocity (FPS)	69.3	68.5	68.6
Stack Gas Flow Rate at Actual Conditions (ACFM)	999,999	988,455	989,898
Stack Gas Flow Rate at Dry Standard Conditions (DSCFM)	885,610	864,065	881,828
CO Emission Concentration (Gr/DSCF)	0.032	0.029	0.029
CO Emission Concentration (Lb/DSCF)	4.63E-06	4.20E-06	4.20E-06
CO Emission Rate (Lb/Hr)	246.08	217.55	222.10
CO Emission Concentration (Lb/Ton Process Weight)	*1.89*	*1.89*	*1.83*

Average Stack Gas Flow Rate at Actual Conditions (ACFM)	**992,784**
Average Stack Gas Flow Rate at Dry Standard Conditions (DSCFM)	**877,168**
Average CO Emission Concentration (Gr/DSCF)	**0.030**
Average CO Emission Concentration (Lb/DSCF)	**4.34E-06**
Average CO Emission Rate (Lb/Hr)	**228.57**
Average CO Emission Concentration (Lb/Ton Process Weight)	***1.87***

Signature of Reviewer: Fred H. Gulley

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TABLE 5
EPA METHOD 25A
TOTAL GASEOUS ORGANIC EMISSIONS TEST RESULTS

CLIENT: BETA STEEL CORPORATION — JOB NO.: 00-T-118
SOURCE TESTED: MELTSHOP – BAGHOUSE OUTLET — DATA INPUT BY: TLS

INPUT DATA

Run Number	1	2	3
Date	13-Nov-00	13-Nov-00	14-Nov-00
Sampling Location	**Exhaust Stack**	**Exhaust Stack**	**Exhaust Stack**
Test Time, Start-Stop (24 Hour)	1100-1545	1700-2200	0935-1425
Sampling Time (Minutes)	60	60	60
Average Process Weight Rate (TPH)	***130.5***	***115.4***	***121.2***
Stack Area (Ft^2)	240.5	240.5	240.5
Pitot Tube Coefficient (Unitless)	0.84	0.84	0.84
Dry Gas Meter Correction Factor (Unitless)	1.001	1.001	1.001
Barometric Pressure (In. Hg)	29.19	29.19	29.25
Static Pressure (In. H2O)	3.0	3.0	3.0
Dry Gas Meter Sample Volume (DCF)	318.860	324.292	308.480
Average Dry Gas Meter Temperature (°F)	53.8	52.9	54.9
Average Orifice Meter Delta H (In. H2O)	5.385	5.148	5.311
Volume Condensate Collected (Ml)	81.4	96.2	90.0
Average CO2 Concentration (%)	0.7	0.9	0.8
Average O2 Concentration (%)	20.8	20.7	20.8
Average Square Root of Delta P (In. H2O½)	1.168	1.148	1.160
Average Stack Gas Temperature (°F)	119.1	125.5	116.3
Average Corrected TGO Concentration as Carbon (PPMV)	**21.12**	**17.58**	**15.90**

CALCULATED DATA

Absolute Pressure (In. Hg)	29.41	29.41	29.47
Dry Gas Meter Sample Volume at Standard Conditions (DSCF)	324.401	330.324	313.769
Water Vapor Volume at Standard Conditions (SCF)	3.831	4.528	4.236
Moisture Fraction (Unitless)	0.012	0.014	0.013
Dry Molecular Weight of Stack Gas (Lb/Lb-Mole)	28.94	28.97	28.96
Wet Molecular Weight of Stack Gas (Lb/Lb-Mole)	28.82	28.82	28.81
Stack Gas Velocity (FPS)	69.3	68.5	68.6
Stack Gas Flow Rate at Actual Conditions (ACFM)	999,999	988,455	989,898
Stack Gas Flow Rate at Dry Standard Conditions (DSCFM)	885,610	864,065	881,828
TGO Emission Concentration (Gr/DSCF)	0.0046	0.0038	0.0035
TGO Emission Concentration (Lb/DSCF)	6.58E-07	5.48E-07	4.96E-07
TGO Emission Rate (Lb/Hr)	34.98	28.41	26.22
TGO Emission Concentration (Lb/Ton Process Weight)	*0.268*	*0.246*	*0.216*

Average Stack Gas Flow Rate at Actual Conditions (ACFM)	**992,784**
Average Stack Gas Flow Rate at Dry Standard Conditions (DSCFM)	**877,168**
Average TGO Emission Concentration (Gr/DSCF)	**0.0040**
Average TGO Emission Concentration (Lb/DSCF)	**5.67E-07**
Average TGO Emission Rate (Lb/Hr)	**29.87**
Average TGO Emission Concentration (Lb/Ton Process Weight)	***0.244***

Signature of Reviewer: Fred H. Gunther

3.0 FACILITY DESCRIPTION

Beta Steel Corporation owns and operates a steel manufacturing and processing plant which produces hot rolled steel coils. Tons of iron, scrap steel and various metals are charged into an electric arc furnace (EAF) and transformed to molten steel which is transferred to a ladle metallurgy station (LMS) for refining, then to a caster mold for forming and cooling, and then to a finishing mill for reheating, thickness sizing, recooling and coiling.

Beta Steel is located at 6500 South Boundary Road within the Port of Indiana in Portage, Indiana which is in Porter County.

The Beta Steel facility consists basically of a Meltshop and a Hot Strip Mill. See Figure 1 which is a schematic process flow diagram of the plant.

The Meltshop is comprised of the following: A Direct Shell EAF and a LMS system, which were the primary sources tested for compliance purposes; a continuous slab caster; slag air cooling bays; four (4) ladle preheat/holding stations with natural gas-fired burners; a tundish dry-out/preheater station with a natural gas-fired burner; a water-cooled caster mold; a natural gas and oxygen, oxy-fuel cut-off torch; a slag processing operation consisting of a grizzly/feeder, covered conveyors, material sizing screens and storage piles; a carbon, lime and flux additive handling system with pneumatic

conveyors, storage bins and enclosed conveyors to the EAF blending area; and close-capture exhaust hoods, a direct evacuation system, a side draft evacuation/collection system and collection canopies which exhaust to a jet-pulse, fabric filter baghouse with a dust silo and 200' high exhaust stack.

The Meltshop process operation is as follows: Scrap, carbon bearing materials and fluxing agents are used as raw materials to produce molten or liquid steel in the EAF. The liquid steel produced in the EAF is produced in batches or heats. When the melting and preliminary refining of the steel is completed, the steel is poured or tapped from the EAF into ladles. The liquid steel in the ladles is transferred to the LMS where the steel is heated by a small capacity electric arc and further refined by the introduction of metallurgical alloys to the desired specifications. Upon completion of the refining process at the LMS, the liquid steel in the ladles is transferred to a continuous slab caster (Caster). At the Caster, the liquid steel is poured or cast from the ladles into a tundish from which it flows into a water-cooled caster mold. In the caster mold, the liquid steel, in contact with the water-cooled surfaces of the mold, solidifies, forming a partially solidified strand. The strand is moved from the mold by powered rollers through a series of water sprays. The water sprays cool the strand which causes solidification of the strand from the outside surfaces to the interior. The solid steel strand is cut into solid steel slabs by a cut-off torch near the exit end of the Caster. The solid steel slabs are transferred to the Hot Strip Mill where they are hot rolled into steel bands or coils.

The Meltshop building is enclosed except for truck, rail and personnel doors at grade level, which are required for entrance to and exit from the building. There are no openings (e.g., roof monitors or ventilators) in the roof of the Meltshop building. All exhaust air requirements are provided by the Meltshop fume collection and control system. All handling and storage of slag produced at the EAF is conducted inside the Meltshop building. Slag dumping and load out operations are conducted in a dedicated room inside the Meltshop. Air is exhausted from the room to the fume collection and control system. The fume collection and control system is serviced by the Meltshop Baghouse which cleans the exhausted air prior to discharge to the atmosphere through the Meltshop Baghouse Stack. The particulate and gaseous emissions testing was performed on this stack. See Figures 2 and 3.

The Hot Strip Mill is comprised of the following: A natural gas-fired slab reheat furnace; hot rolling mills (roughing and finishing mills); high pressure water sprays: a strip cooling line; a coiler; and a selective catalytic reduction (SCR) unit and 100′ high exhaust stack.

The Hot Strip Mill process operation is as follows: The solid steel slabs transferred from the Meltshop are placed in a natural gas-fired slab reheat furnace where the slabs are heated to temperatures required for hot rolling. The heated slabs are transferred from the furnace to a hot rolling line. The slabs are then passed through a roughing mill to remove scale from the outside surfaces of the slab by high pressure water spray and to

reduce the thickness of the slabs. The heated slabs are transferred from the roughing mill to a finishing mill where the thickness of the slabs is reduced to a final desired hot rolled strip thickness. From the finishing mill, the hot rolled strip is passed through a series of water sprays to cool the strip. Downstream of the water sprays, the cooled strip is coiled, secured and temporarily stored for shipment to off-site customers.

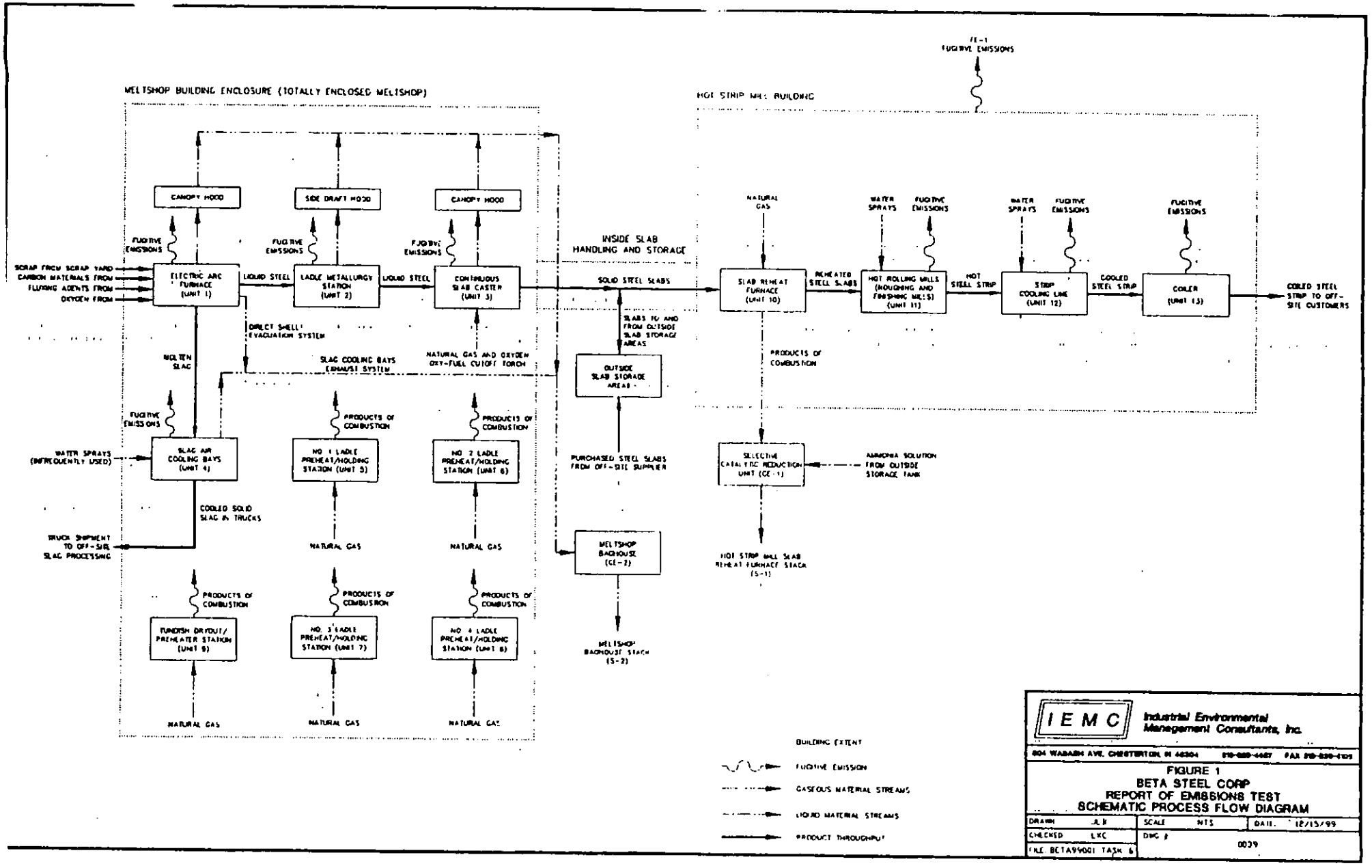
The slab reheat furnace in the Hot Strip Mill building is serviced by a SCR for control of oxides of nitrogen in the waste gas, which are products of natural gas combustion, from the furnace. The waste gas from the SCR is discharged to the atmosphere through the Hot Strip Mill Slab Reheat Furnace Stack.

During the emissions testing on November 13, 2000, the Meltshop steel processing weight rates averaged 130.5 tons/hr (Run 1) and 115.4 tons/hr (Run 2), and on November 14 the weight rate averaged 121.2 tons/hr (Run 3).

Process operating data recorded during the emissions testing can be found in Appendix B of this report.

FIGURES

FIGURES



IEMC Industrial Environmental Management Consultants, Inc.

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FIGURE 1
BETA STEEL CORP
REPORT OF EMISSIONS TEST
SCHEMATIC PROCESS FLOW DIAGRAM

DRAWN	JLB	SCALE	NTS
CHECKED	LKC	DWG #	0039
FILE BETA99001 TASK 6			

DATE 12/15/99

FIGURES

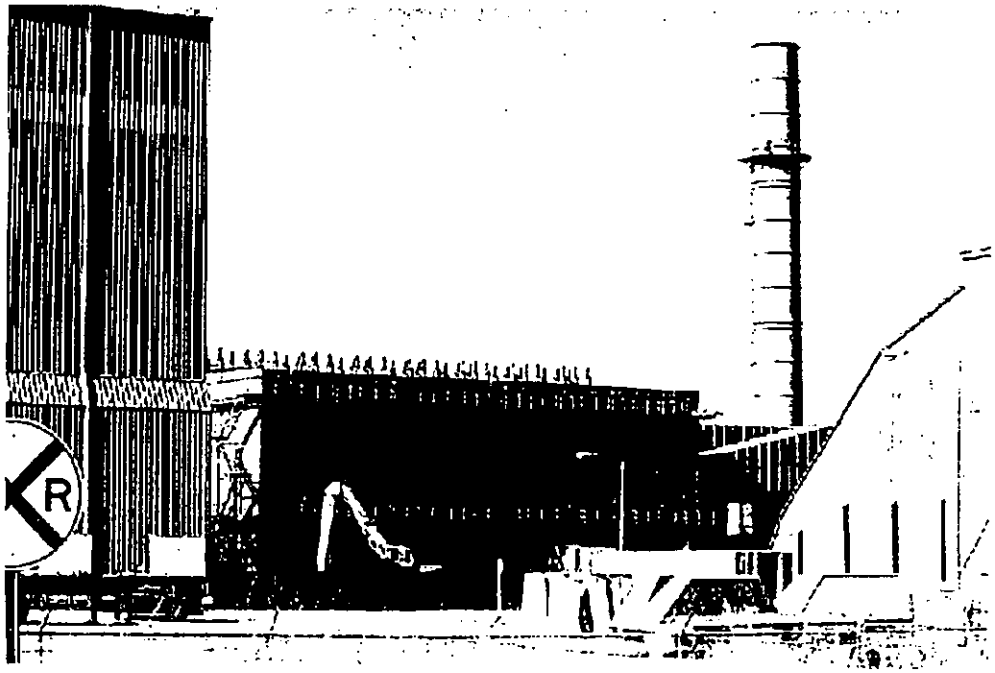

Figure 2. Meltshop - Baghouse/Stack Configuration

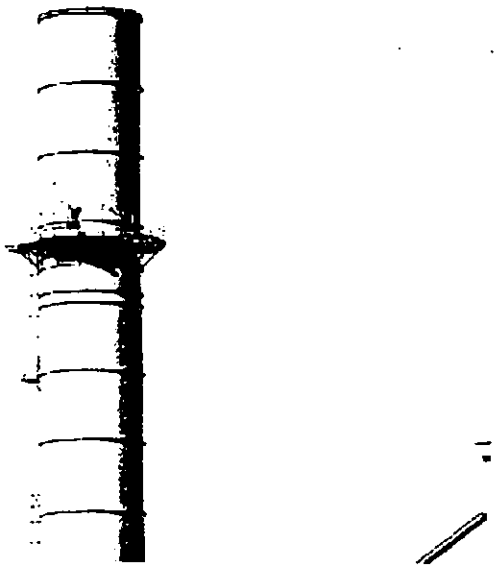

Figure 3. Meltshop - Stack Sampling Location

4.0 TEST PROCEDURES

G/SA, and G/SA's affiliates and subcontractors use all current EPA accepted testing methodologies in their Air Quality Programs as listed in the U.S. Code of Federal Regulations, Title 40, Part 51, Appendix M and Part 60, Appendix A. For this testing program, the following specific methodologies were utilized:

EPA Method 1 - Sample and Velocity Traverses for Stationary Sources

EPA Method 2 - Determination of Stack Gas Velocity and Volummetric Flow Rate (Type S Pitot Tube)

EPA Method 3A - Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources (Instrumental Analyzer Procedure)

EPA Method 5 - Determination of Particulate Emissions from Stationary Sources

EPA Method 6C - Determination of Sulfur Dioxide Emissions from Stationary Sources (Instrumental Analyzer Procedure)

EPA Method 7E - Determination of Nitrogen Oxides Emissions from Stationary Sources (Instrumental Analyzer Procedure)

EPA Method 9 - Visual Determination of the Opacity of Emissions from Stationary Sources

EPA Method 10 - Determination of Carbon Monoxide Emissions from Stationary Sources (Instrumental Analyzer Procedure)

EPA Method 25A - Determination of Total Gaseous Organic Concentration Using a Flame Ionization Analyzer

EPA Method 202 - Determination of Condensible Particulate Emissions from Stationary Sources

EPA Methods 1, 2 and 5/202 were performed at the Meltshop Baghouse Stack sampling location using one (1) Apex Instruments, Model 522, control unit and sampling train incorporating a 7', effective length, stainless-steel probe with a heated, borosilicate glass liner, stainless-steel nozzle and Type S, stainless-steel pitot tube, ¼" O.D., stainless-steel static pressure/gas sampling tube and Type K (Chromel/Alumel) thermocouples; an aluminum filter oven and borosilicate glass filter holders with Teflon filter supports with Viton-O-Rings, and 0.3 micron (99.9% retention), Whatman 8.5 cm, Type 934-AH, glass microfiber filters; foam insulated, aluminum impinger units with two (2) Greenburg-Smith and two (2) modified Greenburg-Smith glass impinger bottles, and a stainless-steel umbilical adapter with Type K (Chromel/Alumel) gas exit thermocouple; and a 90' umbilical with various interconnecting fittings, plugs and connectors.

Sample pH levels were determined with EM colorpHast pH Strips with a 0 to 6 pH range. Impinger contents were purged with ambient air utilizing a Gast ¼ h.p. vacuum pump incorporating a Dwyer, Model RMA-23-SSV, Rate-Master Flowmeter (5-50 lpm range), and ¼" O.D. rubber tubing, regulators, interconnecting fittings and valves.

Because each impinger sample solution had a pH less than 4.5, a one (1) hour ambient air purge was performed after PM/CPM test runs 1 and 2. The run 3 impinger sample

solution indicated a pH level of 5.0, therefore no purge was conducted.

EPA Method 3A was performed using a Fuji, NDIR CO_2 Monitor and a California Analytical, Paramagnetic O_2 Monitor to determine stack gas concentrations of CO_2 and O_2, respectively.

EPA Methods 6C, 7E, 10 and 25A were performed using a Western Research, NDIR SO_2 Monitor, a Thermo-Electron, Chemiluminescent NO/NO_x Monitor, a Thermo-Electron, GFCIR CO Monitor and a California Analytical FID VOC Monitor to determine stack gas concentrations of SO_2, NO_x, CO and VOC, respectively.

The aforementioned monitors at the Meltshop Baghouse Stack sampling location incorporated a 6', effective length, stainless-steel, heated sample probe with a sintered stainless-steel filter; a Teflon condenser assembly with peristaltic pump; ¼" O.D. × 275' long Teflon sample line and bias-check line; 250' of heated, Teflon sample line with temperature controllers; a Fuji Data Acquisition System; one (1) cylinder of hydrogen fuel gas, two (2) #1 cylinders of certified zero grade N_2 gas, several #1 cylinders of protocol CO_2, O_2, SO_2, NO_x, CO and propane span gases; and various interconnecting regulators, Teflon tubing, fittings and valves.

Calibration data, including an on-site dry gas meter calibration check, and pretest run and post-test run CEM calibrations of the aforementioned instrumentation, and calibration

span gas certifications can be found in Appendix E.

Cyclonic flow checks were omitted at the Meltshop Baghouse Stack sampling location due to the acceptable stack and test port configurations based on Method 1 requirements, and relatively laminar flows noted during the preliminary traverse procedures conducted prior to the emissions testing a the sampling location.

The gas stream data collected during EPA Methods 2, 3A, and 5/202 testing, to determine stack gas conditions and PM/CPM emissions concentrations, was used in conjunction with EPA Methods 6C, 7E, 10 and 25A testing to obtain SO_2, NO_X, CO and VOC calculated emission results, respectively.

EPA Method 9 VE observations conducted on the Meltshop Baghouse Stack were performed by a certified visual opacity observer. All three (3) VE tests on the baghouse stack exhaust were conducted during each of the PM/CPM test runs at the stack sampling location. The VE observations data can be found in Appendix A of this report.

No testing or sample recovery deviations or procedural errors occurred during the onsite sampling phase of the testing program.

Certifications and material safety data for the chemical reagents used in performing the PM/CPM testing are included in Appendix D

No significant process deviations or upsets occurred during the emissions testing periods.

The emissions test data collected during the field sampling can be found in Appendix A of this report. The particulate and gaseous emissions concentrations, rates and pertinent data are presented in the "Test Results Summary".