AP32 Section:	12.5.1
Background Chapter	3
Reference:	45
Title:	Summary of stack test results for SMI Steel (formerly Owens Electric Steel - Cayce, SC). Testing conducted on February 3-4, April 1, and June 30, 1993; February 23-24, 1995; April 17-18, 1997; April 14, and 21-22, 1999; February 22-23 and July 11, 2001. Received from Anthony Keeler, South Carolina Department of Health and Environmental Control on September 16, 2002.

Owens Electric Steel Co. of SC
New Melt Shop
Cayce-West Columbia, SC
RESULTS - TESTS OF February 3 & 4, 1993

PERMIT NO. 1561-0067
ID NO.

PARTICULATE: (50)

Test #	Production Rate tons/hr	Emissions lbs/hr	Emissions gr/dscf	Allow. Emissions gr/dscf
1	67.1	6.41	0.0013	0.0052
2	55.5	2.20	0.0004	0.0052
3	54.6	2.78	0.0005	0.0052
Avg.	59.1	3.80	0.0007	0.0052

OPERATION NOTES:

1. Damper settings recorded throughout the test period. Source tested from charge to tap.
2. East and West fan amps recorded throughout the test period (range 184 to 200).

STATUS AS TESTED:

40 CFR, Subpart AAa, 60.272a (1).....COMPLIANC

Report Received: 3-5-93
Review Completed: 03-11-1993
Reviewer: Thomas L. Lathan TLL

cc: Jake Frick
W. P. Brantley
Robert J. Brown, Jr.
Bob Hudson, Central Midlands Dist.

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

March 11, 1993

Owens Electric Steel Co. of SC
310 New State Road
P. O. Box 2005
Cayce-West Columbia, SC 29171
Attention: Mr. Steven G. Strickland

A summary of the results of the recent source tests at the indicated facility is enclosed.

This summary includes the emission rates, operating parameters and compliance status of the source(s) tested.

Please review this data and if I can be of further assistance in these matters please call.

Very truly yours,

Thomas L. Lathan
Division of Engineering Services
Bureau of Air Quality Control

Enclosure

cc: Jake Frick
W. P. Brantley
Robert J. Brown, Jr.
Bob Hudson, Central Midlands Dist.

Owens Electric Steel Co. of S. C.
Cayce-West Columbia, SC
New Melt Shop
Tested: April 1, 1993

SO_2 (Method 6C)

Run #	Flow dscm	Concentration ppmdv	Emissions lbs/hr	Allow. Emissions lbs/hr
1	525740	191.5	36.56	
2	559339	41.0	7.35	
3	728511	68.3	9.41	
Avg.	604530	100.3	17.78	3.25

CO (Method 10)

1	40.6	93.1	
2	24.9	60.7	
3	37.5	119.2	
Avg.	34.4	91.0	254.6

NO_x (Method 7E) as NO_2

1	3.07	11.6	
2	7.16	28.7	
3	4.18	21.8	
Avg.	4.80	20.7	14.78

VOC (Method 25A) as Carbon

1	21.03	20.7	
2	12.72	13.3	
3	12.79	17.4	
Avg.	15.51	17.1	17.9

Operational Notes:

1. Run duration from charge to tap--time frame from 55 to 61 minutes.
2. Damper settings and fan amps were recorded throughout the runs.
3. Flow readings were taken from three locations (Canopy, Main Aux. Duct and the Fourth Hole Duct.) These readings were combined to determine the flow at this facility.

Status as Tested:

Permit # 1560-0087CA (NO_x, SO_2).....Violation
Permit # 1560-0087CA (CO).....Compliance
Reference Letter dated Aug. 12, 1993 (modif. VOC limit).....Compliance

Report received: 6-30-93
Report completed: 8-10-93
Reviewer: Thomas L. Lathan

Owens Electric Steel Co. of S. C.
Cayce-West Columbia, SC
New Melt Shop
Tested: June 30, 1993

SO_2 (Method 6C)

Test Period hrs	Flow Rate dscfm	Concentration ppmdv	Emissions lbs/hr	Allow. Emissions lbs/hr
20.36	434719	.48	2.07	3.25

NO_x (Method 7E)

20.36	434719	4.20	8.54	14.78

Operational Notes:

1. Concentrations in ppmdv as SO_2 and NO; time-weighted averages shown above.
2. Twelve heats made during the test period. Heat times ranged from 58 to 156 minutes.
3. Damper setting and fan amps were recorded for six hours or one-third of the total test time.
4. Method 6 done in conjunction with 6C to verify results for SO_2.

Status as Tested:

Permit # 1560-0087CA (SO_2,NO_x).....Compliance

Report received: 7-30-93
Report completed: 8-19-93
Reviewer: Thomas L. Lathan TLL

cc: Jake Frick
W. P. Brantley
Robert J. Brown, Jr.
Bob Hudson, Central Midlands Dist.

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

August 10, 1993

Owens Electric Steel Co. of SC
310 New State Road
P. O. Box 2005
Cayce-West Columbia, SC 29171
Attention: Mr. James M. Daniels, III

A summary of the results of the recent source tests at the indicated facility is enclosed.

This summary includes the emission rates, operating parameters and compliance status of the source(s) tested.

Please review this data and if I can be of further assistance in these matters please call.

Sincerely,

Thomas L. Lathan
Division of Engineering Services
Bureau of Air Quality Control

Enclosure

cc: Jake Frick
W. P. Brantley
Robert J. Brown, Jr.
Bob Hudson, Central Midlands Dist.

SMI Steel, South Carolina
New Melt Shop Baghouse
Cayce, South Carolina
RESULTS - TESTS OF February 23-24, 1995

PERMIT NO. 1560-0087
ID NO. 8

PARTICULATE:

Test #	Production Rate T/Hr	Capacity[1] %	Emissions lbs/hr	Emissions gr/dscf	Allow. Emissions gr/dscf
1	64.6	110	5.53	0.0014	0.0052
2	60.5	103	3.56	0.0009	0.0052
3	72.7	124	3.76	0.0009	0.0052
Avg.	65.9	112	4.28	0.0011	0.0052

[1]Based on a process rate of 58.8 T/Hr

OPERATION NOTES:

1. Damper setting recorded during the test period. Source tested from charge to tap.
2. Fan amps recorded during the test period (range 170 to 175 amps).
3. Flow determinations (dscfm) made from summation of flows from (3) inlet ducts.
4. Duration of runs 252 mins. each, this included at least 4 heats.
5. Capacity based on permit limit of 515,000 T/yr even though plant has the potential to produce more steel per year.

STATUS AS TESTED:

40CFR, Subpart AAa, 60.272a (1).....COMPLIANCE

Report Received: 5-18-95
Review Completed: 07-24-1995
Reviewer: Thomas L. Lathan

cc: Jake Frick
Jerry Chalmers
Matthew Kanes
Bob Hudson, Central Midlands Dist.
Main File

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

July 20, 1995

SMI Steel-South Carolina
310 New State Road
P. O. Box 2005
Cayce-West Columbia, SC 29171
Attention: Mr. James M. Daniels, III

A summary of the results of the recent source tests at the indicated facility is enclosed.

This summary includes the emission rates, operating parameters and compliance status of the source(s) tested.

Please review this data and if I can be of further assistance in these matters please call.

Sincerely,

Thomas L. Lathan
Division of Engineering Services
Bureau of Air Quality

Enclosure

cc: Jake Frick
Jerry Chalmers
Matthew Kanes
Bob Hudson, Central Midlands Dist.
Main File

SMI Steel, South Carolina
Cayce, South Carolina
Melt Shop
Results - Tests of April 17 and 18, 1997
Permit No. 1560-0087
Id. No 8

Particulate (Method 5D)

Test #	Production Tons/hr	Capacity1 %	Emissions lbs/hr	Emissions gr/dscf	Allowable gr/dscf
1	40.5	62.3	3.95	0.0011	0.0052
2	51.4	79.1	5.22	0.0011	0.0052
3	49.7	76.4	3.21	0.0008	0.0052
Avg.	**47.2**	**72.6**	**4.13**	**0.0010**	**0.0052**

1 Based on rated output of 65 tons/hr

Visibles (Method 9)

Test #	1	2	3	Total
No. of 6 Min. Sets	20	13	na	33
Sets greater than std.	0	0	na	0
Average Opacity - %	0	0	na	0
Set Max/min opacity - %	0/0	1/0	na	1/0

Operational Notes

1. Control device is a positive pressure baghouse with 8 individual compartments.
2. Allowable for opacity from baghouse is 3%.
3. Volumetric flowrate averaged 487,363 DSCF.
4. Total pressure drop of baghouse averaged 8.0 and ranged from 7.0 to 8.5 inches of H2O.
5. Inlet to baghouse = 144 inch duct, 100 inch duct, and 60 inch duct.
6. Fourth hole damper position was 86% and static pressure averaged 1.5 inches H2O.
7. West fan current(amps) averaged 169, and east fan averaged 201 amps.

Status as Tested:

40 CFR Part 60.270 Subpart AA (PM and Visibles).....Compliance

Report Received: 6-11-97
Review Complete: 7-10-97
Reviewer: Robert W. Mitchum

cc: Jake Frick
Jerry Chalmers
Beth Boland
Larry Ragsdale
Bob Hudson, Central Midlands EQC District
Main File

SMI Steel, South Carolina
Melt Shop Baghouse
Cayce, South Carolina
Results - Tests of April 14, 1999
Permit No. 1560-0087
Id. No. 8

Particulate (Method 5D)

Test	Production	Capacity1	Emissions		Allowable
#	tons/hr	%	lbs/hr	gr/dscf	gr/dscf
1	60.76	93.50		0.0024	
2	76.18	117.20		0.0011	
3	74.20	114.20		0.0007	
Avg.	70.38	108.30	8.83	0.0013	0.0052

Rated capacity 65 tons/hr.

Operational Notes
1. The control device is a positive pressure baghouse with 8 individual compartments.
2. The volumetric flowrate averaged 297053 dscfm.
3. The total pressure drop of the baghouse averaged 11 inches of HOH, range= 9 - 12.
4. Inlet to baghouse = 114" duct, 100" duct, and 60" duct.
5. The fourth hole pressure drop averaged -1.5 inches of HOH, range= -2 - -1.
6. West fan current (amps) averaged 225, East fan averaged 225.
7. Lb/Hr Emission Rate = gr/dscf / 7000gr/lb x fabric filter flowrate.

Status as Tested:
40 CFR 60 Part 60.270 Subpart AA (particulate).....COMPLIANCE

Report Received : May 13, 1999
Review Complete : May 26, 1999
Reviewer: Chris Corley

cc: Jerry Chalmers
Annie Richardson
Larry Ragsdale
Bob Hudson, Central Midlands District
Main File

D H E C
PROMOTE PROTECT PROSPER
2600 Bull Street
Columbia, SC 29201-1708

May 26, 1999

Mr. Ben Kumangai
Owen Electric Steel of S.C. d/b/a/ SMI Steel SC
310 New State Road
Cayce, South Carolina 29171

Dear Mr. Kumangai,

A summary of the recent source test at your facility is enclosed. This review contains emission rates, operating parameters, and compliance status. It should be noted that future source test at this facility must be conducted with the the determination of the flowrate on the inlet side of the baghouse.

If you have any questions or comments, please do not hesitate to call me @(803)898-4295.

Sincerely,

Chris Corley
Source Evaluation Section
Bureau of Air Quality

cc: Jerry Chalmers
Annie Richardson
Larry Ragsdale
Bob Hudson, central Midlands District
Mike Caudle, Guardian Systems, Inc.
Main File

D H E C
PROMOTE PROTECT PROSPER
2600 Bull Street
Columbia, SC 29201-1708

September 21, 1999

Owen Electric Steel of South Carolina
310 New State Road
Cayce, South Carolina 29171
Attention: Mr. Ben Kumangai

Dear Mr. Kumangai,

A summary of the results from the source tests at the indicated facility is enclosed. This summary includes the emission rates and operating parameters of the source(s).

Please review this data and if I can be of further assistance in these matters please call me at (803) 898-4303.

Sincerely,

Anthony V. Keeler

Anthony V. Keeler
Environmental Chemist
Division of Air Compliance Management
Bureau of Air Quality

cc: Jake Frick
Annie Richardson
Tyneshia Crawford
Bob Hudson, Central Midlands District
Main File

SMI-Steel Permit No. 560-0087
Electric Arc Furnace Id. No 18
Cayce, South Carolina
Results - Tests of April 21 & 22, 1999

Nitrogen Oxides (EPA Reference Method 7E)

Test #	Production Billet tons/hr	Capacity1 %	Emissions ppmd	Lbs/hr	Allowable Lbs/hr
1	98.03	166.8	11.600	33.720	14.780
2	89.68	152.5	11.300	36.870	14.780
3	100.86	171.6	14.000	46.810	14.780
Avg.	**96.19**	**163.6**	**12.300**	**39.133**	**14.780**

Based on a process rate of 58.79 Billet tons/hr. Shown here, time is measured in tap to tap minutes.

Carbon Monoxide (EPA Reference Method 10)

Test #	Production Billet tons/hr	Capacity1 %	Emissions ppmd	Lbs/hr	Allowable Lbs/hr
1	98.03	166.8	32.300	57.190	254.600
2	89.68	152.5	34.100	67.770	254.600
3	100.86	171.6	24.400	49.700	254.600
Avg.	**96.19**	**163.6**	**30.267**	**58.220**	**254.600**

Observation Notes:

1. The PM control device is a positive pressure baghouse with 8 individual compartments.
2. The volumetric flow rate averaged 442,637 dscfm.
3. The total pressure drop of the baghouse, as recorded every 6 hours, averaged 9.5 inches of water, and ranged from 8 to 14 inches of water.
4. The fourth hole pressure drop, as recorded every 6 hours, averaged 3 inches of water and ranged from 3 to 10 inches of water.
5. Run #2 for TACB Method 6 was not conducted due to SMI's request to obtain the number of heats for that day of testing. Sampling train was not ready and SMI chose to omit the run from the tests.
6. TACB Method 6 was approved as being comparable or equal to EPA Reference Method 6.
7. Baghouse emissions are based on the sum of inlet flow rates measured at the Auxiliary Duct Canopy Duct and 4th Hole Duct. Ambient conditions were assumed to exist at the outlet.
8. Charge tons/hr averaged 85.68 tons/hr resulting in operation at an average of 131.8 % of rated capacity. Rated capacity is 65 charge tons/hr (heat).

SMI Steel
Electric Arc Furnace
Cayce, South Carolina
Results - Tests of April 21 & 22, 1999

Permit No. 1560-0087
Id. No 08

fur Dioxide (TACB Method 6) - Wet Method

Test #	Production Billet tons/hr	Capacity1 %	Emissions ppmd	Emissions Lbs/hr	Allowable Lbs/hr
1	98.03	166.8	0.600	2.420	3.250
2	89.68	152.5	NC	NC	3.250
3	100.86	171.6	2.300	10.690	3.250
Avg.	**96.19**	**163.6**	**1.450**	**6.560**	**3.250**

Based on a process rate of 58.79 Billet tons/hr. Shown here, time is measured in tap to tap minutes.
NC = Not Conducted

Sulfur Dioxide (EPA Reference Method 6C) - Instrumental Method

Test #	Production Billet tons/hr	Capacity1 %	Emissions ppmd	Emissions Lbs/hr	Allowable Lbs/hr
1	98.03	166.8	2.100	8.490	3.250
2	89.68	152.5	2.700	12.250	3.250
3	100.86	171.6	1.400	6.510	3.250
Avg.	**96.19**	**163.6**	**2.067**	**9.083**	**3.250**

Status as Tested:

1. S.C. DHEC Permit No. 1560-0087, Special Conditions, SectionA (NOx).....**Violation**
2. S.C. DHEC Permit No. 1560-0087, Special Conditions, Section A (SO2).....**Violation**
3. S.C. DHEC Permit No. 1560-0087, Special Conditions, Section A (CO).....**Compliance**

Note:

1. **Testing was conducted to establish CO, SO2, and NOx emissions rates for future submittal of CO, SO2, NOx emission factors in a facility permit application.**
2. **Although two methods were used for SO2 emisions, the TACB method was conducted to confirm method reliability; therefore, EPA Reference Method 6C was used in determining the compliance status of this facility.**

c: Jake Frick
Annie Richardson
Tyneshia Crawford
Bob Hudson, Central Midlanmds District
Main File

Report Received: 05-26-99
Review Complete: 09-21-99
Reviewer: Anthony V. Keeler

AVK

SMI Steel South Carolina
Baghouse Monovent
Cayce, South Carolina
Results Test of February 22-23, 2001
Permit No. 1560-0087
Id. No. 08
NSPS

Particulate (Method 5D)

Test	Cast	Capacity 1	Emissions		Allowable Emissions	
#	ton	%	lbs/hr	gr/dscf	lbs/hr	gr/dscf
1	77.2	118.8	4.8362	0.00106	28.6	0.0052
2	71.3	109.7	6.1746	0.00131	28.6	0.0052
3	77.9	119.8	4.7618	0.00102	28.6	0.0052
Avg.	75.5	116.1	5.2575	0.00113	28.6	0.0052

1. Rated capacity 65 cast tons.

Visibles (Method 9)

Test #	3
No. of 6 Min Sets	3
Sets greater than standard	0
Average Opacity %	0
Set Max/Min Opacity %	0/0

Operational Notes
1. The control device is a positive pressure baghouse with 8 individual compartments.
2. The pressure drop of the baghouse was a static 8 inches of water.
3. Opacities were not performed on 2/22/01 due to overcast conditions.
4. West fan amps averaged 160.5 And East fan amps averaged 179.3.
5. The fourth hole pressure drop averaged 3.55 inches of water.

Status as Tested
40 CFR 60 Part 60.270 Subpart AAa (Particulate).....Compliance
40 CFR 60 Part 60.270 Subpart AAa (Visibles).....Compliance

cc: Jake Frick
Annie Richardson
Matthew L. Gibbs
Bob Hudson, Central Midlands District
Main File

Report Received: March 20, 2001
Report Completed: April 4, 2001
Report Reviewer: Teresie R. Walker

D H E C
PROMOTE PROTECT PROSPER
2600 Bull Street
Columbia, SC 29201-1708

April 04, 2001

Owens Electric Steel Co.
310 New State Road
P.O. Box 2005
Cayce- West Cola, S.C. 29171
Attention: Mr. Dale Schmelzle

A summary of the results of the recent source tests at the indicated facility is enclosed.

This summary includes the emission rates, operating parameters and compliance status of the source(s) tested.

Please review this data and if I can be of further assistance in these matters please call.

Sincerely,

Teresie R. Walker

Teresie R. Walker
Air Compliance Management Division
Bureau of Air Quality

Enclosure

cc: Jake Frick
Annie Richardson
Matthew L. Gibbs
Bob Hudson, Central Midlands District
Main File

D H E C
PROMOTE PROTECT PROSPER
2600 Bull Street
Columbia, SC 29201-1708

December 20, 2001

SMI Steel South Carolina
310 New State Road
Cayce, South Carolina 29033
Attention: Mr. Darrell Shier

Dear Mr. Shier,

A summary of the results of the source tests at the indicated facility is enclosed. This summary includes the emission rates and operating parameters of the source(s) tested.

Please review this data and if I can be of further assistance in these matters please call me at (803) 898-4303.

Sincerely,

Anthony V. Keeler
Environmental Chemist
Division of Air Compliance Management
Bureau of Air Quality

cc: Jake Frick
Annie Richardson
Carol Boney
Matt Gibbs
Bob Hudson, Central Midlands District
Main File

SMI Steel South Carolina
Baghouse Monovent
Columbia, South Carolina

Permit No. 1560-0087
Id. No. 08

Condition No. 1, Baseline (Mix-25), Tests of July 11, 2001

Heat #	Production Tons per Heat	Injection Carbon (lbs of Met Coke)	Emissions (lb/hr) SO_2	Emissions (lb/hr) NOx	Emissions (lb/hr) CO	Emissions (lb/ton)1 SO_2	Emissions (lb/ton)1 NOx	Emissions (lb/ton)1 CO
35825	76.14	688.0	~	~	~	~	~	~
35826	80.49	959.0	~	~	~	~	~	~
35827	82.67	764.0	~	~	~	~	~	~
Avg.	79.77	804.0	18.50	39.00	43.70	0.19	0.40	0.45

Operating Notes:

1. Production averaged 97.0 billet tons/hr at a capacity of 165.0%. Capacity based on a permitted production rate of 58.79 billet tons/hr. Emission factors are based on the average billet tons/hr production rate.
2. The combined flowrate from the Auxiliary Duct, 4th Hole Duct, and Canopy Hood Duct ranged from 488,688.0 to 580,769.0 scfm and averaged 525,303.0 scfm during these tests.
3. Lime usage remained constant at 8500 lbs per heat.
4. Charged Carbon remained constant at 2000 lbs per heat.
5. Emission results are based on the average emission rate from the combined heats.

Condition No. 2, Foamy Slag (Mix-25), Tests of July 11, 2001

Heat #	Production Tons per Heat	Injection Carbon (lbs of Met Coke)	Emissions (lb/hr) SO_2	Emissions (lb/hr) NOx	Emissions (lb/hr) CO	Emissions (lb/ton)1 SO_2	Emissions (lb/ton)1 NOx	Emissions (lb/ton)1 CO
35829	81.16	1408.0	~	~	~	~	~	~
35830	74.40	1529.0	~	~	~	~	~	~
Avg.	77.78	1469.0	19.60	42.50	55.00	0.19	0.42	0.55

Operating Notes:

1. Production averaged 100.0 billet tons/hr at a capacity of 170.1%. Capacity based on a permitted production rate of 58.79 billet tons/hr. Emission factors are based on the average billet tons/hr production rate.
2. The combined flowrate from the Auxiliary Duct, 4th Hole Duct, and Canopy Hood Duct ranged from 493,831.0 to 566,416.0 scfm and averaged 520,392.0 scfm during these tests.
3. Lime usage remained constant at 8500 lbs per heat.
4. Charged Carbon was 2200 and 2202 lbs per heat, respectively and averaged 2201 lbs per heat.
5. Emission results are based on the average emission rate from the combined heats.

SMI Steel South Carolina
Baghouse Monovent
Columbia, South Carolina

Permit No. 1560-0087
Id. No. 08

Condition No. 4, Scrap Metal (Mix-100), Tests of July 11, 2001

Heat #	Production Tons per Heat	Injection Carbon (lbs of Met Coke)	Emissions (lb/hr) SO_2	Emissions (lb/hr) NOx	Emissions (lb/hr) CO	Emissions (lb/ton)1 SO_2	Emissions (lb/ton)1 NOx	Emissions (lb/ton)1 CO
35832	72.14	1204.0	~	~	~	~	~	~
35833	67.64	754.0	~	~	~	~	~	~
Avg.	**69.89**	**979.0**	**21.30**	**31.40**	**70.90**	**0.24**	**0.36**	**0.80**

Operating Notes:

1. Production averaged 88.0 billet tons/hr at a capacity of 149.7%. Capacity based on a permitted production rate of 58.79 billet tons/hr. Emission factors are based on the average billet tons/hr production rate.
2. The combined flowrate from the Auxiliary Duct, 4th Hole Duct, and Canopy Hood Duct ranged from 489,146.0 to 575,479.0 scfm and averaged 519,754.0 scfm during these tests.
3. Lime used was 8500 and 8000 lbs per heat, respectively and averaged 8250 lbs per heat.
4. Charged Carbon was 2200 and 1500 lbs per heat, respectively and averaged 1850 lbs per heat.
5. Emission results are based on the average emission rate from the combined heats.

Condition No. 3, Carbon Variability (Mix-25), Tests of July 12, 2001

Heat #	Production Tons per Heat	Injection Carbon (lbs of Pet Coke)	Emissions (lb/hr) SO_2	Emissions (lb/hr) NOx	Emissions (lb/hr) CO	Emissions (lb/ton)1 SO_2	Emissions (lb/ton)1 NOx	Emissions (lb/ton)1 CO
35849	84.38	1270.0	~	~	~	~	~	~
35850	84.38	1906.0	~	~	~	~	~	~
Avg.	**84.38**	**1588.0**	**26.00**	**30.60**	**129.50**	**0.35**	**0.41**	**1.74**

Operating Notes:

1. Production averaged 74.0 billet tons/hr at a capacity of 125.9%. Capacity based on a permitted production rate of 58.79 billet tons/hr. Emission factors are based on the average billet tons/hr production rate.
2. The combined flowrate from the Auxiliary Duct, 4th Hole Duct, and Canopy Hood Duct ranged from 484,235.0 to 581,449.0 scfm and averaged 528,673.0 scfm during these tests.
3. Lime usage remained constant at 8500 lbs per heat.
4. Charged Carbon remained constant at 1000 lbs per heat.
5. Emission results are based on the average emission rate from the combined heats.

SMI Steel South Carolina
Baghouse Monovent
Columbia, South Carolina

Permit No. 1560-0087
Id. No. 08

Condition No. 5, Furnace Draw (Mix-25), Tests of July 12, 2001

Heat #	Production Tons per Heat	Injection Carbon (lbs of Met Coke)	Emissions (lb/hr) SO_2	Emissions (lb/hr) NOx	Emissions (lb/hr) CO	Emissions (lb/ton)1 SO_2	Emissions (lb/ton)1 NOx	Emissions (lb/ton)1 CO
35855	71.06	1010.0	~	~	~	~	~	~
35856	71.06	1072.0	~	~	~	~	~	~
Avg.	**71.06**	**1041.0**	**19.50**	**34.10**	**123.30**	**0.30**	**0.52**	**1.87**

Operating Notes:

1. Production averaged 66.0 billet tons/hr at a capacity of 112.3%. Capacity based on a permitted production rate of 58.79 billet tons/hr. Emission factors are based on the average billet tons/hr production rate.
2. The combined flowrate from the Auxiliary Duct, 4th Hole Duct, and Canopy Hood Duct ranged from 496,003.0 to 568,169.0 scfm and averaged 525,656.0 scfm during these tests.
3. Lime usage remained constant at 8500 lbs per heat.
4. Charged Carbon remained constant at 1000 lbs per heat.
5. Furnace Pressure set point was lowered from -3.6 to -2.0 inches of water during these tests.
6. Emission results are based on the average emission rate from the combined heats.

Condition No. 7, Oxygen Injection (Mix-25), Tests of July 12, 2001

Heat #	Production Tons per Heat	Injection Carbon (lbs of Met Coke)	Emissions (lb/hr) SO_2	Emissions (lb/hr) NOx	Emissions (lb/hr) CO	Emissions (lb/ton)1 SO_2	Emissions (lb/ton)1 NOx	Emissions (lb/ton)1 CO
35858	73.28	*	~	~	~	~	~	~
35859	75.50	1469.0	~	~	~	~	~	~
Avg.	**74.39**	**1469.0**	**31.90**	**24.70**	**144.70**	**0.41**	**0.32**	**1.86**

Operating Notes:

1. Production averaged 78.0 billet tons/hr at a capacity of 132.7%. Capacity based on a permitted production rate of 58.79 billet tons/hr. Emission factors are based on the average billet tons/hr production rate.
2. The combined flowrate from the Auxiliary Duct, 4th Hole Duct, and Canopy Hood Duct ranged from 472,014.0 to 568,123.0 scfm and averaged 511,466.0 scfm during these tests.
3. Lime usage remained constant at 8500 lbs per heat.
4. Charged Carbon remained constant at 2200 lbs per heat.
5. The Oxygen Injection set point was lowered from 52,000 to 45,000 KSCFH for these tests.
6. Emission results are based on the average emission rate from the combined heats.

*Data was not recorded from Heat # 35858 for lbs. of injection carbon.

SMI Steel South Carolina
Baghouse Monovent
Columbia, South Carolina

Permit No. 1560-0087
Id. No. 08

Condition No. 8, Desulfurize at LMS (Mix-25), Tests of July 13, 2001

Heat #	Production Tons per Heat	Injection Carbon (lbs of Met Coke)	Emissions (lb/hr)			Emissions (lb/ton)1		
			SO_2	NOx	CO	SO_2	NOx	CO
35876	74.20	1144.0	~	~	~	~	~	~
35877	74.20	1385.0	~	~	~	~	~	~
Avg.	**74.20**	**1265.0**	**25.80**	**25.40**	**158.20**	**0.29**	**0.29**	**1.78**

Operating Notes:

1. Production averaged 89.0 billet tons/hr at a capacity of 151.4%. Capacity based on a permitted production rate of 58.79 billet tons/hr. Emission factors are based on the average billet tons/hr production rate.
2. The combined flowrate from the Auxiliary Duct, 4th Hole Duct, and Canopy Hood Duct ranged from 455,704.0 to 578,603.0 scfm and averaged 502,122.0 scfm during these tests.
3. Lime usage remained constant at 6500 lbs per heat.
4. Charged Carbon remained constant at 1000 lbs per heat.
5. Nitrogen was added to Heat # 35873 (8767.0 cfm) and 35874 (23066.0 cfm), averaging 15,917.0 cfm, which were at the LMS during these tests.
6. Heat # 35873, the initial Sulfur content was 0.03%. After Desulfurization, the Sulfur content was 0.029%.
7. Heat # 35874, the initial Sulfur content was 0.024%. After Desulfurization, the Sulfur content was 0.021%.
8. Emission results are based on the average emission rate from the combined heats.

Additional Notes:

1. Proposed Condition No. 6, Furnace Tightness was not conducted due to planned process shutdown.
2. The LMS was operating during all testing, but the Nitrogen purge was not conducted until Condition No. 8.
3. Volumetric flow rates were continuously monitored at the Auxiliary, Canopy Hood and 4th Hole Duct and was measured at a single traverse point located at a point of average velocity. This procedure was a modification to the previously approved test plan on the day of the tests and may not be suitable for determining compliance in the future.
4. Chemical analysis of Met Coke indicated Sulfur levels of 1.4% by weight, of Pet Coke indicated Sulfur levels of 3.2% by weight, of Charge Carbon indicated Sulfur levels of 0.73% by weight, and of Ladle Coke indicated Sulfur levels of 0.67% by weight.
5. EPA Reference Methods 6C, 7E, and 10 were conducted for SO_2, NOx, and CO, respectively.

Status as Tested:

These tests were conducted to establish emission factors during several different "modes" to simulate both expected future increases in production as well the variability inherent in the steel making process.
Note: Results for SO_2 and NOx exceeded operating permit limits (ID. No. 08).

cc: Jake Frick
Annie Richardson
Carol Boney
Matt Gibbs
Bob Hudson, Central Midlands District
Main File

Report Received: 08-17-01
Review Completed: 12-20-01
Reviewer: Anthony V. Keeler
AVK

NOTE: Draft determinations are marked with a " • " beside the RBLC ID.

Report Date: 09/17/2002 Control Technology Determinations (Freeform)

FACILITY INFORMATION : SMI STEEL - SOUTH CAROLINA

RBLC Id:	*SC-0072
*Company Name:	SMI STEEL - SOUTH CAROLINA
*Plant Name:	SMI STEEL - SOUTH CAROLINA
Plant County:	LEXINGTON
Plant Contact Name:	GLENN SHEALY
Plant Contact Address:	PO BOX 2005
Plant Contact City	CAYCE
Plant Contact State:	SC
Plant Contact Zip Code:	29171
Plant Contact Phone:	(803) 936-3792
Plant Contact Email:	GLENN.SHEALY@SMI-SC.COM
EPA Region:	4
Agency Code:	SC001
Agency Name:	SOUTH CAROLINA DEPT OF HEALTH & ENV CTRL
Agency Contact:	SEE NOTES
Agency Phone:	
Agency Email:	
*Permit/File No.:	1560-0087-CO, CP, CQ
*SIC:	3312
NAICS:	
Airs Id:	
EPA Id:	
UTM Zone:	17
X Coordinate:	497149
Y coordinate:	3757743
Application Received Date:	02/11/2000 ACT
Permit Issuance Date:	11/26/2001 ACT
Start Up Date:	
Compliance Validation Date:	
Entry Date:	03/26/2002
Last Update:	03/26/2002
New or Modified:	M
Public Hearing:	NO
Fuel:	NATURAL GAS, NO. 2 FUEL OIL
Emission Sources:	ELECTRIC ARC FURNACE (EAF), REHEAT FURNACE, LADLE METALURGY STATION.
Abatement:	BAGHOUSE
Narrative:	STEEL MILL
Notes:	MATT GIBBS IS SCDHEC CONTACT, (803) 898-3288, GIBBSML@DHEC.STATE.SC.US. FACILITY IS COLLOCATED WITH SPRAY FORMING INTERNATIONAL 1560-0148, COLLOCATED SLAG-HANDLER LOCATED ON-SITE

AFFECTED BOUNDARIES : SMI STEEL - SOUTH CAROLINA

*Boundary Name:	Cape Romain
Boundary Type:	CLASS1
Distance:	179
State:	SC
*Boundary Name:	Linville Gorge
Boundary Type:	CLASS1
Distance:	223
State:	NC
*Boundary Name:	Shining Rock
Boundary Type:	CLASS1
Distance:	222
State:	NC

PLANTWIDE EMISSIONS : SMI STEEL - SOUTH CAROLINA

*Pollutant:	CO
Emission Rate:	870
Emission Rate Units:	T/YR
*Pollutant:	NOX
Emission Rate:	346.9
Emission Rate Units:	T/YR
*Pollutant:	PM
Emission Rate:	83.3
Emission Rate Units:	T/YR
*Pollutant:	SOX
Emission Rate:	192.9
Emission Rate Units:	T/YR
*Pollutant:	VOC
Emission Rate:	70.9
Emission Rate Units:	T/YR

PROCESS INFORMATION : SMI STEEL - SOUTH CAROLINA

*Process:	SCRAP STEEL MELTED IN EAF, CAST INTO BLLLETS
*Process Type:	81.006
*SCC Code:	
Primary Fuel:	NATURAL GAS
Throughput:	850000
Throughput Unit:	T/YR BRILLET
Compliance Verified:	Yes
Stack Testing:	Yes
Inspections:	No
Calculations:	No
Other Testing:	No
Other Testing Method:	
Process/Compliance	

Notes:

POLLUTANT INFORMATION : SMI STEEL - SOUTH CAROLINA - SCRAP STEEL MELTED IN EAF, CAST INTO BLLLETS

*Pollutant	CO
*CAS Number:	630-08-0
*Control Method Code:	P
*Control Method Description:	DESTRUCTION OF CO IN THE DUCT ELBOW AND WATER COOLED DUCTWORK
Number of Options Considered:	4
Rank of Option Selected:	1
Emission Limit 1:	2
Emission Limit 1 Unit:	LB/TON BILLET
Emission Limit 1 Condition:	
*Basis:	BACT-PSD
*Percent Efficiency:	
Emission Limit 2:	
Emission Limit 2 Unit:	
Emission Limit 2 Condition:	
Standard Emission:	
Standard Emission Unit:	
Standard Emission Condition:	
*Emission Type:	P
CAP Cost of Control Equipment:	$ 0
Annualized Cost:	
O&M Cost:	
Cost Effectiveness:	
Cost Verified by Agency:	No
Dollar Year Used In Cost Estimates:	
Pollutant Notes:	

*Pollutant	NOX
*CAS Number:	10102
*Control Method Code:	P
*Control Method Description:	LOW NOX "OXY-FUEL" BURNERS MOUNTED IN EAF
Number of Options Considered:	4
Rank of Option Selected:	1
Emission Limit 1:	.51
Emission Limit 1 Unit:	LB/BILLET TON
Emission Limit 1 Condition:	

*Basis:	BACT-PSD
*Percent Efficiency:	
Emission Limit 2:	
Emission Limit 2 Unit:	
Emission Limit 2 Condition:	
Standard Emission:	
Standard Emission Unit:	
Standard Emission Condition:	
*Emission Type:	P
CAP Cost of Control Equipment:	$ 0
Annualized Cost:	
O&M Cost:	
Cost Effectiveness:	
Cost Verified by Agency:	No
Dollar Year Used In Cost Estimates:	
Pollutant Notes:	

*Pollutant	PM10
*CAS Number:	PM
*Control Method Code:	A
*Control Method Description:	NEGATIVE-PRESSURE BAGHOUSE, 12 COMPARTMENTS
Number of Options Considered:	4
Rank of Option Selected:	1
Emission Limit 1:	.002
Emission Limit 1 Unit:	GR/DSCF
Emission Limit 1 Condition:	
*Basis:	BACT-PSD
*Percent Efficiency:	99
Emission Limit 2:	
Emission Limit 2 Unit:	
Emission Limit 2 Condition:	
Standard Emission:	
Standard Emission Unit:	
Standard Emission Condition:	
*Emission Type:	P
CAP Cost of Control Equipment:	$ 0
Annualized Cost:	
O&M Cost:	
Cost Effectiveness:	
Cost Verified by Agency:	Yes

Dollar Year Used In Cost

Estimates:
Pollutant Notes:

*Pollutant	SO2
*CAS Number:	7446-09-5
*Control Method Code:	P
*Control Method Description:	SCRAP MANAGEMENT PLAN
Number of Options Considered:	6
Rank of Option Selected:	1
Emission Limit 1:	.35
Emission Limit 1 Unit:	LB/TON BILLET
Emission Limit 1 Condition:	
*Basis:	BACT-PSD
*Percent Efficiency:	
Emission Limit 2:	
Emission Limit 2 Unit:	
Emission Limit 2 Condition:	
Standard Emission:	
Standard Emission Unit:	
Standard Emission Condition:	
*Emission Type:	P
CAP Cost of Control Equipment:	$ 0
Annualized Cost:	
O&M Cost:	
Cost Effectiveness:	
Cost Verified by Agency:	No
Dollar Year Used In Cost Estimates:	
Pollutant Notes:	