AP32 Section:	12.5.1
Background Chapter	3
Reference:	26
Title:	Report on Particulate Compliance Testing. Positive Pressure Baghouse. Performed for: Nucor Steel, Crawfordsville, IN. By: SESCO. October 31, 2001. SESCO Project No. 4214.

OFFICE OF AIR MANAGEMENT

OFFICE MEMORANDUM

To: Herm Carney SLF
From: Steve Friend
Subject: Nucor Steel, Crawfordsville, In.
Source ID No. 107-00038
Permit No. CP-107-5235-00038

Date: January 6, 2002
Thru: Ed Surla

The subject company has submitted a report concerning the stack emissions testing at the subject source. The test was conducted by SESCo. The purpose of the testing was to satisfy the requirements of a U.S. EPA Consent Decree, Civil Action No. 4-00-3945-24. The protocol was approved by Steve Friend and the field test was observed by Jarrod Fisher. I have reviewed this report and found the sampling procedures used and results to be acceptable to this Office. A copy of the test report is filed in the Compliance Data Section. The following is a summary of the test results:

Date of test: October 31 and November 1, 2001
Units Tested: North and South EAF, Caster 1 and Caster 2, AOD
Pollution Control Equipment: Positive Pressure Baghouse
APC Operating Parameters: Baghouse

	Fan 1	Fan 2	Fan 3	Fan 4	Fan 5	Fan 6
Fan Amperage(Average)	134	140	149	144	150	OFF
Fan Damper Position(Average)	99.7%	98.6%	96.5%	96.5%	96.8%	OFF

Pollutant: PM
Test Methods: 1-4/5D/9
Permit Operation Condition No. 5(a) limit: PM/PM10 0.0018 grains per dscf
NSPS Subpart AAa limit: 0.0052 grains per dscf
Maximum Operating Rate: 502 tons per hour
Average Operating Rate During Test: 254 tons per hour(runs 2&3 = 304 TPH)
Average Measured Emissions: 0.00055 grains per dscf
Average Opacity: 0%
Highest 6-Minute Opacity: 0%
Melt Shop
Average Opacity: 0%
Highest 6-Minute Opacity: 0%

STATUS: IN COMPLIANCE

cc: J. Lombardo
~~W. Stanfield~~/General File Montgomery County
S. Friend
Brent Marable- U.S. EPA Region V

Supreme
Environmental Service Company
SESCo Group

1426 West 29th Street *Indianapolis, Indiana 46208
(317)347-9590, FAX (317)347-9591

REPORT on PARTICULATE COMPLIANCE TESTING

Performed for:
Nucor Steel
Crawfordsville, Indiana
Positive Pressure Baghouse
by: SESCO
on October 31, 2001
SESCO Project No.: 4214

To the best of our knowledge, the data presented in this report is accurate and complete.

Respectfully Submitted by:

Michael Dicen, Division Manager

Nucor Steel
Crawfordsville, Indiana

SESCO Project No. 4214

1-1 PROJECT OVERVIEW

SESCo Group, was contracted by Nucor Steel to perform air sampling at the EAF Positive Pressure Fabric Filter Baghouse and Melt Shop, in Crawfordsville, Indiana on October 31, 2001. The testing was performed in accordance with Paragraph 48 of the Consent Decree to establish operating baselines as required by NSPS at the Electric Arc Furnace. The following personnel were involved with the testing program:

SESCo	Carlos Brown
SESCo	Andy Young
SESCo	Michael Dicen
SESCo	Milo Hatfield
SESCo	Quentin Flory
Nucor	David Sulc
Nucor	Eric Ferguson
IDEM	Jarrod Fisher

The testing program included flow and gas analysis (Methods 1-4), particulate (Methods 5D) and visual emissions (Method 9). Below is a summary of the results:

Table 1-1
Summary of Test Results

Date	Runs	Time	Emissions	Emissions
10/31/01	1	12:36-18:17	**0.00030** (gr/dscf)	0.6840 lbs/hr
10/31/01	2	20:18-01:31	**0.00061** (gr/dscf)	1.4295 lbs/hr
11/01/01	3	08:41-13:47	**0.00074** (gr/dscf)	1.8109 lbs/hr

3-Run Averages	**0.00055** (gr/dscf)	1.3081 lbs/hr
Permitted Emission Rate	**0.0018** (gr/dscf)	

1-2 PROJECT OVERVIEW

Test Program

Table 1-2

Parameter	Methods	Location	Unit
Gas Velocity / Vol. Flow Rate	EPA RM 1-2	Inlet	EAF Baghouse
Particulate	EPA RM 3-5D	Compartment	EAF Baghouse
Opacity	EPA RM 9	Roof Monitor	EAF Baghouse
Opacity	EPA RM 9	Roof Monitor	Melt Shop

The schedule of activities is summarized below:

Schedule of Activities

Date	*Run No.*	*Time*
Particulate Test (EAF Baghouse)		
10/31/01	1	12:36-18:17
10/31/01	2	20:18-01:31
11/01/01	3	08:41-13:47

1-2 PROJECT OVERVIEW, cont.

EAF (PPFF) Baghouse Diagram

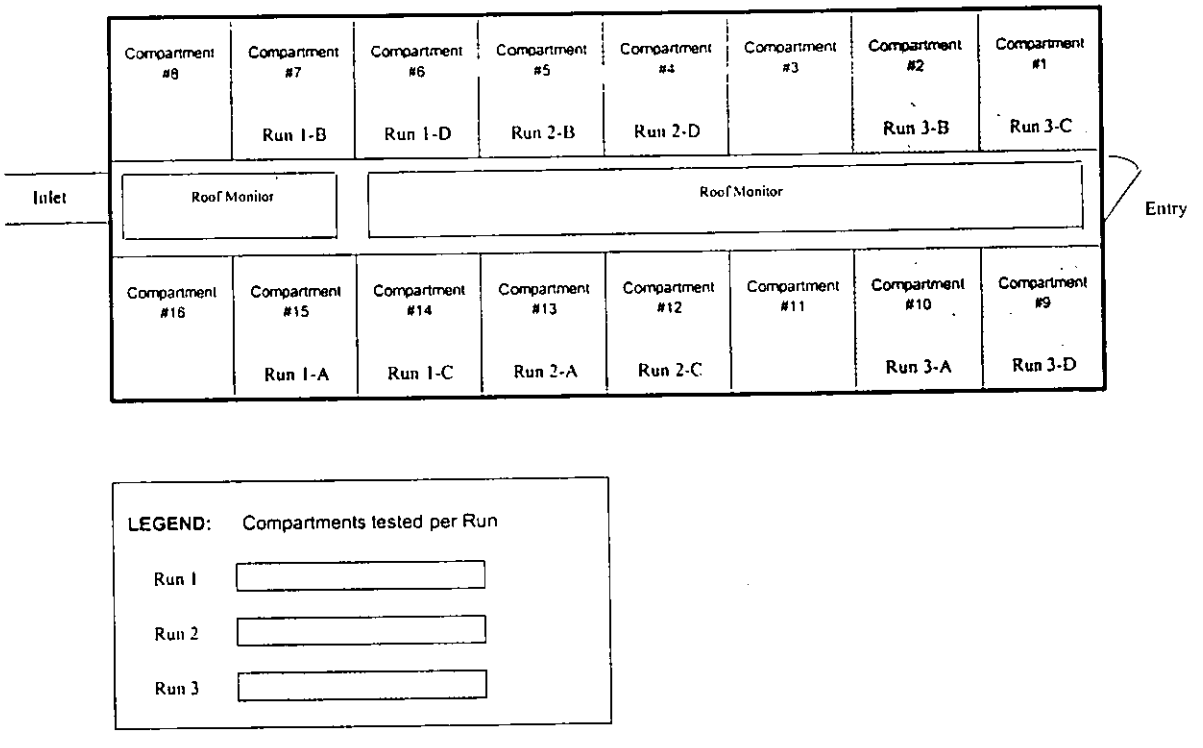
1.) Nucor Steel PPFF baghouse consists of 16 compartment housings with an area of 366"d x 260"w per compartment.

2.) Compliance testing was conducted at 12 of the 16 compartment housings (see Table: 1-3).

3.) Three (3) sample runs were conducted at four compartments (per sample run) resulting in a test area of 366"d x 1040"w.

4.) Compartment volumetric flow rates reflect approximately 25% of the total measured inlet flow rate (see 2-1 / 2-2 RESULTS for compartment and Inlet flow rates).

Table: 1-3



Nucor Steel
Crawfordsville, Indiana

SESCO Project No. 4214

2-1 RESULTS

PARTICULATE MATTER/ EMISSIONS
Compartment Housings

Table 2-1

		1	2	3	Avg.
Gas Conditions					
Ts	Stack Temperature (°F)	204.50	198.75	172.83	192.03
Bwo	Moisture (volume %)	0.83	0.96	1.08	0.96
O2	Oxygen (dry volume %)	19.5	19.5	20.0	19.67
CO2	Carbon Dioxide (dry volume %)	0.0	0.0	0.0	0.0
Volumetric Flow Rate					
Qa	Actual Conditions (acfm)	332,693	338,088	341,678	337,487
Qstd	Standard Conditions (dscfm)	265,851	272,162	283,975	273,996
Particulate Results					
C_f	Concentration, filterable (gr/dscf)	0.00030	0.00061	0.00074	**0.00055**
E_{TSP}	Particulate Matter, filterable (lbs/hr)	0.6840	1.4295	1.8109	1.3081
Fan Amps / Damper Positions					
	Average Fan Amps	149	141	139	**143**
	Average Damper Position	93%	100%	100%	**98%**

NOTE: Velocity head settings for Method 5D compartment test runs were derived from Inlet volumetric flow rates. *Flow rate* calculations were corrected for compartment conditions; temperature, moisture and gas analysis. A minimum of 160 dscf was sampled during each test period.

2-2 RESULTS

INLET - VOLUMETRIC FLOW RATE
Inlet Duct

Table 2-2

		1	2	3	Avg.
Gas Conditions					
Ts	Stack Temperature (°F)	194.56	203.06	222.44	206.69
Bwo	Moisture (volume %)	0.83	0.96	1.08	0.96
O2	Oxygen (dry volume %)	19.5	19.5	20.0	19.67
CO2	Carbon Dioxide (dry volume %)	0.0	0.0	0.0	0.0
Volumetric Flow Rate					
Qa	Actual Conditions (acfm)	1,331,074	1,352,652	1,367,028	1,350,251
Qstd	Standard Conditions (dscfm)	1,077,927	1,081,359	1,054,449	1,071,245

NOTE: Inlet flow rates (*initial*) were measured and calculated over the duct area of 278" x 176".

2-3 RESULTS

VISIBLE EMISSIONS
Positive Pressure Baghouse

Table 2-3

Run No.	1	2	3	4	Average
Date	10/31/01	10/31/01	10/31/01	11/01/01	
Start Time (approx.)	15:13	16:14	17:15	11:00	
Stop Time (approx.)	16:13	17:14	18:15	12:00	
Visible Emissions					
Opacity (EPA RM 9)	0.0	0.0	0.0	0.0	**0.0 %**

Nucor Steel
Crawfordsville, Indiana

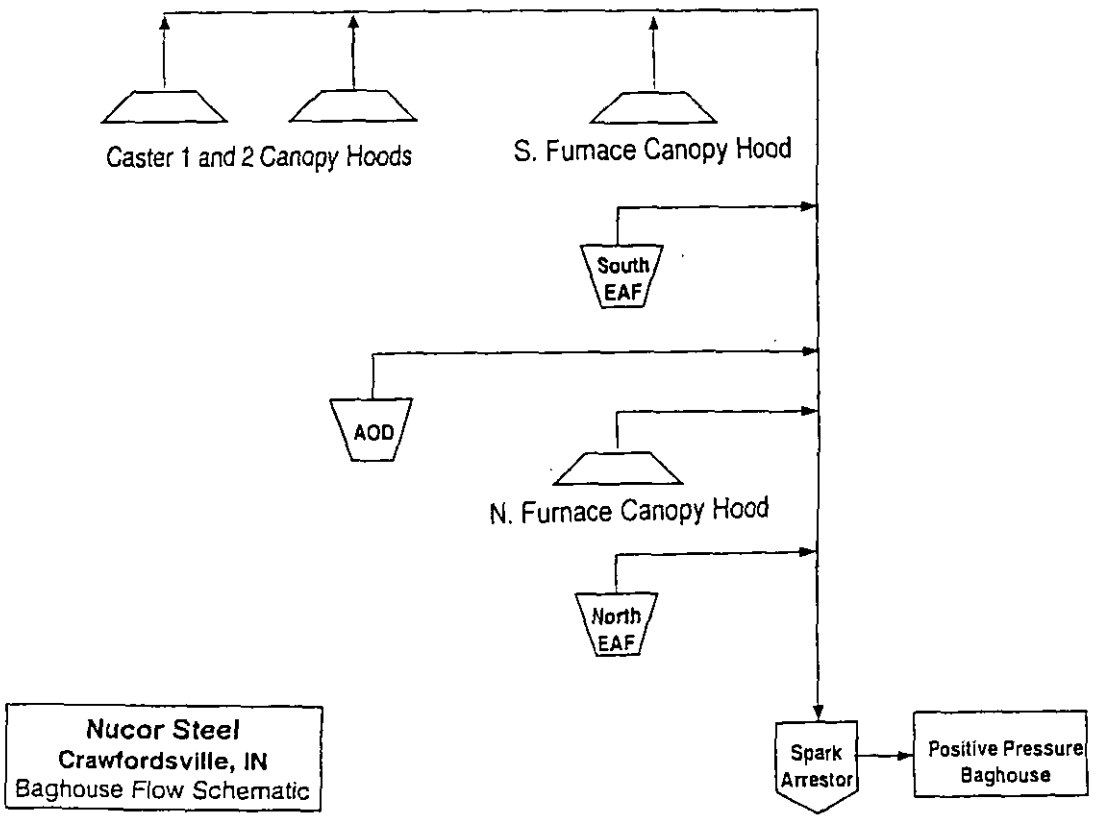
SESCO Project No. 4214

3-1 DESCRIPTION OF INSTALLATION

Nucor Steel operates a meltshop which is comprised of the following process units: two (2) EAF units, one (1) ladle metallurgy station, one (1) AOD and two (2) continuous casters. Of these, the two EAF units, the AOD and the two caster units are evacuated through the melt shop baghouse. The EAF units melt various grades of scrap metal, scrap substitutes, pebbled lime and coke into molten steel. The molten steel is refined into various grades of carbon steel at the ladle metallurgy station or refined into stainless steel at the AOD. The molten steel from the ladle metallurgy station or AOD is cast into continuous strips at the two continuous casters.

The emissions from the EAF units, AOD and casters are generated from melting, refining, charging, tapping and casting operations and are captured in a direct shell evacuation (DEC) system and overhead canopy hoods. All captured emissions are evacuated through the positive pressure (PPFF) baghouse for collection.

The testing reported in this document was performed at 12 of the 16 EAF (PPFF) baghouse compartments.



CONSTRUCTION PERMIT

Control No. 0005

OFFICE OF AIR MANAGEMENT

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
105 South Meridian Street
Indianapolis, Indiana 46225

Nucor Steel
intersection of
County Roads 400E and 400S
Crawfordsville, Indiana

is hereby authorized to construct

A steel mill designed to process approximately 1,400,000 tons per year of steel and will contain two electric arc furnaces, a two furnace ladle metallurgical station, a continuous caster, vacuum degasser and associated natural gas fired boiler, hot strip mill, HCl pickle line and three associated natural gas fired package boilers, cold reversing mill, acid regeneration roaster with natural gas fired burners, natural gas fired roller hearth furnace, twenty-four natural gas fired annealing furnaces, natural gas fired ladle dryout and ladle preheat stations, natural gas fired tundish dryer and preheater stations, bulk material handling facilities, and bulk petroleum storage facilities.

THIS PERMIT IS ISSUED UNDER PROVISIONS OF RULE 326 IAC 2-1, WITH FINDINGS AND CONDITIONS LISTED ON THE ATTACHED PAGES.

Identification No. PC (54) 1742

Expiration Date N/A

Date Issued April 20, 1989

Issued by Thomas W. Kessler
Commissioner

State Form 37080 R

Nucor Steel **PC (54) 1742**

Montgomery County, intersection of County Roads 400E/400S

Construction Permit Conditions

1. That this permit to construct does not relieve Nucor Steel of the responsibility to comply with the control strategy of the State Implementation Plan, as well as other applicable local, state, and federal requirements.

2. That the data and information supplied with the application shall be considered part of this permit. Any change or modification in the potential to emit shall be reported in writing to the Office of Air Management for approval before making such change.

3. That the equipment shall be installed in accordance with the manufacturer's specifications, and as stated in the application.

4. That pursuant to 326 IAC 2-2-8(a)(1) this permit to construct shall expire if construction is not commenced within eighteen (18) months after receipt of this permit, or if construction is discontinued for a period of eighteen (18) months or more.

5. That when the facility is constructed and placed into operation the following operation conditions shall be met:

OPERATION CONDITIONS

1. That two Electric Arc Furnaces, each controlled by a direct shell evacuation system rated at 129,136 acfm and canopy hood having 100 percent capture rated at 325,500 acfm shall each be limited as follows:

   a. particulate matter/PM-10 from each furnace shall be limited to 6 pounds per hour and 26.3 tons per year.
   b. 100 percent of all particulate matter/PM-10 fugitive emissions generated during furnace operations shall be captured by the roof canopies or contained and collected within the EAF shop building.
   c. visible emissions from any roof monitor or building opening as a result of the electric furnace operation shall be limited to 3 percent opacity.
   d. particulate matter/PM-10 emissions from the common baghouse shall not exceed 0.0018 grains per dscf and be limited to 3 percent opacity.
   e. visible emissions shall not be allowed from any roof monitor or building opening as a result of the EAF dust handling system operation.
   f. (Per New Source Performance Standards, 40 CFR Part 60, Subpart AAa, particulate matter emissions are limited to 0.0052 gr/dscf and 3 percent opacity at the control device, 6 percent opacity from the shop due solely to the operations of any affected electric furnace, and 10 percent opacity from the dust handling system.)
   g. nitrogen oxides emissions from each furnace shall be limited to 0.35 pounds per ton of steel produced, 28.0 pounds per hour, and 122.6 tons per year from the baghouse vents.
   h. carbon monoxide emissions from each furnace shall be reduced by 98 percent through thermal destruction in the direct shell evacuation system elbow leading to the baghouse and be limited to 29.0 pounds per hour and 126.8 tons per year from the baghouse vents.
   i. volatile organic compound emissions shall be controlled through an extensive scrap management program to eliminate steel scrap with high residual oil content. Nucor shall not use heavily oiled scrap such as used engine blocks and machine shop borings. Each furnace shall be limited to 0.13 pounds of volatile organic emissions per ton of steel produced, 10.4 pounds per hour and 45.6 tons per year.
   j. sulfur dioxide emissions from each furnace shall be limited to 0.047 pounds per ton of steel produced, 3.8 pounds per hour, and 16.5 tons per year from the baghouse vents.

2. That particulate matter/PM-10 emissions from two Ladle Metallurgical Station (LMS) furnaces shall each be controlled by a fourth hole evacuation system rated at 32,500 acfm and vented to the common EAF baghouse which is limited to 0.0018 grains per dscf. Fugitive emissions emitted from any roof monitor or building opening shall be limited to 1.00 pounds per hour, 4.3 tons per year and 3 percent opacity.

3. That particulate matter/PM-10 emissions from the Continuous Caster shall

be controlled by a canopy hood positioned over the caster rated at 160,000 acfm and vented to the common EAF baghouse which is limited to 0.0018 grains per dscf. Fugitive emissions emitted from any roof monitor or building opening shall be limited to 1.12 pounds per hour, 4.9 tons per year and 3 percent opacity.

4. That the Vacuum Degasser shall be limited as follows:

a. particulate matter/PM-10 emissions shall be limited to 0.0 pounds per hour and there shall be no visible emissions evident from any roof monitor or building opening as a result of the Vacuum Degasser.
b. carbon monoxide emissions shall be controlled by a flare capable of 99 percent destruction and be limited to 2.0 pounds per hour, and 8.8 tons per year.

5. That the Hydrochloric Acid (HCl) Pickle Line tanks be covered by lids, maintained under negative pressure, and exhausted to a counterflow-packed scrubber with recirculating spray pumps. Particulate matter/PM-10 emissions from the scrubber stack shall not exceed 0.003 grains per dscf, 0.3 pounds per hour and 1.3 tons per year.

6. That the Cold Reversing Mill (CRM) shall be limited as follows:

a. particulate matter/PM-10 emissions from the reversing mill will be captured by hoods mounted on both sides of the mill stand and evacuated to a panel-type media packed collision mist eliminator and filter prior to venting to the atmosphere. Particulate emissions/PM-10 shall not exceed 0.01 grains per dscf, 7.2 pounds per hour, and 31.5 tons per year.
b. volatile organic compound emissions shall be limited to 0.0 pounds per hour.

7. That the Hot Strip Mill (HSM) shall be operated using a high pressure water descaler and water cooling sprays with any particulate matter, in solid or liquid form, collected in flumes and transported to the scale pit.

8. That the Roller Hearth Normalizing Furnace shall be limited as follows:

a. only natural gas shall be burned and limited to 67.5 million BTU per hour heat input.
b. particulate matter/PM-10 emissions shall be limited to 3.0 pounds per million cubic feet of natural gas burned, 0.2 pounds per hour and 0.9 tons per year.
c. nitrogen oxides shall be controlled by NOx suppression control technology consisting of Stein-Heurtey BSI 1+2 burners w/ recuporator, or equivalent, and shall be limited to 364 pounds per million cubic feet of natural gas burned, 24.8 pounds per hour and 108.4 tons per year.
d. carbon monoxide emissions shall not exceed 35.0 pounds per cubic feet of natural gas burned, 2.4 pounds per hour and 10.4 tons per year.
e. volatile organic compound emissions shall not exceed 2.8 pounds per

million cubic feet of natural gas burned, 0.2 pounds per hour and 0.8 tons per year.

9. That the combined emissions from the 24 single stack, batch, Annealing Furnaces shall be limited as follows:

a. each shall burn only natural gas and be limited to 4.75 million BTU per hour heat input
b. particulate matter/PM-10 emissions shall be limited to 3.0 pounds per million cubic feet of natural gas burned, 0.2 pounds per hour and 0.7 tons per year.
c. nitrogen oxides emissions shall be limited to 40.0 pounds per million cubic feet of natural gas burned, 2.3 pounds per hour and 10 tons per year.
d. carbon monoxide emissions shall be limited to 35.0 pounds per million cubic feet of natural gas burned, 2.0 pounds per hour and 8.7 tons per year.
e. volatile organic compound emissions shall be limited to 2.8 pounds per million cubic feet of natural gas burned, 0.2 pounds per hour and 0.7 tons per year.

10. That three Pickle Line package boilers shall each be limited as follows:

a. each shall burn only natural gas and be limited to 7.3 million BTU per hour heat input.
b. combined particulate matter emissions shall be limited to 3.0 pounds per million cubic feet of natural gas burned, 0.1 pounds per hour and 0.3 tons per year.
c. combined nitrogen oxides emissions shall be limited to 50.0 pounds per million cubic feet of natural gas burned, 1.1 pounds per hour and 4.8 tons per year.
d. combined carbon monoxide emissions shall be limited to 20.0 pounds per million cubic feet of natural gas burned, 0.4 pounds per hour and 1.9 tons per year.
e. combined volatile organic compound emissions shall be limited to 2.8 pounds per million cubic feet of natural gas burned, 0.1 pounds per hour and 0.3 tons per year.

11. That the Vacuum Degasser Boiler shall be limited as follows:

a. only natural gas shall be burned and be limited to 34 million BTU per hour heat input.
b. particulate matter/PM-10 emissions shall be limited to 3.0 pounds per million cubic feet of natural gas burned, 0.1 pounds per hour and 0.5 tons per year.
c. nitrogen oxides emissions shall be controlled by the use of staged combustion LoNox burners, or equivalent, and shall be limited to 200 pounds per million cubic feet of natural gas burned, 6.8 pounds per hour and 29.8 tons per year.
d. carbon monoxide emissions shall be limited to 35.0 pounds per million

cubic feet of natural gas burned, 1.2 pounds per hour and 5.2 tons per year.
e. volatile organic compound emissions shall be limited to 2.8 pounds per million cubic feet of natural gas burned, 0.1 pounds per hour and 0.4 tons per year.

12. That the Acid Regeneration Roaster shall be limited as follows:

a. the two tangentially fired burners shall burn only natural gas and be limited to a combined rating of 7.3 million BTU per hour heat input. The gas is cleaned in a cyclone, absorber, and scrubber prior to being vented to the atmosphere through the exhaust fan and stack.
b. particulate matter/PM-10 emissions shall be limited to 3.0 pounds per million cubic feet of natural gas burned, 0.02 pounds per hour and 0.1 tons per year.
c. nitrogen oxides emissions shall be limited to 100 pounds per million cubic feet of natural gas, 0.8 pounds per hour and 3.3 tons per year.
d. carbon monoxide emissions shall be limited to 20.0 pounds per million cubic feet of natural gas, 0.2 pounds per hour and 0.7 tons per year.
e. volatile organic compound emissions shall be limited to 2.8 pounds per million cubic feet of natural gas burned, 0.02 pounds per hour and 0.1 tons per year.

13. That the Ladle Dryout station shall be limited as follows:

a. only natural gas shall be burned and limited to 5.0 million BTU per hour heat input.
b. particulate matter/PM-10 emissions shall be limited to 3.0 pounds per million cubic feet of natural gas burned, 0.015 pounds per hour and 0.1 tons per year.
c. nitrogen oxides emissions shall be limited to 100 pounds per million cubic feet of natural gas, 0.5 pounds per hour and 2.2 tons per year.
d. carbon monoxide emissions shall be limited to 20.0 pounds per million cubic feet of natural gas, 0.1 pounds per hour and 0.43 tons per year.
e. volatile organic compound emissions shall be limited to 5.3 pounds per million cubic feet of natural gas burned, 0.03 pounds per hour and 0.12 tons per year.

14. That the 4 Ladle Preheat stations shall be limited as follows:

a. Three horizontal preheat stations shall burn natural gas only and be limited to 10.0 million BTU per hour heat input each. One vertical preheat station shall burn natural gas only and be limited to 7.5 million BTU per hour.
b. combined particulate matter/PM-10 emissions shall be limited to 3.0 pounds per million cubic feet of natural gas burned, 0.11 pounds per hour and 0.5 tons per year.
c. combined nitrogen oxides emissions shall be limited to 100 pounds per million cubic feet of natural gas, 3.8 pounds per hour and 16.6 tons per year.

d. combined carbon monoxide emissions shall be limited to 20.0 pounds per million cubic feet of natural gas, 0.76 pounds per hour and 3.3 tons per year.
e. combined volatile organic compound emissions shall be limited to 5.3 pounds per million cubic feet of natural gas burned, 0.2 pounds per hour and 0.9 tons per year.

15. That the Tundish Dryout station shall be limited as follows:

a. only natural gas shall be burned and limited to 1.5 million BTU per hour heat input.
b. PM/PM-10 emissions shall be limited to 3.0 pounds per million cubic feet of natural gas burned, 0.005 pounds per hour, and 0.02 tons per year.
c. NOx emissions shall be limited to 100 pounds per million cubic feet of natural gas, 0.15 pounds per hour, and 0.7 tons per year.
d. CO emissions shall be limited to 20.0 pounds per million cubic feet of natural gas, 0.03 pounds per hour, and 0.13 tons per year.
e. VOC emissions shall be limited to 5.3 pounds per million cubic feet of natural gas burned, 0.008 pounds per hour, and 0.04 tons per year.

16. That the two Tundish Preheaters shall be limited as follows:

a. only one Tundish Preheater shall be operated at any one time.
b. only natural gas shall be burned and limited to 2.0 million BTU per hour heat input.
c. PM/PM-10 emissions shall be limited to 3.0 pounds per million cubic feet of natural gas burned, 0.006 pounds per hour, and 0.03 tons per year.
d. NOx emissions shall be limited to 100 pounds per million cubic feet of natural gas, 0.2 pounds per hour, and 0.9 tons per year.
e. CO emissions shall be limited to 20.0 pounds per million cubic feet of natural gas, 0.04 pounds per hour, and 0.18 tons per year.
f. VOC emissions shall be limited to 5.3 pounds per million cubic feet of natural gas burned, 0.01 pounds per hour, and 0.05 tons per year.

17. That emissions of sulfur dioxide, lead, asbestos, beryllium, mercury, vinyl chloride, fluorides, sulfuric acid mist, hydrogen sulfide, total reduced sulfur, and reduced sulfur compounds shall not exceed the annual significant emission levels established in 40 CFR 52.21 or 326 IAC 2-2.

18. That the fugitive dust program, included as Attachment A, shall be implemented to reduce uncontrolled paved road and parking lot fugitive dust emissions by at least 50 percent and down to 16.8 pounds of silt per mile, uncontrolled unpaved road and travelled open areas fugitive dust emissions by 90 percent instantaneous control, and uncontrolled slag processing and storage pile emissions by 97 percent based on a PM-10 emission basis.

19. That visible emissions from any stack, other process exhaust, control device, building roof monitor or EAF slag pit dig out operation located beneath each furnace shall not exceed 5 percent opacity, unless otherwise specified by the above conditions. Visible emissions for the conditions in this permit shall be determined by 40 CFR 60 Appendix A, Method 9 and 326 IAC 5-1.

20. Nucor shall mechanically reduce in size skulls, coils and steel scrap. Any skull, coil or steel scrap not mechanically reduced in size shall be transported to the steel works building and oxygen lanced/cut under a furnace canopy, utilizing the baghouse as the control device. (Skulls are shells of metal that solidify on the sides and bottom of the interior of steel ladles and need to be reduced in size before the metal can be charged into the furnaces.)

21. That petroleum product storage shall be limited as follows:

    a. one 500 gallon above ground storage tank shall use submerged filling technology and be limited to 5200 gallons throughput per year of gasoline.
    b. three 500 gallon above ground storage tanks shall use submerged filling technology and be limited to a combined total of 5200 gallons throughput per year of diesel fuel.
    c. one 5000 gallon above ground storage tank shall use submerged filling technology and be limited to 36,400 gallons throughput per year of diesel fuel.

22. That the emission limitations, operating practices, fugitive dust control plan and operation conditions contained in 1 through 21 above are considered Best Available Control Technology established pursuant to 40 CFR 52.21 and 326 IAC 2-2.

23. That within 180 days of the start of operation emissions testing shall be performed in accordance with 326 IAC 3-2 to determine compliance with the particulate matter emissions limits of conditions 1,2,3,5,6 and 12 using EPA Method 5, the nitrogen oxides limits of conditions 1 and 8 using EPA Method 7, the VOC limit of condition 1 using EPA Method 25, the CO limit of condition 1 using EPA Method 10, and the SO2 limit of condition 1 using EPA Method 6. Also, Nucor shall stack test the acid regeneration roaster to quantify the amounts of HCl emitted during the roasting process.

24. That the following paragraphs of 40 CFR Part 60 Subpart AAa Standards of Performance for Steel Plants: Electric Arc Furnace and Argon-Oxygen Decarburization Vessels Constructed After August 17, 1983, shall be complied with:

    a. paragraph 60.272a; titled, Standard for particulate matter.
    b. paragraph 60.273a; titled, Emission monitoring.
    c. paragraph 60.274a; titled, Monitoring of operations.

d. paragraph 60.275a; titled, Test methods and procedures.
e. paragraph 60.276a; titled, Recordkeeping and reporting requirements.

25. Ambient particulate matter of ten microns and less (PM-10) monitoring site(s) shall be installed and operated at a location(s) approved by the Commissioner. The monitor(s) shall be placed in service on or before the start of production. The monitor(s) shall be operated for a minimum of two years after the start of operation of the steel mill. After this period the owner may petition for the removal of the monitoring requirements if it is established to the satisfaction of the Commissioner that ambient particulate matter levels will continue to comply with the NAAQS. Data from the monitor(s) shall be submitted on a quarterly basis in a format approved by the Commissioner.

26. An exceedance of an allowable opacity limit specified for each emission unit or piece of equipment shall be considered as a violation of the permit condition and shall not be refuted by a stack test conducted by the source demonstrating compliance with the mass limit.

27. All equipment consuming natural gas as the fuel source shall be limited to the use of a propane-air mixture as the alternative backup source.

CONSTRUCTION PERMIT

Control No. 02081

OFFICE OF AIR MANAGEMENT

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
100 North Senate
P.O. Box 6015
Indianapolis, Indiana 46206-6015

Nucor Steel
Intersection of County Road 400S & 400E
Crawfordsville, Indiana

Montgomery County

is hereby authorized to construct

four compartments to the existing melt shop baghouse, a 9.98 million Btu per hour(MMBtu/hr) natural gas fired boiler in the hydrogen plant, a 15 MMBtu/hr natural gas-fired ladle preheater, and the incorporation of an existing 4.2 MMBtu/hr natural gas-fired boiler in the cold roll mill. In addition, the steel production from the existing electric arc furnaces and AOD will be increased from 260 tons per hour to 502 tons per hour and the the natural gas-fired snub furnace heat input will be increased from 5 MMBtu/ hour to 6 MMBtu/hr.

THIS PERMIT IS ISSUED UNDER THE PROVISIONS OF 326 IAC 2-1, 40 CFR 52.780, 52.21, and 124 WITH CONDITIONS LISTED ON THE ATTACHED PAGES.

Identification No. 107-5235-00038

Expiration Date N/A

Date Issued June 20, 1996

Issued by Paul Dubenetzky
Commissioner

Mr. Dave Sulc
Nucor Steel
P.O. Box 249
Waupaca, WI 54981

Re: Significant Source Modification No:
107-12143-00038

Dear Mr. Sulc:

Nucor Steel applied for a Part 70 operating permit on November 14, 1996 for a steel mill. An application to modify the source was received on April 11, 2000. Pursuant to 326 IAC 2-7-10.5 the following emission units are approved for construction at the source:

(a) A strip caster line rated at a maximum steel production rate of 135 tons per hour:

(1) One (1) ladle metallurgy station (LMS) identified as LMS-2. The LMS shall be equipped with a side draft hood that has a particulate matter capture efficiency of 99 percent. The captured particulate matter in the gas stream shall be controlled by the LMS baghouse and the gas stream shall be exhausted through the LMS baghouse stack identified as S-20. The remaining uncontrolled emissions shall be exhausted through the LMS roof monitor identified as S-21;

(2) One (1) tundish that feeds the molten metal from the LMS ladle to one (1) continuous strip caster. The continuous strip caster shall be equipped with a canopy hood that has a particulate matter capture efficiency of 98 percent. The captured particulate matter in the gas stream shall be controlled by the LMS baghouse and the gas stream shall be exhausted though the LMS baghouse stack identified as S-20. The remaining uncontrolled emissions shall be exhausted through the LMS roof monitor identified as S-21;

(3) Two (2) hot rolling stands. These stands roll the steel strips from the continuous strip caster to the desired gauge. Fugitive particulate emissions from this process are suppressed by the application of water to the steel strips;

(4) Descaling operations utilizing water to remove scale from the steel strip;

(5) Two (2) coilers. After the strip passes the rolling mill it is then rolled into coils. Fugitive particulate emissions from this process are suppressed by the application of water to the steel coils.

The strip caster line accepts molten steel at a maximum rate of 135 tons per hour from the existing electric arc furnace (EAF) and is capable of producing all grades of carbon, low-carbon, alloy, and stainless steel at various widths and thicknesses. The coiled product

from the strip caster may be shipped directly to the market or may be routed through the existing hot and/or cold mill.

(b) Combustion equipment associated with the strip caster plant:

(1) Two (2) natural gas-fired ladle preheaters identified as LP-1 and LP-2 and one (1) natural gas-fired ladle dryer identified as LD-1. Each ladle preheater and dryer shall be equipped with low-NOx burners, shall not exceed a maximum heat input rate of 15 MMBtu per hour, and has the capability to utilize propane as a backup fuel. Combustion emissions exhaust to either the LMS baghouse stack identified as S-20 or the LMS roof monitor identified as S-21;

(2) Two (2) natural gas-fired tundish preheaters identified as TP-1 and TP-2. Each tundish preheater shall be equipped with oxy-fuel burners, shall not exceed a maximum heat input rate of 6 MMBtu per hour, and has the capability to utilize propane as a backup fuel. Combustion emissions exhaust to either the LMS baghouse stack identified as S-20 or the LMS roof monitor identified as S-21;

(3) Two (2) natural gas-fired tundish nozzle preheaters identified as TNP-1 and TNP-2. Each tundish nozzle preheater shall be equipped with low-NOx burners, shall not exceed a maximum heat input rate of 1.0 MMBtu per hour, and has the capability to utilize propane as a backup fuel. Combustion emissions exhaust to either the LMS baghouse stack identified as S-20 or the LMS roof monitor identified as S-21;

(4) Two (2) natural gas-fired tundish dryers identified as TD-1 and TD-2. Each tundish dryer shall be equipped with low-NOx burners, shall not exceed a maximum heat input rate of 9 MMBtu per hour, and has the capability to utilize propane as a backup fuel. Combustion emissions exhaust to either the LMS baghouse stack identified as S-20 or the LMS roof monitor identified as S-21; and

(5) Natural gas-fired transition piece preheaters, utilizing propane as back up fuel. Each preheater shall be equipped with low-NOx burners and not exceed a total heat input capacity of 15 MMBtu per hour. These preheaters shall be used in the tundish operations.

(c) Ancillary equipment associated with the strip caster plant:

(1) One (1) LMS baghouse dust loading silo equipped with a bin vent filter, or equivalent, for material recovery and particulate matter control. The emissions from the LMS dust handling equipment shall also be controlled by the silo bin vent filter. Nucor may install an equivalent, enclosed system to store dust from the LMS;

(2) Dumping, storage, and transfer operations of raw materials for the strip caster plant;

(3) Additional transport on new and existing paved roadways and parking lots, unpaved roadways, and unpaved areas around existing raw material storage piles;

(4) One (1) contact cooling tower system with a maximum water flow rate of 12,000

gallons per minute and one (1) noncontact cooling tower system with a maximum water flow rate of 12,000 gallons per minute; and

(5) One (1) gas plant that supplies oxygen, nitrogen, hydrogen and argon gases to the strip caster operations.

(d) One (1) additional natural gas-fired ladle preheater to the existing meltshop, identified as LP-4. This preheater shall be equipped with low-NOx burners, shall not exceed a maximum heat input capacity of 15 MMBtu per hour, and has the capability to utilize propane as a backup fuel. The existing melt shop building will also be expanded in size, there is no emission increase due to this building expansion.

(e) One (1) continuous blasting system:

(1) One (1) prototype continuous blasting unit. The blasting unit has a maximum steel processing rate of 400 feet per minute. The blasting unit shall be equipped with a cyclone for material recovery and particulate emissions from the blasting system shall exhaust through one (1) baghouse and baghouse stack identified as S-22. The baghouse stack exhausts inside the cold mill building and roof monitor, identified as S-28, will also be constructed;

(2) One (1) storage silo. The silo is equipped with a bin vent filter for material recovery and has a maximum storage capacity of 1000 cubic feet; and

(3) Changes to pickle line number 2 include change in the electrical control system and the addition or replacement of an exit end crop shear and side trimmers, an exit end scrap conveyor, an exit end pinch roll/steering unit, an exit end five roll semi bridle/pinch rolls, an exit Fife centering guide system and mechanical side guides. All would be sized consistently with the present front and exit end equipment (up to 80- inch wide), which is also consistent with the strip caster maximum width.

The blasting system cleans the steel strip and shall be in series with the existing pickle line identified as PL-2. This system can handle the products from both the existing continuous caster line and the continuous strip caster line to be installed as described above.

(f) Eighteen (18) natural gas-fired batch annealing furnaces, utilizing propane as a backup fuel. Each batch annealing furnace shall be equipped with low-NOx burners and shall not exceed a maximum heat input rate of 4.8 MMBtu per hour. These units can handle the product from both the existing continuous caster line and the continuous strip caster line to be installed as described above.

The Significant Source Modification approval will be incorporated into the pending Part 70 permit application pursuant to 326 IAC 2-7-10.5(l)(3). If there are no changes to the proposed construction of the emission units, the source may begin operating on the date that IDEM receives an affidavit of construction pursuant to 326 IAC 2-7-10.5(h). If there are any changes to the proposed construction the source can not operate until an Operation Permit Validation Letter is issued.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter call (800) 451-6027, press 0 and ask for Nisha Sizemore or extension 2-8356, or dial (317) 232-8356.

Sincerely,

Paul Dubenetzky, Chief
Permits Branch
Office of Air Quality

Attachments
nls
cc: File - Montgomery County
U.S. EPA, Region V
Montgomery County Health Department
Air Compliance Section Inspector - Richard Sekula
Compliance Data Section - Karen Nowak
Administrative and Development - Janet Mobley
Technical Support and Modeling - Michele Boner

PART 70 SIGNIFICANT SOURCE MODIFICATION
and
PREVENTION OF SIGNIFICANT DETERIORATION
OFFICE OF AIR QUALITY

Nucor Steel
RR 2, Box 311, County Road 400 East
Crawfordsville, Indiana 47933

(herein known as the Permittee) is hereby authorized to construct and operate subject to the conditions contained herein, the emission units described in Section A (Source Summary) of this approval.

This approval is issued in accordance with 326 IAC 2-1.1, 326 IAC 2-2, 40 CFR 52.780 and 40 CFR 124, and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-7 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

Source Modification No.: 107-12143-00038	
Issued by: Paul Dubenetzky, Branch Chief Office of Air Quality	Issuance Date:

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SECTION A SOURCE SUMMARY

This approval is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the emission units contained in conditions A.1 through A.2 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this approval pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

A.1 General Information [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)] [326 IAC 2-7-1(22)]

The Permittee owns and operates a steel mill.

Responsible Official:	John J. Ferriola
Source Address:	RR 2, Box 311, County Road 400 East, Crawfordsville, IN 47933
Mailing Address:	RR 2, Box 311, County Road 400 East, Crawfordsville, IN 47933
Phone Number:	765-364-1323
SIC Code:	3312
County Location:	Montgomery
County Status:	Attainment for all criteria pollutants
Source Status:	Part 70 Permit Program Major Source under PSD Major Source pursuant to Section 112 of the Clean Air Act One of 28 Listed Categories

A.2 Emission Units and Control Equipment Summary [326 IAC 2-7-4(c)(3)] [326 IAC 2-7-5(15)]

This stationary source is approved to construct and operate the following emission units and pollution control devices:

(a) A strip caster line rated at a maximum steel production rate of 135 tons per hour:

(1) One (1) ladle metallurgy station (LMS) identified as LMS-2. The LMS shall be equipped with a side draft hood that has a particulate matter capture efficiency of 99 percent. The captured particulate matter in the gas stream shall be controlled by the LMS baghouse and the gas stream shall be exhausted through the LMS baghouse stack identified as S-20. The remaining uncontrolled emissions shall be exhausted through the LMS roof monitor identified as S-21;

(2) One (1) tundish that feeds the molten metal from the LMS ladle to one (1) continuous strip caster. The continuous strip caster shall be equipped with a canopy hood that has a particulate matter capture efficiency of 98 percent. The captured particulate matter in the gas stream shall be controlled by the LMS baghouse and the gas stream shall be exhausted though the LMS baghouse stack identified as S-20. The remaining uncontrolled emissions shall be exhausted through the LMS roof monitor identified as S-21;

(3) Two (2) hot rolling stands. These stands roll the steel strips from the continuous strip caster to the desired gauge. Fugitive particulate emissions from this process are suppressed by the application of water to the steel strips;

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be installed as described above.

A.3 Part 70 Permit Applicability [326 IAC 2-7-2]

This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because it is a major source, as defined in 326 IAC 2-7-1(22).