



State of Ohio Environmental Protection Agency

Street Address:

Mailing Address:

Lazarus Gov. Center TELE: (614) 644-3020 FAX: (614) 644-2329

Lazarus Gov.
Center

RE: **FINAL PERMIT TO INSTALL MODIFICATION** CERTIFIED MAIL
JEFFERSON COUNTY
Application No: 06-06952

DATE: 1/29/2004

Wheeling Pittsburgh Steel Corporation
Bud Smith
1134 Market St
Wheeling, WV 26003

Enclosed Please find a modification to the Ohio EPA Permit To Install referenced above which will modify the terms and conditions.

You are hereby notified that this action by the Director is final and may be appealed to the Ohio Environmental Review Appeals Commission pursuant to Chapter 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. It must be filed within thirty (30) days after the notice of the Directors action. A copy of the appeal must be served on the Director of the Ohio Environmental Protection Agency within three (3) days of filing with the Commission. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission
309 South Fourth Street, Room 222
Columbus, Ohio 43215

Sincerely,

A handwritten signature in cursive script that reads "Michael W. Ahern".

Michael W. Ahern, Supervisor
Field Operations and Permit Section
Division of Air Pollution Control

CC: USEPA

SEDO



**Permit To Install
Terms and Conditions**

**Issue Date: 1/29/2004
Effective Date: 1/29/2004**

FINAL ADMINISTRATIVE MODIFICATION OF PERMIT TO INSTALL 06-06952

Application Number: **06-06952**
APS Premise Number: **0641090010**
Permit Fee: **\$625**
Name of Facility: **Wheeling Pittsburgh Steel Corporation**
Person to Contact: **Bud Smith**
Address: **1134 Market St
Wheeling, WV 26003**

Location of proposed air contaminant source(s) [emissions unit(s)]:
**S Third St
Steubenville, OHIO**

Description of modification:

Administrative modification to include a new inline air heater at blast furnace number one in order to increase the efficiency of the stoves.

The above named entity is hereby granted a modification to the permit to install described above pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this modification does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the above described source(s) of environmental pollutants will operate in compliance with applicable State and Federal laws and regulations, and does not constitute expressed or implied assurance that if constructed or modified in accordance with those plans included in the application, the above described source(s) of pollutants will be granted the necessary operating permits.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

Director

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GENERAL PERMIT CONDITIONS

TERMINATION OF PERMIT TO INSTALL

Substantial construction for installation must take place within 18 months of the effective date of this permit. This deadline may be extended by up to 12 months if application is made to the Director within a reasonable time before the termination date and the party shows good cause for any such extension.

NOTICE OF INSPECTION

The Director of the Ohio Environmental Protection Agency, or his authorized representatives, may enter upon the premises of the above-named applicant during construction and operation at any reasonable time for the purpose of making inspections, conducting tests, or to examine records or reports pertaining to the construction, modification or installation of the source(s) of environmental pollutants identified within this permit.

CONSTRUCTION OF NEW SOURCES

The proposed emissions unit(s) shall be constructed in strict accordance with the plans and application submitted for this permit to the Director of the Ohio Environmental Protection Agency. There may be no deviation from the approved plans without the express, written approval of the Agency. Any deviations from the approved plans or the above conditions may lead to such sanctions and penalties as provided under Ohio law. Approval of these plans does not constitute an assurance that the proposed facilities will operate in compliance with all Ohio laws and regulations. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed sources cannot meet the requirements of this permit or cannot meet applicable standards.

If the construction of the proposed emissions unit(s) has already begun or has been completed prior to the date the Director of the Environmental Protection Agency approves the permit application and plans, the approval does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the approved plans. The action of beginning and/or completing construction prior to obtaining the Director's approval constitutes a violation of OAC rule 3745-31-02. Furthermore, issuance of the Permit to Install does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Approval of the plans in any case is not to be construed as an approval of the facility as constructed and/or completed. Moreover, issuance of the Permit to Install is not to be construed as a waiver of any rights that the Ohio Environmental Protection Agency (or other persons) may have against the applicant for starting construction prior to the effective date of the permit. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed facilities cannot meet the requirements of this permit or cannot meet applicable standards.

PERMIT TO INSTALL FEE

In accordance with Ohio Revised Code 3745.11, the specified Permit to Install fee must be remitted within 30 days of the effective date of this permit to install.

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PUBLIC DISCLOSURE

The facility is hereby notified that this permit, and all agency records concerning the operation of this permitted source, are subject to public disclosure in accordance with OAC Rule 3745-49-03.

APPLICABILITY

This Permit to Install is applicable only to the contaminant sources identified. Separate application must be made to the Director for the installation or modification of any other contaminant sources.

BEST AVAILABLE TECHNOLOGY

As specified in OAC Rule 3745-31-05, all new sources must employ Best Available Technology (BAT). Compliance with the terms and conditions of this permit will fulfill this requirement.

SOURCE OPERATION AND OPERATING PERMIT REQUIREMENTS AFTER COMPLETION OF CONSTRUCTION

If the permittee is required to apply for a Title V permit pursuant to OAC Chapter 3745-77, the permittee shall submit a complete Title V permit application or a complete Title V permit modification application within twelve (12) months after commencing operation of the emissions units covered by this permit. However, if the proposed new or modified source(s) would be prohibited by the terms and conditions of an existing Title V permit, a Title V permit modification must be obtained before the operation of such new or modified source(s) pursuant to OAC rule 3745-77-04(D) and OAC rule 3745-77-08(C)(3)(d).

If the permittee is required to apply for permit(s) pursuant to OAC Chapter 3745-35, the source(s) identified in this Permit To Install is (are) permitted to operate for a period of up to one year from the date the source(s) commenced operation. Permission to operate is granted only if the facility complies with all requirements contained in this permit and all applicable air pollution laws, regulations, and policies. Pursuant to OAC Chapter 3745-35, the permittee shall submit a complete operating permit application within thirty (30) days after commencing operation of the source(s) covered by this permit.

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AIR EMISSION SUMMARY

The air contaminant emissions units listed below comprise the Permit to Install for **Wheeling Pittsburgh Steel** located in **Jefferson** County. The emissions units listed below shall not exceed the emission limits/control requirements contained in the table. This condition in no way limits the applicability of any other state or federal regulations. Additionally, this condition does not limit the applicability of additional special terms and conditions of this permit.

Cont'd

<u>Ohio EPA</u> <u>Source</u> <u>Number</u>	<u>Source Identification</u> <u>Description</u>
P903	Blast furnace No. 5, skip hoist, vents, bleeders, new casthouse and dust catcher with 4500 tons/day (maximum) of molten iron production

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<u>BAT</u>	<u>Applicable Federal &</u>
<u>Determination</u>	<u>OAC Rules</u>

*	3745-31-05
	3745-17-07(A)**
	3745-17-07(B)**
	3745-17-08(B)
	3745-17-11**
	3745-15-06
	3745-15-07
	3745-18-06**

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	pound/hour and 0.022 TPY (Fugitive);
Permit Allowable Mass Emissions and/or Control/Usage <u>Requirements</u>	0.00045 pound/hour and 0.002 TPY (Baghouse)
	<u>No. 5 Stove Stack</u>
<u>No. 5 Casthouse***</u>	PM: 2.95 pounds/hour and 12.92 TPY
PM: 11.25 pounds/hour and 49.28 TPY (Fugitive); 2.52 pounds/hour and 8.47 TPY (Baghouse)	PM ₁₀ : 2.95 pounds/hour and 12.92 TPY SO ₂ : 69.69 pounds/hour and 305.26 TPY NO _x : 76.1 pounds/hour and 333.32 TPY VOC: 1.83 pound/hour and 8.0 TPY
PM ₁₀ : 5.74 pounds/hour and 25.13 TPY (Fugitive); 2.41 pounds/hour and 8.14 TPY (Baghouse)	CO: 46.50 pounds/hour and 203.68 TPY
S0 ₂ : 1.45 TPY (Fugitive); 2.98 pounds/hour and 13.05 TPY (Baghouse)	<u>No. 5 Blast Furnace Flare</u>
NO _x : 2.46 TPY (Fugitive); 5.06 pounds/hour and 22.16 TPY (Baghouse)	PM: 1.63 pounds/hour and 6.0 TPY PM ₁₀ : 1.63 pounds/hour and 6.0 TPY NO _x : 46.92 pounds/hour and 172.5 TPY CO: 27.91 pounds/hour and 102.75 TPY S0 ₂ : 38.56 pounds/hour and 141.75 TPY
VOC: 2.87 pounds/hour and 12.56 TPY (Baghouse); 1.4 TPY (Fugitive)	<u>Skip Car</u>
Pb: 0.005	PM/PM ₁₀ : 0.36 pound/hour and 1.47 TPY

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* Evacuated trough hood and cover for closing and casting furnace, tight runner covers and evacuated hood over tilting runner and openings into torpedo RR cars, evacuated sliding slag runner inside building, fabric filter, blast furnace gas flare, small bell and large bell charging, and flame suppression at torpedo cars as needed. Daily hot metal production limit for blast furnaces number 1 and 5 (previously numbers 1, 3 and 5) shall not exceed 7,700 tons. Visible emissions from the cast house as per Additional Term I.B.

** Less stringent rules.

*** Based upon an estimated 90 percent capture rate.

SUMMARY

TOTAL PERMIT TO INSTALL ALLOWABLE EMISSIONS

<u>Pollutant</u>	<u>Blast Furnace No. 5 Tons/Year</u>	<u>Blast Furnaces Numbers 1, 3, and 5 Tons/Year</u>	<u>Project Net Increase/ Decrease Tons/Year</u>
PM	52.22		
PM ₁₀	41.40	117.27	10.34
SO ₂	461.51	645.97	8.16
NO _x	530.44	763.24	(34.47)
VOC	21.97	32.91	11.85
CO	306.43	412.64	(37.56)
Pb	0.0024		

PERFORMANCE TEST REQUIREMENTS

The permittee shall conduct, or have conducted, performance testing on the air contaminant source(s) in accordance with procedures approved by the Agency. Two copies of the written report describing the test procedures followed and the results of such tests shall be submitted and signed by the person responsible for the test. The Director, or an Ohio EPA representative, shall be allowed to witness the test, examine testing equipment, and require the acquisition or submission of data and information necessary to assure that the source operation and testing procedures provide a valid characterization of the emissions from the source and/or the performance of the control equipment.

- A. A completed Intent to Test form shall be submitted to the Ohio EPA, Southeast District Office where the original permit application was filed. This notice shall be made 30 days in advance and shall specify the source operating parameters, the proposed test procedures, and the time, date, place and person(s)

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conducting such tests.

- B. Two copies of the test results shall be submitted within 30 days after the completion of the performance test.
- C. Tests shall be performed for the following source(s) and pollutant(s):

Source

P903, P911 One
Stove Stack each

Pollutant(s)

PM₁₀ or PM (in lieu of PM₁₀),
NO_x, SO₂, CO

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WASTE DISPOSAL

The owner/operator shall comply with any applicable state and federal requirements governing the storage, treatment, transport and disposal of any waste material generated by the operation of the sources.

MAINTENANCE OF EQUIPMENT

This source and its associated air pollution control system(s) shall be maintained regularly in accordance with good engineering practices and the recommendations of the respective manufacturers in order to minimize air contaminant emissions.

MALFUNCTION/ABATEMENT

In accordance with OAC RULE 3745-15-06, any malfunction of the source(s) or associated air pollution control system(s) shall be reported immediately to the **Ohio EPA, Southeast District Office, 2195 Front Street, Logan, OH 43138.**

Except as provided by OAC Rule 3745-15-06(A)(3), scheduled maintenance of air pollution control equipment that requires the shutdown or bypassing of air pollution control system(s) must be accompanied by the shutdown of the associated air pollution sources.

AIR POLLUTION NUISANCES PROHIBITED

The air contaminant source(s) identified in this permit may not cause a public nuisance in violation of OAC Rule 3745-15-07.

NINETY DAY OPERATING PERIOD

The facility will be permitted to operate during a 90-day period in accordance with OAC Rule 3745-35-02(C)(4)(b). The purpose of this period of operation is to fulfill the performance tests conditions used in the determination of compliance with the provisions of this Permit to Install or other applicable Ohio EPA rules.

ADDITIONAL SPECIAL TERMS AND CONDITIONS

I. Emissions Limitations and Control Requirements

- A. See Air Emission Summary section and the other terms of this permit for complete emissions limits, restrictions and control requirements, in addition to the following.
- B. Visible Emission Limitation For Casthouse
 1. Visible emissions that exit any opening in the casthouse or structure housing the blast furnace shall not exceed 15 per cent opacity as a six-minute average.

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C. Netting Summary

Combined new allowable for blast furnaces # 1, 3 and 5, based upon the production cap*:

<u>Source</u>	<u>PM₁₀</u>	<u>SO₂</u>	<u>NO_x</u>	<u>CO</u>	<u>VOC</u>
stoves (including #1 BF inline air heater)	24.48	478.92	548.37	309.89	8.9
casthouse fugitives	43.02	25.3	42.37	0	24.01
flare	6.0	141.75	172.5	102.75	0
baghouse	8.14	0	0	0	0
skipcar	2.70	0	0	0	0

Emissions increases from other units involved in contemporaneous netting:

<u>Source</u>	<u>PM₁₀</u>	<u>SO₂</u>	<u>NO_x</u>	<u>CO</u>	<u>VOC</u>
material handling	4.73				
south boilers	26.28				
other PTIs	1.92				
Total:	117.23	645.97	763.24	412.64	32.91
Past Actual (1993/1994):	106.93	637.81	797.71	450.20	21.06
Net Change:	10.34	8.16	(34.47)	(37.56)	11.85

* Based on the worst case emissions scenario, with maximum production at the blast furnace with the highest emission rate and a hot metal production limit of 7700 tons/day from blast furnaces 1, 3 and 5 (# 1 furnace at 3,500 tons/day and #5 furnace at 4200 tons/day).

Originally, furnaces number one and number three were in operation when number five

was rebuilt and began operation. Shortly after, number three furnace was idled. Furnaces number one and five constitute the worst-case operating scenario for emissions generation. The netting calculations give the same result for the scenario with all 3 furnaces, and numbers 1, 3 and 5 are required to comply with the operational restrictions of this permit to install, during the time period that the three furnaces were in operation. Number 3 furnace shall not be operated without first obtaining a permit modification or a new permit to install, whichever is required by Ohio EPA.

II. Operational Restrictions

A. Production Restrictions

The total, combined maximum daily production rate of hot metal for blast furnaces numbered 1, 3 and 5 shall not exceed seven thousand seven hundred net tons of metal per day.

B. Flare Restriction

The excess blast furnace gas flare annualized flare capacity shall not exceed 15,000 MMCF. A level of 163 MMBtu/hr is the new capacity of the flare, which now serves only unit #5. Blast furnace #3, which previously used this same flare, will not operate, therefore, the flare's capacity is reduced (as are PM₁₀, NO_x, SO₂ and CO emissions) due to the units it serves.

C. Boiler Restriction

These boilers operate on oil, coke oven gas (COG), blast furnace gas (BFG) and natural gas (NG). The permittee shall maintain and operate the Steubenville South boilers such that the maximum fuel consumption shall not exceed the following amounts, over a rolling 12-month period:

1,491,000 gallons of fuel oil @ 0.65 Sulfur (or PM₁₀ emissions equivalent combination of gallons of oil and sulfur content)

1,900 MMCF of COG

27,430 MMCF of BFG

1,788.1 MMCF of NG

This restriction limits the emissions to 26.28 tons/year PM₁₀, a net decrease of 15.69 tons/year PM₁₀ from past actual emissions for these boilers. These fuel usage amounts are based upon the following calculation:

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$$\begin{aligned}
 &(1,491,000 \text{ gallons of fuel oil/yr}) \times (7.87 \text{ lbs PM}_{10}/10^3\text{gal}) \times (1 \text{ ton}/2000 \text{ lbs}) + \\
 &(1,900 \text{ MMCF of COG/yr}) \times (6.48 \text{ lbs PM}_{10}/ \text{MMCF}) \times (1 \text{ ton}/2000 \text{ lbs}) + \\
 &(27,430 \text{ MMCF of BFG/yr}) \times (0.0068 \text{ lbs PM}_{10}/ \text{MMBtu}) \times (95 \text{ Btu}/\text{CF}) \times (1 \text{ ton}/2000 \\
 &\text{lbs}) + \\
 &(1,788.1 \text{ MMCF of NG/yr}) \times (6.2 \text{ lbs PM}_{10}/ \text{MMCF}) \times (1 \text{ ton}/2000 \text{ lbs}) = 26.28 \text{ TPY PM}_{10}
 \end{aligned}$$

In order to ensure federal enforceability, for the first twelve calendar months of operations, the permittee shall not exceed the following fuel usage limits for the Steubenville South boilers as indicated for the specified time periods. The permittee shall be permitted to substitute cleaner burning gaseous fuels in place of fuel oil.

<u>MONTH</u>	<u>TOTAL ALLOWABLE USAGE</u>			
	<u>Fuel Oil (gal @ 0.65 % S)</u>	<u>COG (MMCF)</u>	<u>BFG (MMCF)</u>	<u>NG (MMCF)</u>
1-3	372,750	475	6,857.5	447.1
1-6	745,500	950	13,715.0	894.1
1-9	1,118,250	1425	20,572.5	1341.1
1-12	1,491,000	1900	27,430.0	1788.1

After the first twelve months of operation, the permittee shall conform with limitations and reporting requirements of this condition.

- D. The permittee shall maintain and employ the blast furnace number 1 (P911) stoves stacks such that allowable particulate matter emission rate for PM₁₀ does not exceed 0.012 lb/MMBtu, including emissions from the blast furnace number 1 indirect-fired blast air preheater.

E. Blast Furnace Fuel Use Limitation

The permittee shall limit the consumption of coke oven gas at the blast furnace number 1 stove and blast furnace number 1 indirect-fired blast air preheater to no more than 1500 MMCF per rolling 12-month total. Blast furnace #5 will use no coke oven gas, therefore this restriction limits number 1 furnace to 100.69 tons/year SO₂.

The permittee shall limit the consumption of natural gas at blast furnace numbered 1 and 5 stoves and blast furnace number 1 indirect-fired blast air preheater to no more than 5,000 MMCF per 12-month rolling total. This restriction limits the combined VOC emissions to 8.0 tons/year VOC.

In order to ensure federal enforceability, for the first twelve calendar months of operations, the permittee shall not exceed the following usage limits for coke oven gas and natural gas for blast furnace stoves as indicated for the specified time periods.

MONTH TOTAL ALLOWABLE USAGE

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#1 STOVE AND BLAST
FURNACE #1
INDIRECT-FIRED BLAST
AIR PREHEATER

#1 & #5 STOVES
AND BLAST
FURNACE #1
INDIRECT-FIRED

BLAST

AIR PREHEATER

COKE OVEN GAS (MMCF)

NATURAL GAS (MMCF)

1-3	375	1250
1-6	750	2500
1-9	1125	3750
1-12	1500.0	5000.0

After the first twelve months of operation, the permittee shall conform with limitations and reporting requirements of this condition.

F. Baghouse Operational Restrictions

The pressure drop across the baghouse modules shall be maintained within the range of 2-10 inches of water while the emissions unit is in operation. If a performance test demonstrating compliance shows another range to be satisfactory, then that range shall become the required pressure drop value.

G. Flare Pilot Flame Operational Restriction

A pilot flame shall be maintained at all times in the flare's pilot light burner.

H. The Blast Furnace #1 indirect-fired blast air preheater shall be associated only with and used as a supplement only to the Blast Furnace #1 stoves. Any future use of the indirect-fired blast air preheater for any other purpose must first be approved by the Ohio EPA.

III. Monitoring and Recordkeeping

A. Beginning as soon as qualified observers can obtain certification or contracted with, but no later than thirty days after issuance of the permit, the permittee shall perform visible emission readings of the fugitive emissions from the casthouse roof monitor which is employed for blast furnace #5. The visible emission readings shall be performed by certified smoke readers in accordance with the procedures contained

in paragraph (B)(1) of OAC Rule 3745-17-03.

Readings taken during one entire cast shall be performed at least once per calendar month and shall be recorded on forms which have been approved by the Director. Observations shall commence when tapping occurs.

- B. The permittee shall maintain monthly records of the flare gas flow for the blast furnace clean gas flare.
- C. The permittee shall maintain monthly records of the coke oven gas and natural gas consumed in the number 1 blast furnace stoves and blast furnace number 1 indirect-fired blast air preheater, numbers 1 and 5 blast furnace stoves and blast furnace number 1 indirect-fired blast air preheater combined, and total fuel amount of each fuel consumed at the south plant boilers.

The permittee shall maintain monthly records of the following information:

1. the fuel usage rates (COG and NG) for blast furnace #1 (including the blast furnace #1 indirect-fired blast air preheater), and for blast furnaces #1 and #5 (including the blast furnace #1 indirect-fired blast air preheater) combined for each week;
2. the fuel usage rates (oil, COG, BFG and NG) for the south boilers for each week; and,
3. beginning after the first 12 months of operation, the rolling, 12-month summation of the fuel usage rates.

Also, during the first 12 calendar months of operation, the permittee shall record the cumulative fuel usage rates for each calendar month.

D. Baghouse Pressure Drop Monitoring and Recordkeeping Requirements

The permittee shall properly install, operate, and maintain equipment to monitor the pressure drop across the baghouse modules while the emissions unit is in operation. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s). The permittee shall record the pressure drop across the baghouse modules on a daily basis.

E. Blast Furnace Gas Flare Pilot Flame Monitoring and Recordkeeping Requirements

The permittee shall properly install, operate, and maintain a device to continuously monitor the pilot flame when the emissions unit is in operation. The monitoring device and recorder shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.

The permittee shall record the following information each day:

1. all periods during which there was no pilot flame; and,
 2. the operating times for the flare, monitoring equipment, and the associated emissions unit.
- F. Daily iron production estimates for each blast furnace cast and the total combined iron production for all operating blast furnaces shall be recorded and maintained. The daily estimates shall be reconciled on the following day with actual weigh records produced at the BOF reladle stations. Daily records shall be maintained for each furnace and the total, combined production rate to document compliance with this production restriction.
- G. These records shall be maintained by the owner or operator for a period of not less than five years.

IV. Reporting Requirements

A. Molten Iron Production

On a quarterly basis, the permittee shall submit to the Ohio EPA field office the daily hot metal production for each furnace and the daily total hot metal production for all operating blast furnaces. Each quarterly report shall be submitted by the last day of the month following the calendar quarter and shall cover the previous calendar quarter.

B. Blast Furnace Gas Flare

The permittee shall provide quarterly reports by the last day of the month following the end of the quarter, of all excursions of the flare gas flow limit.

C. Fuel Limitations

The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the rolling, 12-month fuel usage rate limitations and, for the first 12 calendar months of operation, all exceedances of the maximum allowable cumulative fuel usage amounts, by the last day of the month following the end of the calendar quarter providing an indication of all exceedances of the oil and gas fuel consumption limits.

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D. Baghouse Pressure Drop

The permittee shall submit pressure drop deviation (excursion) reports that identify all periods of time during which the pressure drop across the baghouse modules did not comply with the allowable range specified above. These quarterly excursion emission reports shall be submitted by the last day of the month following the calendar quarter and shall cover the previous calendar quarter.

E. Visible Emission

On a quarterly basis, the permittee shall submit to the Ohio EPA field office the visible emission readings performed. Each report shall be submitted by the last day of the month following the calendar quarter, and shall cover the previous calendar quarter.

F. Flare Pilot Flame

The permittee shall submit deviation (excursion) reports that identify all periods during which the pilot flame was not functioning properly. The reports shall include the date, time, and duration of each such period. Each quarterly report shall be submitted to the Ohio EPA field office by the last day of the month following the calendar quarter and shall cover the previous calendar quarter.

V. Testing Requirements

A. Emissions Testing

The permittee shall conduct, or have conducted, emission testing for blast furnace number 5 stove stack and casthouse fabric filter in accordance with the following requirements:

1. The emission testing shall be conducted within 90 days of start up of the unit.
2. The emission testing shall be conducted to demonstrate compliance with the particulate emission limitation.
3. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s): Method 1-5 - if applicable. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.
4. The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity.
5. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA, Southeast District Office. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA District Office's or local air agency's refusal to accept the results of the emission test(s).
6. Personnel from the Ohio EPA, Southeast District Office shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.
7. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted

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to the Ohio EPA, Southeast District Office within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Ohio EPA, Southeast District Office.

- B. Compliance with the pounds per hour and tons per year emission limitation(s) in Air Emissions Summary page of this permit to install shall be determined in accordance with the following method(s):

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Emission Limitation

Cast house lbs/hr

Applicable Compliance Method

<u>Pollutant</u>	<u>Emission Factor lb/ton</u>	<u>Production ton/hr</u>	<u>Pounds per hour</u>
PM	0.6 @ 10% hood loss	187.5	11.25(fug.)
PM	0.0134	187.5	2.52(baghs.)
PM ₁₀	0.6 @10%hood loss *.51 particle size	187.5	5.74(fug.)
PM ₁₀	0.0129	187.5	2.41(baghs.)
SO ₂	0.0177	187.5	2.98(baghs.)
NO _x	0.03	187.5	5.06(baghs.)
VOC	0.017	187.5	2.87(baghs.)
Pb	2.67E-04 @ 90% hood capt.	187.5	0.00045(baghs.)
Pb	2.67E-04 @ 10% hood loss	187.5	0.005(fug.)

SO₂ emission factor based on WPSC stack test (fugitive number based on 90% capture). VOC emission factor based on 1993 and 1994 emission inventory (fugitive number based on 90% capture). All other emission factors from AP-42. Emission factors for PM and PM₁₀ are multiplied by hood loss of 10%. Allowable=110% actual (baghouse PM, PM₁₀). PM and PM₁₀ EF's based on 1995 stack test (baghouse). Lead from baghouse (99% efficient) dust concentration of 450 ppm (0.00045*0.6=2.67 E-04 lb/ton) multiplied by hood loss of 10%/hood capture 90% NO_x emissions are based on 90% capture.

Emission Limitation

Cast house tons/year

Applicable Compliance Method

<u>Pollutant</u>	<u>Emission Factor lb/ton</u>	<u>Production ton/yr</u>	<u>Tons per year</u>
PM	0.6 @ 10% hood loss	1,642,500	49.28(fug.)

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PM	1.062E-02	1,642,500	8.47(baghs.)
PM ₁₀	0.6 @ 10%hood loss		
	*.51 particle size	1,642,500	25.13(fug.)
PM ₁₀	1.062E-02	1,642,500	8.14(baghs.)
SO ₂	1.7E-02@90% hood capt.	1,642,500	13.05(baghs.)
SO ₂	1.7E-02@10% hood loss	1,642,500	1.45(fug.)
NO _x	3.0E-02@90% hood capt.	1,642,500	22.16(baghs.)
NO _x	3.0E-02@10% hood loss	1,642,500	2.46(fug.)
VOC	1.49E-02@90% hood capt.	1,642,500	12.57(baghs.)
VOC	1.49E-02@10% hood loss	1,642,500	1.40(fug.)
Pb	2.67E-04@90% hood capt.	1,642,500	0.002(baghs.)
Pb	2.67E-04@10% hood loss	1,642,500	0.022(fug.)

SO₂ emission factor based on WPSC stack test (fugitive number based on 90% capture). VOC emission factor based on 1993 and 1994 emission inventory (fugitive number based on 90% capture). All other emission factors from AP-42. Emission factors for PM and PM₁₀ are multiplied by hood loss of 10%. Allowable=110% actual (baghouse PM, PM₁₀). PM and PM₁₀ EF's based on 1995 stack test (baghouse). Lead from baghouse (99%efficient) dust concentration of 450 ppm (0.00045*0.6=2.67E-04 lb/ton) multiplied by hood loss of 10%/hood

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capture 90%. NOx emissions are based on 90% capture.

Emission Limitation

Stove stack emission (including blast furnace number 1 indirect-fired blast air preheater emissions)

Applicable Compliance Method

	EF	Units	hourly	units	lbs/hr	Tons/year
Blast furnace gas						
PM	0.01	lb/ MMBtu	295	MMBtu	2.95	12.92
PM ₁₀	0.01	lb/ MMBtu	295	MMBtu	2.95	12.92
SO ₂	18.9	lb/ MMCF	3.687	MMCF	69.69	305.26
NO _x	23	lb/ MMCF	3.1	MMCF	71.3	312.29
VOC	0	lb/ MMCF	3.1	MMCF		
CO	13.7	lb/ MMCF	3.1	MMCF	42.47	186.02
Natural Gas						
SO ₂	0.6	lb/ MMCF	0.048	MMCF	0.03	0.13
NO _x	100	lb/ MMCF	0.048	MMCF	4.8	21.02
VOC	3.2	lb/ MMCF	0.048	MMCF	0.15	0.67
CO	84	lb/ MMCF	0.048	MMCF	4.03	17.66

The allowable is the total of natural gas and blast furnace gas, except for PM and PM₁₀. EF's are from AP-42, with the exception of PM and PM₁₀, which were based on 9/15/95 stack test and SO₂. The permit allowable of 2.95 lbs/hour PM and PM₁₀ is based upon 0.01 lb/ MMBtu for the full rated capacity of the stoves (295 MMBtu/hr), as requested by the applicant. The sulfur dioxide emission factor (18.9 lbs/ MMCF) is obtained from stack test results for the combustion of blast furnace gas at the CoGen facility.

Emission Limitation

Blast Furnace gas flare pounds per hour and tons per year.

Applicable Compliance Method

	<u>EF</u>	<u>Units</u>	<u>hourly</u>	<u>units</u>	<u>lbs/hr</u>	<u>Tons/year</u>
Blast furnace gas						

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PM	0.01	lb/ MMBtu	163	MMBtu	1.63	6
						.
						0
PM ₁₀	0.01	lb/ MMBtu	163	MMBtu	1.63	0
						6
						.
						0
NO _x	23	lbs/ MMCF	2.04	MMCF	46.92	0
						172.5
CO	13.7	lbs/ MMCF	2.04	MMCF	27.95	
					102.75	
SO ₂	18.9	lbs/ MMCF	2.04	MMCF	38.56	
					141.8	

EF's are from AP-42 with the exception of PM, PM₁₀ and SO₂ which are based on a 09/15/95 and 5/20/98 stack test respectively. Maximum hourly emissions rate based on hourly flare capacity of 163 MMBtu/hr divided by 80 Btu/cf=2.04 MMCF/hr. The sulfur dioxide emission factor (18.9 lbs/ MMCF) is obtained from stack test results for the combustion of blast furnace gas at the CoGen facility. Annual emission rate based upon maximum of 15,000 MMCF blast furnace gas flared annually.

Emission Limitation

Skip car lbs/hr and ton/yr

Applicable Compliance Method

Allowable skip car emissions are determined by using the emission factor 0.001919 lb/ton of metal produced and multiplying by the appropriate time period and production rate. 4500 tons/day * 0.001919 lb/ton * 1day/24 hr= 0.36 lb/hr; 4200 tons/day * 0.001919 lb/ton * 365 days/year * 1 ton/2000 lbs= 1.47 tons/yr PM₁₀.

- C. Compliance with the emission limitation(s) in Section I.B. of these terms and conditions shall be determined in accordance with the following method(s):

Emission Limitation

Visible emissions that exit any opening in the casthouse or structure housing the blast furnace shall not exceed 15 percent opacity as a six-minute average.

Applicable Compliance Method

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Compliance shall be determined by visible emission evaluations performed in accordance with OAC rule 3745-17-03(B)(4) and the appropriate averaging times using the methods and procedures specified in USEPA Method 9.

- D. Compliance with the emission limitation(s) in Section I.C. of these terms and conditions shall be determined in accordance with the following method(s):

Emission Limitation

Particulate matter (PM₁₀)

Applicable Compliance Method

Stoves and blast furnace number 1 indirect-fired blast air preheater allowable was determined as BF#1 at an annual capacity of 220 MMBtu/hr @ 0.012 lb/ MMBtu and BF#5 at a maximum capacity of 295 MMBtu/hr @ 0.010 lb/ MMBtu. Emissions are calculated as:
 $(220 \times 0.012) + (295 \times 0.010) = 5.59 \text{ lbs/hr or } 24.48 \text{ TPY PM}_{10}$

Allowable casthouse emission for BF # 1 and BF#5 = 146 tons/hr hot metal * 0.6 lb/ton * 10% loss on flame suppression * 0.51 particle size multiplier * 8760/2000 or 19.57 tons/yr. BF # 5 = 175 tons/hr hot metal * 0.6 lb/ton * 10% hood loss * 0.51 particle size multiplier * 8760/2000 or 23.45 TPY. Total of 43.02 TPY PM₁₀.

BF flare has a maximum daily capacity of 307 MMBtu/hr. For purposes of the netting analysis, the permittee has agreed to an annualized capacity of 163 MMBtu/hr and 15000 MMCF/year, which is consistent with their recent data. The allowable is selected as 0.010 lb/ MMBtu. The reduced allowable from 0.020 to 0.010 lb/ MMBtu reflects the improvement in the quality of blast furnace gas going to the flare due to the new gas cleaner on BF# 5. Allowable emissions are $(163) * (0.010) = 1.63 \text{ lbs/hr or } 6.0 \text{ TPY PM}_{10}$.

BF baghouse is @ 110% of actual $(2.14 \text{ lbs/hr} * 16.8/24 * 8760/2000 * 1.1)$ or 8.14 TPY PM₁₀.

Allowable skip car emissions would be:

BF # 5 = 4200 tons/day * (0.001919) lb/ton * 365/2000 = 1.47 TPY PM₁₀.
 BF # 1 = 3500 tons/day * (0.001919) lb/ton * 365/2000 = 1.23 TPY PM₁₀.

Emission Limitation

Carbon monoxide

Applicable Compliance Method

Allowable for BF #5 is based on a combination of BFG and NG combustion. BFG combustion is 3.1 MMCF/hr at 13.7 lbs/ MMCF ($3.1 * 13.7$) = 42.47 lbs/hr or 186.02 TPY. NG combustion is 0.048 MMCF/hr at 84 lbs/ MMCF ($0.067 * 84$) = 2.35 lbs/hr or 17.66 TPY.

Allowable for BF # 1 is based on a combination of BFG and COG combustion. BFG combustion is 1.54 MMCF/hr at 13.7 lbs/ MMCF ($2.4 * 13.7$) = 21.1 lbs/hr or 92.41 TPY. COG combustion is 0.171 MMCF/hr at 18.4lbs/ MMCF (0.171)*(18.4) = 3.15 lbs/hr or 13.80 TPY. The total is 309.89 TPY CO.

BF flare allowable is based on 163 MMBtu/hr annualized capacity. 15000 MMCF/yr * 13.7 lbs/ mm cf divided by 2000 lbs/ton = 102.75 TPY CO.

Emission Limitation

Nitrogen oxides

Applicable Compliance Method

Allowable for BF # 5 is based on combination of BFG and NG combustion. BFG combustion is 3.1 MMCF/hr at 23 lbs/ MMCF ($3.1 * (23)$) = 71.3 lbs/hr or 312.29 TPY. NG combustion is 0.048 MMCF/hr at 100 lbs/ MMCF (0.048) * (100) = 4.80 lbs/hr or 21.02 TPY.

Allowable for BF # 1 is based on combination of BFG and COG combustion. BFG combustion is 1.54 MMCF/hr at 23 lbs/ MMCF ($1.54 * 23$) = 35.42 lbs/hr or 155.14 TPY. COG combustion is 0.171 MMCF/hr * 80 lbs/ MMCF = 13.68 lbs/hr or 59.92 TPY NOx. The total is 548.37 TPY NOx.

Hot metal production was 5558 and 5521 tons/day in 1993 and 1994, respectively, for an average of 5539.5 tons/day. NOx emissions averaged 30.48 tons for that production. Ratio of production rate $7700/5539.5 * 30.48$ = 42.37 NOx.

BFG flare allowable is based on a limit of flow to the flare of 15,000 mm cf. NOx emissions would be (15,000 MMCF/yr * 23 lbs/ MMCF) = 172.5 TPY NOx.

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Emission Limitation

Sulfur dioxide

Applicable Compliance Method

Blast furnace gas analysis on September 14-15, 1999, at BF#1 found a sulfur dioxide content of 10.8 lbs/ MMCF. The BF# 1 Stoves and the BF #1 indirect-fired blast air preheater, combined, have a heat rating of 220 MMBtu/hr or 1.927 E12 Btu/yr. BF#1 is limited to coke oven gas usage of 1,500 MMCF/yr or 0.846 E12 Btu/yr with emissions of 100.69 TPY. The remainder of power or 1.081 E12 Btu/year is supplied by blast furnace gas. At 80 Btu/cf, this would be 13,512.5 MMCF of BFG. BF#1 emissions from BFG combustion would be 13,512.5 MMCF/year 10.8 lb/ MMCF = 145,935 lbs/yr or 72.97 TPY.

The sulfur dioxide emission factor for BF #5 (18.9 lbs/ MMCF) is obtained from stack test results for the combustion of BFG at the CoGen facility.

BF #5 stoves have a heat rating of 295 MMBtu/hr or 2.584 E12 Btu/year. At 80 Btu/cf, this would be 32,302.5 MMCF/year of BFG. SO₂ emissions from BFG would be 32,302.5 MMCF * 18.9 LB/ MMCF = 610.517 lb/year or 305.26 TPY. Total sulfur dioxide emissions = 100.69 + 72.97 + 305.26 = 478.92 TPY.

Stack test of SO₂ emissions from the blast furnace # 5 baghouse on August 1, 1995 yielded an emission rate of 2.3 lbs/hour, which is approximately 0.016 lb SO₂ per ton of hot metal.

Approximately 90% of the emissions are captured, so the full (stack and fugitive) emissions factor is 0.018 pound SO₂ per ton hot metal. The AIRS list is 3.0 lbs/ton. Calculations use the stack test value of 0.018 lb/ton. Allowable is 7700 tons per day * 0.018 lb/ton * 365 * 1/2000 = 25.30 TPY SO₂.

Flare emission are calculated based on annualized capacity of 15,000 mm cf Emissions would be 15,000 MMCF/year * 18.9 lb/ MMCF = 283,500 lbs/year or 141.75 TPY.

Emission Limitation

Volatile organic compounds

Applicable Compliance Method

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Stove and blast furnace number 1 indirect-fired blast air preheater allowable was determined based on limiting natural gas to a maximum annual usage of 5,000 MMCF per year and COG limited to 1,500 MMCF per year. The NG allowable would be $5,000 \text{ MMCF} * 3.2 \text{ lbs/ MMCF} * 1/2000 = 8.0 \text{ TPY VOC}$.

The COG allowable would be $1,500 \text{ MMCF} * 1.2 \text{ lb/ MMCF} * 1/2000 = 0.90 \text{ TPY}$. The total allowable is 8.9 TPY VOC.

The VOC emission factor from AIRS was prorated in proportion to the SO₂ casthouse stack test AIRS emission factor to 0.01708 lb/per ton. Allowable is $7700 \text{ tons/day} * 0.0149 \text{ lb/ton of hot metal} * 365 \text{ days/year} * 1/2000 = 24.01 \text{ TPY VOC}$.

- E. The permittee has requested that, for the purpose of performance testing, all PM be assumed to be PM₁₀. The permittee may conduct PM testing and compare the results to the PM₁₀ allowable limitations, for determining PM₁₀ allowable emissions rates for the number 1 and 5 blast furnaces and the number 5 blast furnace casthouse, the permittee shall conduct PM₁₀ testing using approved methods, for the purpose of determining compliance. This requirement may be modified by future operating permits for this facility.

VI. Miscellaneous Requirements

NONE