

**CONSTRUCTION PERMIT
OFFICE OF AIR MANAGEMENT
and
CITY OF GARY DIVISION OF AIR POLLUTION CONTROL**

**U. S. Steel - Gary Works
One North Broadway
Gary, Indiana 46402**

This permit is issued to the above mentioned company (herein known as the Permittee) under the provisions of 326 IAC 2-1 and 40 CFR 52.780, with conditions listed on the attached pages.

Construction Permit No.: CP-089-9568-00121	
Issued by: Paul Dubenetzky, Branch Chief Office of Air Management	Issuance Date:

SECTION A

SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Management (OAM). The information describing the source contained in conditions A.1 through A.3 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 permit pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

A.1 General Information

The Permittee owns a steel mill.

Responsible Official:	Kenneth W. Mills
Source Address:	One North Broadway, Gary, Indiana 46402
Mailing Address:	One North Broadway, Gary, Indiana 46402
SIC Code:	3312
County Location:	Lake
County Status:	Nonattainment for ozone, PM-10 (City of Gary), and SO ₂ (City of Gary)
Source Status:	Major source, under PSD Program, Emission Offset Program, and Part 70 Program

A.2 Emission Units and Pollution Control Equipment Summary

This permit is to:

- (a) allow Turboblower Boiler House (TBBH) boiler no. 4A to burn natural gas at the maximum heat input rate of 244 MMBtu/hr
- (b) allow Turboblower Boiler House (TBBH) boiler no. 4A to burn coke oven gas at 244 MMBtu/hr.

This facility is not attached to any air pollution control devices and exhausts through a stack, identified as S-1.

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). This source has submitted its Part 70 (T-089-7663-00175) application on December 13, 1996. The equipment being reviewed under this permit shall be incorporated in the submitted Part 70 application.

A.4 Prior Permit Conditions Superseded [326 IAC 2]

The terms and conditions of this permit incorporate all the current applicable requirements for all emission units listed in this permit, and supersede all terms and conditions in construction permit PC (45) 1745, which was issued on April 19, 1989. All terms and conditions in construction permit PC (45) 1745 are no longer in effect.

SECTION B GENERAL CONSTRUCTION AND OPERATION CONDITIONS

THIS SECTION OF THE PERMIT IS BEING ISSUED UNDER THE PROVISIONS OF 326 IAC 2-1 AND 40 CFR 52.780, WITH CONDITIONS LISTED BELOW.

Construction Conditions [326 IAC 2-1-3.4]

B.1 General Construction Conditions

- (a) The data and information supplied with the application shall be considered part of this permit. Prior to any proposed change in construction which may affect allowable emissions, the change must be approved by the Office of Air Management (OAM), and the City of Gary Division of Air Pollution Control.

- (b) This permit to construct does not relieve the Permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

B.2 Effective Date of the Permit [IC13-15-5-3]

Pursuant to IC 13-15-5-3, this permit becomes effective upon its issuance.

B.3 Revocation of Permits [326 IAC 2-1-9(b)]

Pursuant to 326 IAC 2-1-9(b)(Revocation of Permits), the Commissioner may revoke this permit if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.

B.4 Permit Review Rules [326 IAC 2]

Notwithstanding Operation Condition No. B.5, all requirements and conditions of this construction permit shall remain in effect unless modified in a manner consistent with procedures established for modifications of construction permits pursuant to 326 IAC 2 (Permit Review Rules).

B.5 First Time Operation Permit [326 IAC 2-1-4]

This document shall also become a first-time operation permit pursuant to 326 IAC 2-1-4 (Operating Permits) when, prior to start of operation, the following requirements are met:

- (a) The attached affidavit of construction shall be submitted to the Office of Air Management (OAM), Permit Administration & Development Section, and City of Gary Division of Air Pollution Control verifying that the facilities were constructed as proposed in the application. The facilities covered in the Construction Permit may begin operating on the date the Affidavit of Construction is postmarked or hand delivered to IDEM.

- (b) If construction is completed in phases; i.e., the entire construction is not done continuously, a separate affidavit must be submitted for each phase of construction. Any permit conditions associated with operation start up dates such as stack testing for New Source Performance Standards (NSPS) shall be applicable to each individual phase.

- (c) Permittee shall receive an Operation Permit Validation Letter from the Chief of the Permit Administration & Development Section and attach it to this document.

- (d) The operation permit will be subject to annual operating permit fees pursuant to 326 IAC 2-7-19 (Fees).

- (e) The Permittee has submitted its Part 70 (T-089-7663-00175) application on December 13, 1996 for the existing source. The equipment being reviewed under this permit shall be incorporated in the submitted Part 70 application.

Operation Conditions

B.6 General Operation Conditions

- (a) The data and information supplied in the application shall be considered part of this permit. Prior to any change in the operation which may result in an increase in allowable emissions exceeding those specified in 326 IAC 2-1-1 (Construction and Operating Permit Requirements), the change must be approved by the Office of Air Management (OAM), and the City of Gary Division of Air Pollution Control.
- (b) The Permittee shall comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC13-17) and the rules promulgated thereunder.

B.7. Preventive Maintenance Plan [326 IAC 1-6-3]

- (a) If required by specific condition(s) in Section D of this permit, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMP) within ninety (90) days after the issuance of this permit, including the following information on each facility:
 - (1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;
 - (2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and
 - (3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

If due to circumstances beyond its control, the PMP cannot be prepared and maintained within the above time frame, the Permittee may extend the date an additional ninety (90) days provided the Permittee notifies:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

and

City of Gary Division of Air Pollution Control
504 Broadway, Suite 1012
Gary, Indiana 46402-1921

- (b) The Permittee shall implement the Preventive Maintenance Plans as necessary to ensure that lack of proper maintenance does not cause or contribute to a violation of any limitation on emissions or potential to emit.
- (c) PMP's shall be submitted to IDEM, OAM, and the City of Gary Division of Air Pollution Control upon request and shall be subject to review and approval by IDEM, OAM.

B.8 Transfer of Permit [326 IAC 2-1-6]

Pursuant to 326 IAC 2-1-6 (Transfer of Permits):

- (a) In the event that ownership of this steel mill is changed, the Permittee shall notify OAM, Permit Branch, and the City of Gary Division of Air Pollution Control within thirty (30) days of the change. Notification shall include the date or proposed date of said change.
- (b) The written notification shall be sufficient to transfer the permit from the current owner to the new owner.
- (c) The OAM, and the City of Gary Division of Air Pollution Control shall reserve the right to issue a new permit.

B.9 Permit Revocation [326 IAC 2-1-9]

Pursuant to 326 IAC 2-1-9(a)(Revocation of Permits), this permit to construct and operate may be revoked for any of the following causes:

- (a) Violation of any conditions of this permit.
- (b) Failure to disclose all the relevant facts, or misrepresentation in obtaining this permit.
- (c) Changes in regulatory requirements that mandate either a temporary or permanent reduction of discharge of contaminants. However, the amendment of appropriate sections of this permit shall not require revocation of this permit.
- (d) Noncompliance with orders issued pursuant to 326 IAC 1-5 (Episode Alert Levels) to reduce emissions during an air pollution episode.
- (e) For any cause which establishes in the judgment of IDEM, the fact that continuance of this permit is not consistent with purposes of 326 IAC 2-1 (Permit Review Rules).

B.10 Availability of Permit [326 IAC 2-1-3(l)]

Pursuant to 326 IAC 2-1-3(l), the Permittee shall maintain the applicable permit on the premises of the source and shall make this permit available for inspection by the IDEM, OAM, City of Gary Division of Air Pollution Control, or other public official having jurisdiction.

SECTION C

SOURCE OPERATION CONDITIONS

Entire Source

Emission Limitation and Standards

C.1 Major Source

Pursuant to 326 IAC 2-2 (Prevention of Significant Deterioration) and 326 IAC 2-3 (Emission Offset), this source is a major source.

C.2 Opacity Limitations [326 IAC 5-1-2]

Pursuant to 326 IAC 5-1-2 (Visible Emissions Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), visible emissions shall meet the following, unless otherwise stated in this permit:

- (a) Visible emissions shall not exceed an average of twenty percent (20%) opacity in twenty-four (24) consecutive readings, as determined in 326 IAC 5-1-4.
- (b) Visible emissions shall not exceed sixty percent (60%) opacity for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) in a six (6) hour period.

C.3 Fugitive Dust Emissions [326 IAC 6-4]

The Permittee shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4 (Fugitive Dust Emissions). 326 IAC 6-4-2(4) is not federally enforceable.

C.4 Fugitive Dust Emissions [326 IAC 6-1-11.1]

The Permittee shall be in violation of 326 IAC 6-1-11.1 (Lake County Fugitive Particulate Matter Control Requirements), if the opacity of fugitive particulate emissions exceeds ten percent (10%). Compliance with this limitation shall be determined by 40 CFR 60, Appendix A, Method 9.

C.5 Operation of Equipment

All air pollution control equipment listed in this permit shall be in place or operated at all times that the emission units vented to the control equipment are in operation, as described in Section D of this permit.

C.6 Stack Height [326 IAC 1-7]

The Permittee shall comply with the applicable provisions of 326 IAC 1-7 (Stack Height Provisions), for all exhaust stacks through which a potential (before controls) of twenty-five (25) tons per year or more of particulate matter or sulfur dioxide is emitted.

Testing Requirements

C.7 Performance Testing [326 IAC 3-6]

- (a) All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this permit, utilizing methods approved by IDEM, OAM, and the City of Gary Division of Air Pollution Control.

A test protocol, except as provided elsewhere in this permit, shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

and

City of Gary Division of Air Pollution Control
504 Broadway, Suite 1012
Gary, Indiana 46402-1921

no later than thirty-five (35) days prior to the intended test date. The Permittee shall submit a notice of the actual test date to the above address so that it is received at least two weeks prior to the test date.

- (b) All test reports must be received by IDEM, OAM, and the City of Gary Division of Air Pollution Control within forty-five (45) days after the completion of the testing. An extension may be granted by the Commissioner, if the source submits to IDEM, OAM, and the City of Gary Division of Air Pollution Control a reasonable written explanation within five (5) days prior to the end of the initial forty-five (45) day period.

Compliance Monitoring Requirements

C.8 Compliance Monitoring

Compliance with applicable requirements shall be documented as required by this permit. The Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment no more than ninety (90) days after receipt of this permit. If due to circumstances beyond its control, this schedule cannot be met, the Permittee may extend compliance schedule an additional ninety (90) days provided the Permittee notify:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Management
100 North Senate Avenue, P.O. Box 6015
Indianapolis, Indiana 46206-6015

and

City of Gary Division of Air Pollution Control
504 Broadway, Suite 1012
Gary, Indiana 46402-1921

in writing, prior to the end of the initial ninety (90) day compliance schedule with full justification of the reasons for inability to meet this date.

C.9 Malfunction Condition [326 IAC 1-6]

That pursuant to 326 IAC 1-6-2 (Records; Notice of Malfunction):

- (a) A record of all malfunctions, including startups or shutdowns of any facility or emission control equipment, which result in violations of applicable air pollution control regulations or applicable emission limitations shall be kept and retained for a period of three (3) years and shall be made available to the Indiana Department of Environmental Management (IDEM), Office of Air Management (OAM), and the City of Gary Division of Air Pollution Control, or appointed representative upon request.

- (b) When a malfunction of any facility or emission control equipment occurs which lasts more than one (1) hour, said condition shall be reported to OAM, using the Malfunction Report Form (2 pages) or its substantial equivalent. Notification shall be made by telephone or facsimile, as soon as practicable, but in no event later than four (4) daytime business hours after the beginning of said occurrence.
- (c) Failure to report a malfunction of any emission control equipment shall constitute a violation of 326 IAC 1-6, and any other applicable rules. Information of the scope and expected duration of the malfunction shall be provided, including the items specified in 326 IAC 1-6-2(a)(1) through (6).
- (d) Malfunction is defined as any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner. [326 IAC 1-2-39]

C.10 Monitoring Methods [326 IAC 3]

Any monitoring or testing performed to meet the requirements of this permit shall be performed, according to the provisions of 326 IAC 3, 40 CFR 60, Appendix A, or other approved methods as specified in this permit.

C.11 Actions Related to Noncompliance Demonstrated by a Stack Test

- (a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this permit exceed the level specified in any condition of this permit, the Permittee shall take appropriate corrective actions. The Permittee shall submit a description of these corrective actions to IDEM, OAM, and the City of Gary Division of Air Pollution Control within thirty (30) days of receipt of the test results. The Permittee shall take appropriate action to minimize emissions from the affected facility while the corrective actions are being implemented. IDEM, OAM, and the City of Gary Division of Air Pollution Control shall notify the Permittee within thirty (30) days, if the corrective actions taken are deficient. The Permittee shall submit a description of additional corrective actions taken to IDEM, OAM, and the City of Gary Division of Air Pollution Control within thirty (30) days of receipt of the notice of deficiency. IDEM, OAM, and the City of Gary Division of Air Pollution Control reserves the authority to use enforcement activities to resolve noncompliant stack tests.
- (b) A retest to demonstrate compliance shall be performed within one hundred twenty (120) days of receipt of the original test results. Should the Permittee demonstrate to IDEM, OAM, and the City of Gary Division of Air Pollution Control that retesting in one-hundred and twenty (120) days is not practicable, IDEM, OAM, and the City of Gary Division of Air Pollution Control may extend the retesting deadline. Failure of the second test to demonstrate compliance with the appropriate permit conditions may be grounds for immediate revocation of the permit to operate the affected facility.

Record Keeping and Reporting Requirements

C.12 Emission Statement [326 IAC 2-6]

- (a) The Permittee shall submit an annual emission statement certified pursuant to the requirements of 326 IAC 2-6, that meets the requirements of 326 IAC 2-6 (Emission Reporting). This annual statement must be received by April 15 of each year and must comply with the minimum requirements specified in 326 IAC 2-6-4. The submittal

should cover the period defined in 326 IAC 2-6-2(8) (Emission Statement Operating Year). The annual statement must be submitted to:

Indiana Department of Environmental Management
Technical Support and Modeling Section, Office of Air Management
100 North Senate Avenue, P.O. Box 6015
Indianapolis, Indiana 46206-6015

and

City of Gary Division of Air Pollution Control
504 Broadway, Suite 1012
Gary, Indiana 46402-1921

- (b) The annual emission statement required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAM, and the City of Gary Division of Air Pollution Control on or before the date it is due.

C.13 Monitoring Data Availability

- (a) All observations, sampling, maintenance procedures, and record keeping, required as a condition of this permit shall be performed at all times the equipment is operating at normal representative conditions.
- (b) As an alternative to the observations, sampling, maintenance procedures, and record keeping of subsection (a) above, when the equipment listed in Section D of this permit is not operating, the Permittee shall either record the fact that the equipment is shut down or perform the observations, sampling, maintenance procedures, and record keeping that would otherwise be required by this permit.
- (c) If the equipment is operating but abnormal conditions prevail, additional observations and sampling should be taken with a record made of the nature of the abnormality.
- (d) If for reasons beyond its control, the operator fails to make required observations, sampling, maintenance procedures, or record keeping, reasons for this must be recorded.
- (e) At its discretion, IDEM, OAM, and City of Gary Division of Air Pollution Control may excuse such failure providing adequate justification is documented and such failures do not exceed five percent (5%) of the operating time in any quarter.
- (f) Temporary, unscheduled unavailability of staff qualified to perform the required observations, sampling, maintenance procedures, or record keeping shall be considered a valid reason for failure to perform the requirements stated in (a) above.

C.14 General Record Keeping Requirements

- (a) Records of all required monitoring data and support information shall be retained for a period of two (2) years from the date of monitoring sample, measurement, report, or application. These records shall be kept at the source location and available within one (1) hour upon verbal request of an IDEM, OAM, and City of Gary Division of Air Pollution Control. If the Commissioner makes a written request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.
- (b) Records of required monitoring information shall include, where applicable:
 - (1) The date, place, and time of sampling or measurements;
 - (2) The dates analyses were performed;
 - (3) The company or entity performing the analyses;
 - (4) The analytic techniques or methods used;
 - (5) The results of such analyses; and
 - (6) The operating conditions existing at the time of sampling or measurement.
- (c) Support information shall include, where applicable:
 - (1) Copies of all reports required by this permit;
 - (2) All original strip chart recordings for continuous monitoring instrumentation;
 - (3) All calibration and maintenance records;
 - (4) Records of preventive maintenance shall be sufficient to demonstrate that improper maintenance did not cause or contribute to a violation of any limitation on emissions or potential to emit. To be relied upon subsequent to any such violation, these records may include, but are not limited to: work orders, parts inventories, and operator's standard operating procedures.
- (d) All record keeping requirements not already legally required shall be implemented within ninety (90) days of start up.

C.15 General Reporting Requirements

- (a) Reports required by conditions in Section D of this permit shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

and

City of Gary Division of Air Pollution Control
504 Broadway, Suite 1012
Gary, Indiana 46402-1921

- (b) Unless otherwise specified in this permit, any notice, report, or other submission required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAM, and City of Gary Division of Air Pollution Control on or before the date it is due.
- (c) Unless otherwise specified in this permit, any quarterly report shall be submitted within thirty (30) days of the end of the reporting period.
- (d) All instances of deviations must be clearly identified in such reports. A reportable deviation is an exceedance of a permit limitation or a failure to comply with a requirement of the permit or a rule. It does not include:
 - (1) An excursion from compliance monitoring parameters as identified in Section D of this permit unless tied to an applicable rule or limit; or
 - (2) An emergency as defined in 326 IAC 2-7-1(12); or
 - (3) Failure to implement elements of the Preventive Maintenance Plan unless lack of maintenance has caused or contributed to a deviation.
 - (4) Failure to make or record information required by the compliance monitoring provisions of Section D unless such failure exceeds 5% of the required data in any calendar quarter.

A Permittee's failure to take the appropriate response steps when an excursion of a compliance monitoring parameter has occurred or failure to monitor or record the required compliance monitoring parameter is a deviation.
- (e) Any corrective actions or response steps taken as a result of each deviation must be clearly identified in such reports.
- (f) The first report shall cover the period commencing on the date of issuance of this permit and ending on the last day of the reporting period.

SECTION D.1 FACILITY CONDITIONS

- (a) allow Turboblower Boiler House (TBBH) boiler no. 4A to burn natural gas at the maximum heat input rate of 244 MMBtu/hr
- (b) allow Turboblower Boiler House (TBBH) boiler no. 4A to burn coke oven gas at 244 MMBtu/hr.
- This facility is not attached to any air pollution control devices and exhausts through a stack, identified as S-1.

Emissions Limitation and Standards

D.1.1 Nitrogen Oxides (NO_x) [40 CFR Part 60, Subpart Db] [326 IAC 12]

Pursuant to 40 CFR Part 60, Subpart Db, and 326 IAC 12 (Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units), NO_x emissions from the TBBH boiler no. 4A shall not exceed 0.20 pound per million British Thermal Units (lb/MMBtu) when the boiler is burning natural gas only. This is equivalent to 48.8 pounds per hour of emissions at a maximum heat input rate of 244 MMBtu per hour. This limit shall not apply in situations where the boiler is burning any combination of natural gas and coke oven gas or coke oven gas by itself.

D.1.2 Particulate Matter less than 10 microns (PM-10) [Variance Decision dated June 5, 1998]

Pursuant to the Variance Decision dated June 5, 1998, PM-10 emissions from the TBBH boiler no. 4A shall not exceed 0.012 pound per million British Thermal Units (lb/MMBtu). This limit is equivalent to 2.90 pounds per hour at a maximum heat input capacity of 244 MMBtu/hr.

The above limit shall be valid only until the Variance Decision expires on June 23, 1999. Unless the revisions to rules 326 IAC 6-1-10.1 (Lake County PM-10 Emission Requirements) have been approved, the effective date of the Variance Decision has been extended, or a new Variance Decision has been issued by this date, the TBBH boiler no. 4A shall be subject to the limitations under rule 326 IAC 6-1-10.1 (Lake County PM-10 Emission Requirements). The Permittee shall apply for a permit modification thirty (30) days prior to June 23, 1999 to incorporate the appropriate PM-10 limitation existing during that time.

D.1.3 Sulfur Dioxide (SO₂) [Variance Decision dated June 5, 1998]

Pursuant to the Variance Decision dated June 5, 1998,

- (a) SO₂ emission from the TBBH boiler no.4A shall not exceed 1.02 lbs/MMBtu when the coke oven gas desulfurization facility is not operating. This is equivalent to 248.9 lbs/hr at a maximum heat input capacity of 244 MMBtu/hr.
- (b) SO₂ emission from the TBBH boiler no.4A shall not exceed 0.260 lb/MMBtu when the coke oven gas desulfurization facility is operating. This is equivalent to 63.5 lbs/hr at a maximum heat input capacity of 244 MMBtu/hr.

The above limits shall be valid only until the Variance Decision expires on June 23, 1999. Unless the revisions to rule 326 IAC 7-4-1.1 (Lake County SO₂ Emission Limitations) have been approved, the effective date of the Variance Decision has been extended, or a new Variance Decision has been issued by this date, the TBBH boiler no. 4A shall be subject to the limitations under rule 326 IAC 7-4-1.1 as currently written. The Permittee shall apply for a permit modification thirty (30) days prior to June 23, 1999 to incorporate the appropriate SO₂ limitation existing during that time.

D.1.4 Preventive Maintenance Plan [326 IAC 1-6-3]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for the TBBH boiler no. 4A.

Compliance Determination Requirements

D.1.5 Testing Requirements [326 IAC 2-1-4(f)]

- (a) Pursuant to 40 CFR 60.46b(e), the Permittee shall perform NO_x testing on the TBBH boiler no. 4A to determine initial compliance with condition D.1.1, within 60 days after achieving maximum capacity of burning natural gas, using the continuous system for monitoring nitrogen oxides under 40 CFR 60.48b. For the initial compliance test, NO_x from TBBH boiler no. 4A shall be monitored for 30 successive operating days and the 30-day average emissions rate shall be used to determine compliance with the NO_x limit under condition D.1.1. The 30-day average emissions rate shall be calculated as the average of all hourly emissions data recorded by the monitoring system during the 30-day test period.
- (b) The Permittee shall perform PM-10 testing on the TBBH boiler no. 4A within 60 days after achieving maximum capacity, when burning natural gas alone and when burning coke oven gas alone, utilizing Methods 201 or 201A and 202 (40 CFR 51, Appendix M), or other methods as approved by the Commissioner. These tests shall be performed to determine compliance with condition D.1.2, and to determine a PM-10 emission factor for each type of fuel. These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. PM-10 includes filterable and condensable portions.

D.1.6 Fuel Analysis [Variance Decision dated June 5, 1998]

- (a) Compliance or noncompliance with conditions D.1.3(a) and D.1.3(b), as applicable, shall be determined using a calendar day average sulfur dioxide emission rate in pounds per million British thermal units and pounds per hour as calculated using the average daily sulfur content and heating value of the fuel as determined via a fuel sampling and analysis protocol approved by IDEM, OAM, and the City of Gary Division of Air Pollution Control.
- (b) The fuel sampling and analysis protocol shall be prepared according to procedures in 326 IAC 3-3-5(a) and 326 IAC 7-4-1.1(d), as required by the Variance Decision dated June 5, 1998.

Compliance Monitoring Requirements

D.1.7 NO_x Emissions Monitoring [40 CFR 60.48b] [326 IAC 3-5]

Pursuant to 40 CFR 60.48b(g), The Permittee shall comply with condition D.1.1 on an on-going basis using either of the following methods:

- (a) Install, calibrate, maintain, and operate a continuous monitoring system for measuring NO_x emissions discharged to the atmosphere and record the output of the system pursuant to 40 CFR 60.48b(b), (c), (d), (e), and (f), and 326 IAC 3-5; or
- (b) Monitor steam generating operating conditions and predict NO_x emission rates as specified in a plan submitted to and approved by IDEM, OAM, and the City of Gary Division of Air Pollution Control pursuant to 40 CFR 60.49b(c).

D.1.8 Quality Assurance Requirements for Continuous Emissions Monitoring Systems
[40 CFR Part 60, Appendix F]

If the Permittee elects to determine compliance with condition D.1.1 by operating a continuous monitoring system for NO_x emissions, the Permittee shall develop and implement a quality control (QC) and quality assurance (QA) program pursuant to the requirements of 40 CFR Part 60, Appendix F.

Record Keeping and Reporting Requirements

D.1.9 Record Keeping Requirements

- (a) To document compliance with condition D.1.1, the Permittee shall maintain records required under 40 CFR 60.49b(d), (g), (o), and (p), as applicable.
- (b) To document compliance with condition D.1.2, the Permittee shall:
 - (1) maintain daily records of the total coke oven gas and natural gas usage of TBBH boiler no. 4A;
 - (2) maintain records of the PM-10 emission factors for each type of fuel used as estimated by the stack test method; and
 - (2) maintain daily records of the heating value for each fuel type used.
- (c) To document compliance with condition D.1.3, the Permittee shall:
 - (1) maintain daily records of the total coke oven gas and natural gas usage of TBBH boiler no. 4A
 - (2) maintain daily records of the average sulfur content and heating value for each fuel type used; and
 - (3) maintain records of the date and time identifying each period during which the coke oven gas desulfurization facility is inoperative or malfunctioning.
- (d) To document compliance with condition D.1.7, the Permittee shall maintain records of daily visible emission notations of the TBBH boiler no. 4A stack exhaust.
- (e) All records shall be maintained in accordance with Section C - General Record Keeping Requirements of this permit.

D.1.10 Reporting Requirements

- (a) Pursuant to 40 CFR 60.49b(c), if the Permittee elects to determine compliance with condition D.1.1 through monitoring of steam generating unit operating conditions, the Permittee shall submit to IDEM, OAM, and the City of Gary Division of Air Pollution Control, within 360 days of issuance of this permit, a plan that identifies the operating conditions to be monitored and records to be maintained.
- (b) If the Permittee elects to document compliance with condition D.1.1 either by monitoring of steam generating unit operating conditions or by operating a continuous monitoring system for NO_x emissions, the Permittee shall also submit reports as required under 40 CFR 60.49b(a), (b), (h), and (q).

- (c) If the Permittee elects to document compliance with condition D.1.1 by operating a continuous monitoring system for NO_x emissions, the Permittee shall submit reports as required under item (b), 40 CFR 60.49b(i), 326 IAC 3-5-5(e) and 326 IAC 3-5-7.
- (d) To document compliance with conditions D.1.2 and D.1.3, the Permittee shall submit within thirty (30) days of the end of each calendar quarter, for TBBH boiler no. 4A, the following:
 - (1) Total fuel usage of each type;
 - (2) Heat content, PM-10 and sulfur dioxide emission rate per unit weight or per unit volume for both fuels; and
 - (3) Calculated PM-10 and sulfur dioxide emission rate in pounds per hour and in pounds per million British Thermal Unit.
- (e) Within thirty (30) days of the occurrence of an exceedance of the applicable limit under conditions D.1.2 and/or D.1.3, the Permittee shall submit a report containing the following:
 - (1) Facility identification;
 - (2) Date or time period of occurrence;
 - (3) Nature of exceedance;
 - (4) PM-10 and/or sulfur dioxide emission rate in pounds per hour and pounds per million British Thermal Unit, total fuel usage of each type and emission factor used to estimate sulfur dioxide emissions;
 - (5) Cause of exceedance; and
 - (6) Corrective action taken.
- (f) All reports shall be submitted in accordance with Section C - General Reporting Requirements of this permit.

MALFUNCTION REPORT

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR MANAGEMENT
FAX NUMBER - 317 233-5967**

**This form should only be used to report malfunctions applicable to Rule 326 IAC 1-6
and to qualify for the exemption under 326 IAC 1-6-4.**

THIS FACILITY MEETS THE APPLICABILITY REQUIREMENTS BECAUSE: IT HAS POTENTIAL TO EMIT 25 LBS/HR PARTICULATES ? _____, 100 LBS/HR VOC ? _____, 100 LBS/HR SULFUR DIOXIDE ? _____ OR 2000 LBS/HR OF ANY OTHER POLLUTANT ? _____ EMISSIONS FROM MALFUNCTIONING CONTROL EQUIPMENT OR PROCESS EQUIPMENT CAUSED EMISSIONS IN EXCESS OF APPLICABLE LIMITATION _____.

THIS MALFUNCTION RESULTED IN A VIOLATION OF: 326 IAC _____ OR, PERMIT CONDITION # _____ AND/OR PERMIT LIMIT OF _____

THIS INCIDENT MEETS THE DEFINITION OF 'MALFUNCTION' AS LISTED ON REVERSE SIDE ? Y N

THIS MALFUNCTION IS OR WILL BE LONGER THAN THE ONE (1) HOUR REPORTING REQUIREMENT ? Y N

COMPANY: U. S. Steel - Gary Works PHONE NO. _____

LOCATION: (CITY AND COUNTY) Gary/Lake

PERMIT NO. 089-9568 AFS PLANT ID: 089-00121 AFS POINT ID: _____ INSP: _____

CONTROL/PROCESS DEVICE WHICH MALFUNCTIONED AND REASON: _____

DATE/TIME MALFUNCTION STARTED: ____/____/19____ AM / PM

ESTIMATED HOURS OF OPERATION WITH MALFUNCTION CONDITION: _____

DATE/TIME CONTROL EQUIPMENT BACK-IN SERVICE ____/____/19____ AM/PM

TYPE OF POLLUTANTS EMITTED: TSP, PM-10, SO₂, VOC, OTHER: _____

ESTIMATED AMOUNT OF POLLUTANT EMITTED DURING MALFUNCTION: _____

MEASURES TAKEN TO MINIMIZE EMISSIONS: _____

REASONS WHY FACILITY CANNOT BE SHUTDOWN DURING REPAIRS:

CONTINUED OPERATION REQUIRED TO PROVIDE ESSENTIAL * SERVICES: _____

CONTINUED OPERATION NECESSARY TO PREVENT INJURY TO PERSONS: _____

CONTINUED OPERATION NECESSARY TO PREVENT SEVERE DAMAGE TO EQUIPMENT: _____

INTERIM CONTROL MEASURES: (IF APPLICABLE) _____

MALFUNCTION REPORTED BY: _____

TITLE: _____
(SIGNATURE IF FAXED)

MALFUNCTION RECORDED BY: _____ DATE: _____ TIME: _____

**Please note - This form should only be used to report malfunctions
applicable to Rule 326 IAC 1-6 and to qualify for
the exemption under 326 IAC 1-6-4.**

326 IAC 1-6-1 Applicability of rule

Sec. 1. The requirements of this rule (326 IAC 1-6) shall apply to the owner or operator of any facility which has the potential to emit twenty-five (25) pounds per hour of particulates, one hundred (100) pounds per hour of volatile organic compounds or SO₂, or two thousand (2,000) pounds per hour of any other pollutant; or to the owner or operator of any facility with emission control equipment which suffers a malfunction that causes emissions in excess of the applicable limitation.

326 IAC 1-2-39 “Malfunction” definition

Sec. 39. Any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner. (Air Pollution Control Board; 326 IAC 1-2-39; filed Mar 10, 1988, 1:20 p.m. : 11 IR 2373)

***Essential services** are interpreted to mean those operations, such as, the providing of electricity by power plants. Continued operation solely for the economic benefit of the owner or operator shall not be sufficient reason why a facility cannot be shutdown during a control equipment shutdown.

If this item is checked on the front, please explain rationale:

Indiana Department of Environmental Management
Office of Air Management
and
City of Gary Division of Air Pollution Control

Technical Support Document (TSD) for New Construction and Operation

Source Background and Description

Source Name:	U. S. Steel - Gary Works
Source Location:	One North Broadway, Gary, Indiana 46402-3199
County:	Lake
Construction Permit No.:	CP-089-9568-00121
Plant ID No.:	089-00121
SIC Code:	3312
Permit Reviewer:	Marco A. Salenda

The Office of Air Management (OAM) has reviewed an application from U. S. Steel - Gary Works ("source") relating to the following:

Request to allow previously permitted Turboblower Boiler House (TBBH) boiler no. 4A to burn natural gas at its maximum heat input rate of 244 million British Thermal Units per hour (MMBtu/hr) rather than the limited capacity specified in the issued permit PC (45) 1745; and to allow TBBH boiler no. 4A to burn coke oven gas at 244 MMBtu/hr. This facility is not attached to any air pollution control devices and exhausts through a stack, identified as S-1.

- I. Increase in capacity of TBBH boiler no. 4A and shutdown of TMBH boiler nos. 3, 4, and 5

The maximum heat input rate of this boiler is 244 MMBtu/hr contrary to 226 MMBtu/hr as described in the original permit PC (45) 1745, which was issued on April 19, 1989. But this boiler was limited to burn only 33 million cubic feet (MMcf) of natural gas per month, which is equivalent to 42.6 MMBtu/hr. This limitation made the installation of the boiler a minor modification to the source per 326 IAC 2-3 (Emission Offset Rules). TBBH boiler no. 4A has been operating at the 244 MMBtu/hr maximum firing rate since 1993. This was brought about by the installation of a cross-plant steam line from the east side to the west side of the source during 1993, which caused the contemporaneous shutdown of Tin Mill Boiler House (TMBH) boiler nos. 3, 4, and 5. The source should have applied for a permit modification prior to the commencement of the project in 1993.

Since this review is being performed as if it is being done prior to commencement of the modification in 1993, all resulting emission credits shall expire on December 31, 1998. Page 3 of this TSD shows the detailed review to determine the applicability of 326 IAC 2-3, Emission Offset Rule.

II. Coke Oven Gas Redistribution

As part of the source's continuing effort to redistribute the coke oven gas (COG) that is produced as a by-product from the coke batteries, which would otherwise be flared, to fuel various combustion facilities within the source, the source intends to burn COG in TBBH boiler no. 4A. Since the increase in potential emissions due to burning of COG in TBBH boiler no. 4A is offset by the decrease in emissions from flaring COG, there is no net increase or decrease in emissions from this undertaking. But, 326 IAC 7-4-1.1(a) (Lake County SO₂ Emission Limitations) requires that TBBH Boiler No. 4A burn natural gas only since there is no alternative emission limit in 326 IAC 7-4-1.1(c) for burning coke oven gas in this facility. IDEM is currently revising rules 326 IAC 7-4-1.1 and 326 IAC 6-1-10.1 (Lake County PM-10 Emission Requirements) to include specific limitations for TBBH boiler no. 4A when burning both natural gas and coke oven gas. Since the boiler will eventually be subject to these emission limitations, a variance from the above mentioned state rules was requested by the Permittee.

On June 5, 1998, OAM approved the Permittee's request for a variance from 326 IAC 6-1-10.1 (Lake County PM-10 Emission Requirements) and 326 IAC 7-4-1.1 (Lake County SO₂ Emission Limitations). It has been determined that the Variance Decision would not adversely affect air quality in Lake County. The Variance Decision includes emission limitations, compliance requirements, record keeping and reporting requirements specific to TBBH boiler no. 4A. These requirements are carried over in this permitting exercise. Since, the Variance Decision is valid only for a period of one year from its effective date (June 23, 1998), the Permittee shall submit an application to modify this permit 30 days prior to this date.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (°F)
S-1	Turboblower Boiler House boiler no. 4A	78	6	220,000	385

Enforcement Issue

IDEM is aware that the TBBH boiler no. 4A has been burning natural gas at 244 MMBtu/hr, which is above what it was permitted to do. IDEM is reviewing this matter and will take appropriate action. This proposed permit is intended to satisfy the requirements of the construction permit rules.

Recommendation

The staff recommends to the Commissioner that the construction and operation be approved. This recommendation is based on the following facts and conditions:

Information, unless otherwise stated, used in this review was derived from the application and additional information submitted by the applicant.

A complete application for the purposes of this review was received on March 12, 1998.

The terms and conditions of the proposed permit incorporate all the current applicable requirements for Turboblower Boiler House (TBBH) boiler no. 4A, and supersede all terms and conditions of the previous construction permit (ID no. PC (45) 1745) issued on April 19, 1989.

All terms and conditions in that permit are no longer in effect.

Emissions Calculations

See Appendix A (Emissions Calculation Spreadsheets) for detailed calculations (two pages).

Total Potential and Allowable Emissions

Indiana Permit Allowable Emissions Definition (after compliance with applicable rules, based on 8,760 hours of operation per year at rated capacity):

Pollutant	Allowable Emissions (tons/year)	Potential Emissions (tons/year)
Particulate Matter (PM)	12.8	12.8
Particulate Matter (PM-10)	12.8	12.8
Sulfur Dioxide (SO ₂) ^(a)	1090	1090
Sulfur Dioxide (SO ₂) ^(b)	278	278
Volatile Organic Compounds (VOC)	2.4	2.4
Carbon Monoxide (CO)	36.8	36.8
Nitrogen Oxides (NO _x)	214	160
Single Hazardous Air Pollutant (HAP)	0.0	0.0
Combination of HAPs	0.0	0.0

Notes: (a) SO₂ emissions when the COG desulfurization facility is not operating

(b) SO₂ emissions when the COG desulfurization facility is operating

- (a) Allowable PM/PM-10 and SO₂ emissions are determined from the applicability of the variance decision dated June 5, 1998. Allowable NO_x emissions are determined from the applicability of the NSPS, Subpart Db. See attached spreadsheets for detailed calculations.
- (b) The potential emissions before control for NO_x are less than the allowable emissions in this case, therefore, the potential emissions before control are used for the permitting determination.
- (c) Allowable emissions (as defined in the Indiana Rule) of at least one (1) criteria pollutant are greater than 25 tons per year. Therefore, pursuant to 326 IAC 2-1, Sections 1 and 3, a construction permit is required.

County Attainment Status

- (a) Volatile organic compounds (VOC) and oxides of nitrogen (NO_x) are precursors for the formation of ozone. Therefore, VOC and NO_x emissions are considered when evaluating the rule applicability relating to the ozone standards. Lake County has been designated as nonattainment for ozone. Therefore, VOC and NO_x emissions were reviewed pursuant to the requirements for Emission Offset, 326 IAC 2-3.
- (b) The portion of Lake County in which the source is located has also been classified as nonattainment for sulfur dioxide (SO₂) and particulate matter with aerodynamic diameter less than 10 microns (PM-10). Therefore, these emissions were reviewed pursuant to the requirements for Emission Offset, 326 IAC 2-3.

Source Status

Existing Source Emission Offset and Part 70 Definition (emissions after controls, based on 8,760 hours of operation per year at rated capacity and/ or as otherwise limited):

Pollutant	Emissions (ton/yr)
PM	237
PM10	1682
SO ₂	6147
VOC	4618
CO	1013
NO _x	4459

- (a) This existing source is a major stationary source because it is in one of the 28 listed source categories and at least one regulated pollutant is emitted at a rate of 100 tons per year or more.
- (b) These emissions were based on Facility Quick Look Report, dated July 24, 1997.

Proposed Modification Project:

Increase in capacity of TBBH boiler no. 4A and shutdown of TMBH boiler nos. 3, 4, and 5

PTE from the proposed modification (based on 8,760 hours of operation per year at rated capacity including enforceable emission control and production limit, where applicable):

Pollutant	PM (ton/yr)	PM10 (ton/yr)	SO ₂ (ton/yr)	VOC (lbs/day)	CO (ton/yr)	NO _x (lbs/day)
Future allowable emissions for TBBH boiler no. 4A at a maximum capacity of 244 MMBtu/hr	5.2	5.2	0.6	8.0	41.7	1,171
Less previously permitted emissions for TBBH boiler no. 4A at a limited capacity of 46.4 MMBtu/hr	(-1.0)	(-1.0)	(-0.1)	(-1.5)	(-7.9)	(-88)
Less past actual emissions from TMBH boiler nos. 3, 4, and 5 due to shutdown in 1993	(-2.9)	(-2.9)	(-0.4)	(-4.5)	(-23.4)	(-1,764)
Contemporaneous Increases	n/a	n/a	n/a	n/a	n/a	n/a
Contemporaneous Decreases	n/a	n/a	n/a	n/a	n/a	n/a
Net Emissions	1.3	1.3	0.2	2.0	10.3	(-681)
Offset Significant Level	25	15	40	--	100	--
DeMinimis Rule Applicability Level (NO _x and VOC only)	--	--	--	15 lbs/day	--	25 lbs/day

- (a) The severe ozone nonattainment area "DeMinimis Rule" does not apply because the net emissions of VOC and NO_x from the project is less than 15 and 25 pounds per day (lb/day), respectively.
- (b) This modification project to an existing major stationary source is not major because the net emissions of PM, PM-10, SO₂ and CO are less than the Emission Offset significant levels. Therefore, pursuant to 326 IAC 2-3, the Emission Offset requirements do not apply.

- (c) Since this review is being performed as if it is being done prior to commencement of the modification in 1993, all resulting emission credits shall expire on December 31, 1998.

Proposed Modification Project:
Coke Oven Gas Redistribution

PTE from the proposed modification (based on 8,760 hours of operation per year at rated capacity including enforceable emission control and production limit, where applicable):

Pollutant	PM (ton/yr)	PM10 (ton/yr)	SO ₂ (ton/yr)	VOC (lbs/day)	CO (ton/yr)	NO _x (lbs/day)
Future allowable emissions for TBBH boiler no. 4A at a maximum capacity of 244 MMBtu/hr	12.8	12.8	1090 ^(a) 278 ^(b)	13.1	36.8	876
Less previously permitted emissions for TBBH boiler no. 4A at a limited capacity of 46.4 MMBtu/hr	(-12.8)	(-12.8)	(-1090) ^(a) (-278) ^(b)	(-13.1)	(-36.8)	(-876)
Contemporaneous Increases	n/a	n/a	n/a	n/a	n/a	n/a
Contemporaneous Decreases	n/a	n/a	n/a	n/a	n/a	n/a
Net Emissions	0.0	0.0	0.0	0.0	0.0	0.0
Offset Significant Level	25	15	40	--	100	--
DeMinimis Rule Applicability Level (NO _x and VOC only)	--	--	--	15 lbs/day	--	25 lbs/day

- (a) The severe ozone nonattainment area "DeMinimis Rule" does not apply because the net emissions of VOC and NO_x from the project is less than 15 and 25 pounds per day (lb/day), respectively.
- (b) This modification project to an existing major stationary source is not major because the net emissions of PM, PM-10, SO₂ and CO are less than the Emission Offset significant levels. Therefore, pursuant to 326 IAC 2-3, the Emission Offset requirements do not apply.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This existing source has submitted its Part 70 (T-089-7663-00175) application on December 13, 1996. The equipment being reviewed under this permit shall be incorporated in the submitted Part 70 application.

Federal Rule Applicability

40 CFR Part 60, Subpart Db

TBBH boiler no.4A is subject to the New Source Performance Standard 326 IAC 12 and 40 CFR 60.40b through 60.49, Subpart Db, since it is modified after June 19, 1984 and has a maximum heat input capacity greater than 100 million British Thermal units per hour. This rule requires the NO_x emissions from the TBBH boiler no.4A to not exceed 0.20 lb/MMBtu when burning natural gas only. This limit shall not apply when the TBBH boiler no.4A is burning any combination of natural gas and coke oven gas or coke oven gas by itself. Based on emission calculations, the TBBH boiler no.4A will comply with this rule. (Enclosed is a copy of this federal rule)

State Rule Applicability

(a) 326 IAC 2-6 (Emission Reporting)

The TBBH boiler no.4A is subject to 326 IAC 2-6 (Emission Reporting), because the source emits more than 10 tons per year of NO_x. Pursuant to this rule, the source must annually submit an emission statement for this facility. The annual statement must be received by April 15 of each year and must contain the minimum requirements as specified in 326 IAC 2-6-4.

(b) 326 IAC 5-1 (Visible Emissions Limitations)

Pursuant to 326 IAC 5-1-2 (Visible Emissions Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), visible emissions shall not exceed an average of twenty percent (20%) opacity in twenty-four (24) consecutive readings as determined by 326 IAC 5-1-4, unless otherwise stated in the permit.

(c) Variance Decision dated June 5, 1998

- (1) Pursuant to the Variance Decision, PM emissions from the TBBH boiler no. 4A shall not exceed 0.012 pound per million British Thermal Units (lb/MMBtu). This is equivalent to 2.90 pounds per hour (lbs/hr) at a maximum heat input capacity of 244 MMBtu/hr.
- (2) Pursuant to the Variance Decision, SO₂ emission from the TBBH boiler no.4A shall not exceed 1.02 lbs/MMBtu when the coke oven gas desulfurization facility is not operating. This is equivalent to 248.9 lbs/hr at a maximum heat input capacity of 244 MMBtu/hr.
- (3) Pursuant to the Variance Decision, SO₂ emission from the TBBH boiler no.4A shall not exceed 0.260 lb/MMBtu when the coke oven gas desulfurization facility is operating. This is equivalent to 63.5 lbs/hr at a maximum heat input capacity of 244 MMBtu/hr.

These limits are valid only until the Variance Decision expires on June 23, 1999. Unless the revisions to rules 326 IAC 6-1-10.1 (Lake County PM-10 Emission Requirements) and 326 IAC 7-4-1.1 (Lake County SO₂ Emission Limitations) have been approved, the effective date of the Variance Decision has been extended, or a new Variance Decision has been issued by this date, the TBBH boiler no. 4A shall be subject to the limitations under rules 326 IAC 6-1-10.1 (Lake County PM-10 Emission Requirements) and 326 IAC 7-4-1.1 (Lake County SO₂ Emission Limitations) as currently written. The Permittee shall apply for a permit modification thirty (30) days prior to June 23, 1999 to incorporate the appropriate limitations existing during that time.

Air Toxic Emissions

Indiana presently requests applicants to provide information on emissions of the 187 hazardous air pollutants set out in the Clean Air Act Amendments of 1990. These pollutants are either carcinogenic or otherwise considered toxic and are commonly used by industries. They are listed as air toxics on the Office of Air Management (OAM) Construction Permit Application Form Y.

This modification will emit levels of air toxics at negligible amounts and less than those which constitute a major source according to Section 112 of the 1990 Amendments to Clean Air Act.

Conclusion

The modification of the Turboblower Boiler House boiler no. 4A will be subject to the conditions of the attached proposed **Construction Permit No. CP 089-9568, Plt ID 089-00121**.

Indiana Department of Environmental Management
Office of Air Management
and
City of Gary Division of Air Pollution Control

Addendum to the
Technical Support Document for New Construction and Operation

Source Name:	U. S. Steel - Gary Works
Source Location:	One North Broadway, Gary, Indiana 46402-3199
County:	Lake
Construction Permit No.:	CP-089-9568-00121
Plant ID No.:	089-00121
SIC Code:	3312
Permit Reviewer:	Marco A. Salenda

On August 3, 1998, the Office of Air Management (OAM) had a notice published in the Gary Post Tribune, Gary Indiana, stating that U. S. Steel - Gary Works (USS) had requested to allow previously permitted Turboblower Boiler House (TBBH) boiler no. 4A to burn natural gas at its maximum heat input rate of 244 million British Thermal Units per hour (MMBtu/hr) rather than the limited capacity specified in the issued permit PC (45) 1745; and to allow TBBH boiler no. 4A to burn coke oven gas at 244 MMBtu/hr. The notice also stated that OAM proposed to issue a permit for this modification and provided information on how the public could review the proposed permit and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this permit should be issued as proposed.

Upon further evaluation, the OAM has decided to make the following comments and changes:

Comment 1

For clarification, there is no NO_x limit for firing COG since it is not a regulated fuel per 40 CFR Part 60, Subpart Db. Moreover, the permit (CP 097-0034-01) issued to IPL on March 6, 1998 included NO_x limits on the boilers to avoid 326 IAC 2-2 (PSD Rules) and 40 CFR Part 60, Subpart Db, from being applicable. Same type of limits are not required for USS's TBBH boiler no. 4A since contemporaneous decreases from shutdown of other projects as used to offset any increase in NO_x emissions due to the modification and 40 CFR Part 60, Subpart Db still applies when the boiler burns natural gas.

Comment 2

Changes to condition D.1.5 is made to clarify that PM-10 testing is required while the boiler is fired on coke oven gas alone and on natural gas alone. This is necessary to satisfy the requirements with respect to record keeping of emission factors in condition D.1.9. Additionally, the requirement for an initial NO_x compliance tests (the 30 day consecutive steam unit operating day period) be conducted while firing natural gas is included, as natural gas is the regulated fuel under 40 CFR Part 60, Subpart Db. Condition D.1.5 is revised to read as follows:

D.1.5 Testing Requirements [326 IAC 2-1-4(f)]

- (a) Pursuant to 40 CFR 60.46b(e), the Permittee shall perform NO_x testing on the TBBH boiler no. 4A to determine **initial** compliance with condition D.1.1, within 60 days after achieving maximum capacity of burning natural gas, using the continuous system for monitoring nitrogen oxides under 40 CFR 60.48b.

For the initial compliance test, NO_x from TBBH boiler no. 4A shall be monitored for 30 successive operating days and the 30-day average emissions rate shall be used to determine compliance with the NO_x limit under condition D.1.1. The 30-day average emissions rate shall be calculated as the average of all hourly emissions data recorded by the monitoring system during the 30-day test period.

- (b) The Permittee shall perform PM-10 testing on the TBBH boiler no. 4A within 60 days after achieving maximum capacity, **when burning natural gas alone and when burning coke oven gas alone**, utilizing Methods 201 or 201A and 202 (40 CFR 51, Appendix M), or other methods as approved by the Commissioner. ~~This~~ **These** tests shall be performed to determine compliance with condition D.1.2, and **to determine a PM-10 emission factor for each type of fuel.** **These tests** shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. PM-10 includes filterable and condensable portions.

Comment 3

In reference to condition D.1.6, fuel sampling and analysis should be done in accordance with the final fuel sampling and analysis plan approved by the department. Item (a) of this condition is revised as follows:

- (a) Compliance or noncompliance with conditions D.1.3(a) and D.1.3(b), as applicable, shall be determined using a calendar day average sulfur dioxide emission rate in pounds per million British thermal units and pounds per hour as calculated using the average daily sulfur content and heating value of the fuel as determined via **a** fuel sampling and analysis **protocol approved by IDEM, OAM, and the City of Gary Division of Air Pollution Control.**

Comment 4

Condition D.1.7 is revised to indicate that the monitoring needs to satisfy not only the requirements of 40 CFR Part 60, Subpart Db, but also the requirements of 326 IAC 3. With respect to the parametric monitoring/predictive monitoring, this monitoring approach is subject to approval by the department. This condition now reads as follows:

D.1.7 NO_x Emissions Monitoring [40 CFR 60.48b] [326 IAC 3-5]

Pursuant to 40 CFR 60.48b(g), The Permittee shall comply with condition D.1.1 on an on-going basis using either of the following methods:

- (a) Install, calibrate, maintain, and operate a continuous monitoring system for measuring NO_x emissions discharged to the atmosphere and record the output of the system pursuant to 40 CFR 60.48b(b), (c), (d), (e), and (f), **and 326 IAC 3-5**; or
- (b) Monitor steam generating operating conditions and predict NO_x emission rates as specified in a plan submitted to **and approved by** IDEM, OAM, and the City of Gary Division of Air Pollution Control pursuant to 40 CFR 60.49b(c).

Comment 5

In reference to proposed condition D.1.8, gaseous fuels, especially natural gas, are not typically the cause of opacity exceedances. Therefore, this condition, which require that visible emission notations be performed is deleted.

Comment 6

A new condition D.1.8 - Quality Assurance Requirements for Continuous Emissions Monitoring Systems is added as follows:

D.1.8 Quality Assurance Requirements for Continuous Emissions Monitoring Systems

If the Permittee elects to determine compliance with condition D.1.1 by operating a continuous monitoring system for NO_x emissions, the Permittee shall develop and implement a quality control (QC) and quality assurance (QA) program pursuant to the requirements of 40 CFR Part 60, Appendix F.

In addition, condition D.1.10 is revised as follows to clearly state that the reports required on the NO_x monitoring should also be submitted per 326 IAC 3-5:

D.1.10 Reporting Requirements

- (a) Pursuant to 40 CFR 60.49b(c), if the Permittee ~~seeks~~ **elects** to determine compliance with condition D.1.1 through monitoring of steam generating unit operating conditions, the Permittee shall submit to IDEM, OAM, and the City of Gary Division of Air Pollution Control, within 360 days of issuance of this permit, a plan that identifies the operating conditions to be monitored and records to be maintained.
- (b) **If the Permittee elects to document** compliance with condition D.1.1 **either by monitoring of steam generating unit operating conditions or by operating a continuous monitoring system for NO_x emissions**, the Permittee shall also submit reports as required under 40 CFR 60.49b(a), (b), (h), ~~(j)~~, and (q).
- (c) **If the Permittee elects to document compliance with condition D.1.1 by operating a continuous monitoring system for NO_x emissions, the Permittee shall submit reports as required under item (b), 40 CFR 60.49b(i), 326 IAC 3-5-5(e) and 326 IAC 3-5-7.**
- ~~(e)~~ (d) To document compliance with conditions D.1.2 and D.1.3, the Permittee shall submit within thirty (30) days of the end of each calendar quarter, for TBBH boiler no. 4A, the following:
 - (1) Total fuel usage of each type;
 - (2) Heat content, PM-10 and sulfur dioxide emission rate per unit weight or per unit volume for both fuels; and
 - (3) Calculated PM-10 and sulfur dioxide emission rate in pounds per hour and in pounds per million British Thermal Unit.
- ~~(d)~~ (e) Within thirty (30) days of the occurrence of an exceedance of the applicable limit under conditions D.1.2 and/or D.1.3, the Permittee shall submit a report containing the following:
 - (1) Facility identification;
 - (2) Date or time period of occurrence;
 - (3) Nature of exceedance;

- (4) PM-10 and/or sulfur dioxide emission rate in pounds per hour and pounds per million British Thermal Unit, total fuel usage of each type and emission factor used to estimate sulfur dioxide emissions;
 - (5) Cause of exceedance; and
 - (6) Corrective action taken.
- ~~(e)~~ (f) All reports shall be submitted in accordance with Section C - General Reporting Requirements of this permit.

Mail to: Permit Administration & Development Section
Office Of Air Management
100 North Senate Avenue
P. O. Box 6015

U. S. Steel - Gary Works
One North Broadway
Gary, Indiana 46402-3199

Affidavit of Construction

I, _____, being duly sworn upon my oath, depose and say:
(Name of the Authorized Representative)

1. I live in _____ County, Indiana and being of sound mind and over twenty-one (21) years of age, I am competent to give this affidavit.
2. I hold the position of _____ for _____.
(Title) (Company Name)
3. By virtue of my position with _____, I have personal
(Company Name)
knowledge of the representations contained in this affidavit and am authorized to make
these representations on behalf of _____.
(Company Name)
4. I hereby certify that U.S. Steel - Gary Works, One North Broadway, Gary, Indiana, 46402-3199, has modified the Turboblower Boiler House boiler no. 4A in conformity with the requirements and intent of the construction permit application received by the Office of Air Management on March 12, 1998 and as permitted pursuant to
Construction Permit No. CP-089-9568, Plant ID No. 089-00121 issued on _____.
5. Prior to the modification of the Turboblower Boiler House boiler no. 4A, U. S. Steel - Gary Works is already subject to the Part 70 Operating Permit Program and has submitted its Part 70 Operating Permit application which the Office of Air Management received on December 13, 1996.

Further Affiant said not.

I affirm under penalties of perjury that the representations contained in this affidavit are true, to the best of my information and belief.

Signature

Date

STATE OF INDIANA)
)SS

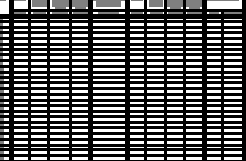
COUNTY OF _____)

Subscribed and sworn to me, a notary public in and for _____ County and State of
Indiana on this _____ day of _____, 19 _____.

My Commission expires: _____

Signature

Name (typed or printed)

[illegible][illegible][illegible]

Appendix A: Emission Calculations
Natural Gas and Coke Oven Gas Combustion
MMBTU/HR >100
Turboblower Boiler 4A

Page 2 of 2, TSD App A

Company Name:	U. S. Steel - Gary Works
Address City IN Zip:	One North Broadway, Gary, Indiana 46402-3199
CP:	089-9568
Plt ID:	089-00121
Reviewer:	Marco A. Salenda
Date:	February 10, 1998

The following calculations determine the potential emissions and net emissions due to the burning of COG as an alternative fuel to natural gas for TBBH Boiler 4, as opposed to flaring the COG.

I. Potential Emissions

Maximum Heat Input Capacity
MMBtu/hr

Potential Throughput
MMCF/yr

244.0 (Maximum capacity of TBBH Boiler 4A)

3995.2 (coke oven gas)

Pollutant	PM	PM10	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF of coke oven gas	6.4	6.4	545.7	80.0	1.2	18.4
A. Future Potential Emissions (tons/yr) due to burning coke oven gas	12.8	12.8	1090.1	159.8	2.4	36.8
B. Future Allowable Emission (tons/yr) based on applicable rules	12.8	12.8	1090.1	159.8	2.4	36.8
C. Past Actual Emissions from flaring of coke oven gas at 244 MMBtu/hr	12.8	12.8	1090.1	159.8	2.4	36.8
D. Net Increase in Emissions from the Project, B - E (tons/yr)	0.0	0.0	0.0	0.0	0.0	0.0

Methodology

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Heating value of coke oven gas = 535 MMBtu / MMcf

Emission Factors for burning natural gas are from AP 42 (3/98), Chapter 1.4, Tables 1.4-1, 1.4-2, and 1.4-3, SCC #1-01-006-01, 1-01-006-04

PM/PM-10 (filterable only) and SO2 emission factors for burning coke oven gas are based on USX's SIP submittal

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,020 MMBtu

Future Potential Emissions (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Future Allowable Emissions (tons/yr) for PM/PM-10 and SO2 are based on rule applicability and are calculated in Part II, Sections A and B, respectively.

Future Allowable Emissions (tons/yr) for NOx, VOC, and CO are equivalent to their individual future potential emissions.

Past Actual Emissions from flaring coke oven gas are equivalent to the potential emissions due to burning coke oven gas in the boiler

Deminimis rule does not apply since VOC and NOx emissions from the project itself is less than the 25 lb/day

II. Allowable Emissions

A. The following calculations determine compliance of particulate emissions (PM-10) with the variance decision dated June 5, 1998:

Limit=	0.012 lbs/MMBtu=	2.9 lb/hr @ 244 MMBtu/hr
	=	70.3 lb/day
	=	12.8 tons/yr

Since the potential emissions of PM after controls is less than the allowable emissions, TBBH boiler 4a will be in compliance with the variance.

B. The following calculations determine compliance of SO2 emissions with the variance decision dated June 5, 1998:

1. coke oven gas desulfurization facility not operating

Limit=	1.02 lbs/MMBtu=	248.9 lb/hr @ 244 MMBtu/hr
	=	5973.1 lb/day
	=	1090.1 tons/yr

2. coke oven gas desulfurization facility operating

Limit=	0.26 lbs/MMBtu=	63.4 lb/hr @ 244 MMBtu/hr
	=	1522.6 lb/day
	=	277.9 tons/yr

Since the potential emissions of SO2 is less than the allowable emissions, TBBH Boiler 4A will be in compliance with the variance.