



Mitchell E. Daniels, Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
(800) 451-6027
www.IN.gov/idem

TO: Interested Parties / Applicant
DATE: March 21, 2007
RE: Steel Dynamics, Inc. / 063-22329-00037
FROM: Nisha Sizemore
Chief, Permits Branch
Office of Air Quality

Notice of Decision: Approval - Effective Immediately

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the enclosed matter. Pursuant to IC 13-15-5-3, this permit is effective immediately, unless a petition for stay of effectiveness is filed and granted according to IC 13-15-6-3, and may be revoked or modified in accordance with the provisions of IC 13-15-7-1.

If you wish to challenge this decision, IC 4-21.5-3 and IC 13-15-6-1 require that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office of Environmental Adjudication, 100 North Senate Avenue, Government Center North, Room 1049, Indianapolis, IN 46204, **within eighteen (18) calendar days of the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

- (1) the date the document is delivered to the Office of Environmental Adjudication (OEA);
- (2) the date of the postmark on the envelope containing the document, if the document is mailed to OEA by U.S. mail; or
- (3) The date on which the document is deposited with a private carrier, as shown by receipt issued by the carrier, if the document is sent to the OEA by private carrier.

The petition must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision or otherwise entitled to review by law. Please identify the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, date of this notice and all of the following:

- (1) the name and address of the person making the request;
- (2) the interest of the person making the request;
- (3) identification of any persons represented by the person making the request;
- (4) the reasons, with particularity, for the request;
- (5) the issues, with particularity, proposed for considerations at any hearing; and
- (6) identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type issued by the Commissioner.

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178. Callers from within Indiana may call toll-free at 1-800-451-6027, ext. 3-0178.

Enclosures
FNPER.dot 03/23/06



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We make Indiana a cleaner, healthier place to live.

Mitchell E. Daniels, Jr.
Governor

Thomas W. Easterly
Commissioner

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March 21, 2007

Mike Brooks
Steel Dynamics, Inc. (SDI) - Engineered Bar Products Division
8000 North County Road 225 East
Pittsboro, IN 46167

**Re: First Significant Source Modification 063-22329-00037
to PSD 173-16628-00037**

Dear Mr. Brooks:

Steel Dynamics, Inc. (SDI) - Engineered Bar Products Division was issued a PSD/Significant Source Modification (063-16628-00037) to a yet to be issued Part 70 Operating Permit on August 29, 2003. A letter requesting changes to that permit was received on December 1, 2005.

The proposed PSD significant source modification changes the existing three (3) different SO₂ PSD BACT limits for the Electric Arc Furnace (EAF) Baghouse/Ladle Metallurgical Station (LMS) Baghouse to a single SO₂ PSD BACT limit and removes the associated production limitations for the different product series, identified as SBQ series. The new proposed SO₂ PSD BACT limit is 190 pounds per hour with compliance determined on a twenty-four (24) hour blocked average basis.

The changes to the PSD significant source modification are documented in the Technical Support Document. The significant source modification approval will be incorporated into the pending Part 70 permit application pursuant to 326 IAC 2-7-10.5.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter, contact Frank P. Castelli, c/o OAQ, 100 North Senate Avenue, Indianapolis, Indiana, 46204-2251, or call at 631-691-3395, ext. 13 or in Indiana at 1-800-451-6027 (ext. 631-691-3395).

Sincerely,
Original signed by

Nisha Sizemore, Chief
Permits Branch
Office of Air Quality

Attachments
FPC/MES

cc: File - Hendricks County
U.S. EPA, Region V
Hendricks County Health Department
Air Compliance Section Inspector - Vaughn Ison
Compliance Branch

Administrative and Development Section
Technical Support and Modeling - Michelle Boner



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PREVENTION OF SIGNIFICANT DETERIORATION (PSD) PART 70 SIGNIFICANT SOURCE MODIFICATION

OFFICE OF AIR QUALITY

**Steel Dynamics, Inc. (SDI) - Engineered Bar Products Division
8000 North County Road 225 East
Pittsboro, Indiana 46167**

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

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

PSD/SSM No.: 063-22329-00037	
Issued by: Original signed by Nisha Sizemore, Chief Permits Branch Office of Air Quality	Issuance Date: March 21, 2007

TABLE OF CONTENTS

A SOURCE SUMMARY

- A.1 General Information [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)] [326 IAC 2-7-1(22)]
- A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)]
[326 IAC 2-7-5(15)]
- A.3 Part 70 Permit Applicability [326 IAC 2-7-2]

B GENERAL CONSTRUCTION CONDITIONS

- B.1 Advanced Source Modification Approval [326 IAC 2-7-5(16)] [326 IAC 2-7-10.5]
- B.2 Permit No Defense [IC 13-11 through 13-20][IC 13-22 through 13-25]
- B.3 Effective Date of the Permit [IC 13-15-5-3]
- B.4 Revocation of Permits [326 IAC 2-1.1-9(5)][326 IAC 2-7-10.5(i)]
- B.5 Modification to Construction Conditions [326 IAC 2]

C GENERAL OPERATION CONDITIONS

- C.1 Certification [326 IAC 2-7-4(f)][326 IAC 2-7-6(1)] [326 IAC 2-7-5(3)(C)]
- C.2 Preventive Maintenance Plan [326 IAC 2-7-5(1),(3) and (13)] [326 IAC 2-7-6(1) and (6)]
[326 IAC 1-6-3]
- C.3 Deviations from Permit Requirements and Conditions [326 IAC 2-7-5(3)(C)(ii)]
- C.4 Inspection and Entry [326 IAC 2-7-6] [IC 13-14-2-2] [IC 13-30-3-1]
- C.5 Opacity [326 IAC 5-1]
- C.6 Fugitive Dust Emissions [326 IAC 6-4]

Testing Requirements [326 IAC 2-7-6(1)]

- C.7 Performance Testing [326 IAC 3-6][326 IAC 2-1.1-11]
Compliance Requirements [326 IAC 2-1.1-11]
- C.8 Compliance Requirements [326 IAC 2-1.1-11]

Compliance Monitoring Requirements [326 IAC 2-7-5(1)] [326 IAC 2-7-6(1)]

- C.9 Compliance Monitoring [326 IAC 2-7-5(3)] [326 IAC 2-7-6(1)]
- C.10 Maintenance of Continuous Emission Monitoring Equipment [326 IAC 2-7-5(3)(A)(iii)]
- C.11 Monitoring Methods [326 IAC 3] [40 CFR Part 60] [40 CFR Part 63]

Corrective Actions and Response Steps [326 IAC 2-7-5] [326 IAC 2-7-6]

- C.12 Response to Excursions or Exceedances [326 IAC 2-7-5] [326 IAC 2-7-6]
- C.13 Emergency Provisions [326 IAC 2-7-16]
- C.14 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-7-5]
[326 IAC 2-7-6]

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

- C.15 General Record Keeping Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-6] [326 IAC 2-2]
[326 IAC 2-3]
- C.16 General Reporting Requirements [326 IAC 2-7-5(3)(C)] [326 IAC 2-1.1-11] [326 IAC 2-2]
[326 IAC 2-3]

D.1 FACILITY OPERATION CONDITIONS

Emission Limitations and Standards [326 IAC 2-7-5(1)]

- D.1.1 EAF and LMS PSD BACT [326 IAC 2-2]
- D.1.2 General Provisions Relating to NSPS [326 IAC 12-1] [40 CFR 60, Subpart A]
- D.1.3 PM and Opacity [40 CFR 60.272a]
- D.1.4 PSD Minor Pollutants [326 IAC 2-2]

- D.1.5 HAPs [326 IAC 2-4.1-1]
- D.1.6 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

Compliance Determination Requirements [326 IAC 2-1.1-11]

- D.1.7 Particulate Matter Control [326 IAC 2-2] [326 IAC 2-7-6(6)]
- D.1.8 PSD BACT Control and Work Practices [326 IAC 2-2]
- D.1.9 Testing Requirements [326 IAC 2-7-6(1),(6)] [326 IAC 2-1.1-11]
- D.1.10 CO and SO₂ Continuous Emission Rate Monitoring [326 IAC 2-2]
- D.1.11 Continuous Opacity Monitoring (COM) [326 IAC 2-2] [326 IAC 3-5] [40 CFR 60.273a]

Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

- D.1.12 Total Hydrocarbon Continuous Emission Rate Monitoring Requirement
- D.1.13 Maintenance of CEMS [326 IAC 2-7-5(3)(A)(iii)]
- D.1.14 Maintenance of COM [326 IAC 2-7-5(3)(A)(iii)]
- D.1.15 Bag Leak Detection System (BLDS)
- D.1.16 Monitoring of Operations [40 CFR 60.274a]
- D.1.17 EAF Baghouse

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

- D.1.18 Record Keeping Requirements
- D.1.19 Reporting Requirements [326 IAC 2-1.1-11] [40 CFR 60.276a]

PART 70 OPERATING PERMIT CERTIFICATION

PART 70 OPERATING PERMIT EMERGENCY OCCURRENCE REPORT

SECTION A

SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the source contained in Conditions A.1 thru 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 [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)] [326 IAC 2-7-1(22)]

The Permittee owns and operates a stationary steel mini-mill that manufactures different types of bars.

Source Name:	Steel Dynamics, Inc. (SDI) - Engineered Bar Products Division
Source Location:	8000 North County Road 225 East, Pittsboro, Indiana 46167
Mailing Address:	8000 North County Road 225 East, Pittsboro, Indiana 46167
General Telephone Number:	317-892-7000
County:	Hendricks
County Status:	Nonattainment for the 8-hour ozone standard Nonattainment for PM2.5 Attainment for the other regulated pollutants
SIC Code:	3312 (Steel Mill)
Source Categories:	1 of 28 Listed Source Categories Major Source, under PSD and Emission Offset Rules Minor Source, under Section 112 of the Clean Air Act

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

This modification to a stationary source is approved to operate the following:

- (a) One (1) batch mode EAF, with a nominal capacity of 125 tons of steel per hour, utilizing capture system on a fourth hole duct or direct shell evacuation (DSE) system venting to a baghouse (EAF Baghouse) and a canopy hood for overhead roof exhaust. The EAF is equipped with natural gas fired oxy-fuel burners. The EAF Baghouse has a nominal flow rate of 675,000 acf/min.
- (b) One (1) Ladle Metallurgy station (LMS), nominally rated at 125 tons/hour, and exhausting to its own baghouse (LMS Baghouse). The LMS Baghouse has a nominal flow rate of 85,000 acf/min.

Both the EAF Baghouse and LMS Baghouse exhaust to the same common stack. The meltshop does not have a roof monitor.

- (c) The EAF dust is conveyed to a dust storage silo, identified as EAF Dust Handling System.

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

This steel mini-mill is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because:

- (a) It is a major source, as defined in 326 IAC 2-7-1(22);
- (b) It is a source in a source category designated by the United States Environmental Protection Agency (U.S. EPA) under 40 CFR §70.3 (Part 70 - Applicability).

SECTION C GENERAL OPERATION CONDITIONS

C.1 Certification [326 IAC 2-7-4(f)][326 IAC 2-7-6(1)][326 IAC 2-7-5(3)(C)]

- (a) Where specifically designated by this permit or required by an applicable requirement, any application form, report, or compliance certification submitted shall contain certification by a responsible official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.
- (b) One (1) certification shall be included, using the attached Certification Form, with each submittal requiring certification.
- (c) A responsible official is defined at 326 IAC 2-7-1(34).

C.2 Preventive Maintenance Plan [326 IAC 2-7-5(1),(3) and (13)] [326 IAC 2-7-6(1) and (6)] [326 IAC 1-6-3]

- (a) If required by specific condition(s) in Section D of this permit, the Permittee shall maintain and implement Preventive Maintenance Plans (PMPs) 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.
- (b) A copy of the PMPs shall be submitted to IDEM, OAQ, upon request and within a reasonable time, and shall be subject to review and approval by IDEM, OAQ. IDEM, OAQ, may require the Permittee to revise its PMPs whenever lack of proper maintenance causes or is the primary contributor to an exceedance of any limitation on emissions or potential to emit. The PMPs do not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).
- (c) To the extent the Permittee is required by 40 CFR Part 60 or 40 CFR Part 63 to have an Operation Maintenance, and Monitoring (OMM) Plan for a unit, such Plan is deemed to satisfy the PMP requirements of 326 IAC 1-6-3 for that unit.

C.3 Deviations from Permit Requirements and Conditions [326 IAC 2-7-5(3)(C)(ii)]

- (a) Deviations from any permit requirements (for emergencies see Section C - Emergency Provisions), the probable cause of such deviations, and any response steps or preventive measures taken shall be reported to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

using the attached Quarterly Deviation and Compliance Monitoring Report, or its equivalent.

A deviation required to be reported pursuant to an applicable requirement that exists independent of this permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report.

The Quarterly Deviation and Compliance Monitoring Report does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

- (b) A deviation is an exceedance of a permit limitation or a failure to comply with a requirement of the permit.

C.4 Inspection and Entry [326 IAC 2-7-6][IC 13-14-2-2][IC 13-30-3-1]

Upon presentation of proper identification cards, credentials, and other documents as may be required by law, and subject to the Permittee's right under all applicable laws and regulations to assert that the information collected by the agency is confidential and entitled to be treated as such, the Permittee shall allow IDEM, OAQ, U.S. EPA, or an authorized representative to perform the following:

- (a) Enter upon the Permittee's premises where a permitted source is located, or emissions related activity is conducted, or where records must be kept under the conditions of this permit;
- (b) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, have access to and copy, at reasonable times, any records that must be kept under this title or the conditions of this permit or any operating permit revisions;
- (c) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, inspect at reasonable times, any processes, emission units (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit or any operating permit revisions;
- (d) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with this permit or applicable requirements; and
- (e) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, utilize any photographic, recording, testing, monitoring, or other equipment for the purpose of assuring compliance with this permit or applicable requirements.

C.5 Opacity [326 IAC 5-1]

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR Part 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

C.6 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.

Testing Requirements [326 IAC 2-7-6(1)]

C.7 Performance Testing [326 IAC 3-6][326 IAC 2-1.1-11]

- (a) Any compliance testing required by Section D on new emission units shall be conducted within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up. All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this approval, utilizing any applicable procedures and analysis methods specified in 40 CFR Part 51, 40 CFR Part 60, 40 CFR Part 61, 40 CFR Part 63, 40 CFR Part 75, or other procedures approved by IDEM, OAQ.

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

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

no later than thirty-five (35) days prior to the intended test date. The protocol submitted by the Permittee does not require certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

- (b) The Permittee shall notify IDEM, OAQ of the actual test date at least fourteen (14) days prior to the actual test date. The notification submitted by the Permittee does not require certification by the "responsible official" as defined by 326 IAC 2-7-1(34).
- (c) Pursuant to 326 IAC 3-6-4(b), all test reports must be received by IDEM, OAQ within forty-five (45) days after the completion of the testing. An extension may be granted by IDEM, OAQ, if the source submits to IDEM, OAQ, a reasonable written explanation within five (5) days prior to the end of the initial forty-five (45) day period.

Compliance Requirements [326 IAC 2-1.1-11]

C.8 Compliance Requirements [326 IAC 2-1.1-11]

The commissioner may require stack testing, monitoring, or reporting at any time to assure compliance with all applicable requirements by issuing an order under 326 IAC 2-1.1-11. Any monitoring or testing shall be performed in accordance with 326 IAC 3 or other methods approved by the commissioner or the U.S. EPA.

Compliance Monitoring Requirements [326 IAC 2-7-5(1)] [326 IAC 2-7-6(1)]

C.9 Compliance Monitoring [326 IAC 2-7-5(3)] [326 IAC 2-7-6(1)]

All monitoring and record keeping requirements shall be implemented upon initial startup of the operation. The Permittee shall be responsible for installing any equipment described in Section D and initiating any required monitoring related to that equipment.

C.10 Maintenance of Continuous Emission Monitoring Equipment [326 IAC 2-7-5(3)(A)(iii)]

- (a) The Permittee shall install, calibrate, maintain, and operate all necessary continuous emission monitoring systems (CEMS) and related equipment.
- (b) In the event that a breakdown of a continuous emission monitoring system occurs, a record shall be made of the times and reasons of the breakdown and efforts made to correct the problem.

- (c) Whenever a continuous emission monitor other than an opacity monitor is malfunctioning or will be down for calibration, maintenance, or repairs for a period of four (4) hours or more, the Permittee shall comply with the relevant requirements of 40 CFR 75 Subpart D - Missing Data Substitution Procedures.
- (d) Nothing in this permit shall excuse the Permittee from complying with the requirements to operate a continuous emission monitoring system pursuant to 40 CFR 63.1209 and 40 CFR 63.8.

C.11 Monitoring Methods [326 IAC 3] [40 CFR 60] [40 CFR 63]

Any monitoring or testing required by Section D of this permit shall be performed according to the provisions of 326 IAC 3, 40 CFR 60, Appendix A, 40 CFR 60 Appendix B, 40 CFR 63, or other approved methods as specified in this permit.

Corrective Actions and Response Steps [326 IAC 2-7-5] [326 IAC 2-7-6]

C.12 Response to Excursions or Exceedances [326 IAC 2-7-5] [326 IAC 2-7-6]

- (a) Upon detecting an excursion or exceedance, the Permittee shall restore operation of the emissions unit (including any control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions.
- (b) The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup or shutdown conditions). Corrective actions may include, but are not limited to, the following:
 - (1) initial inspection and evaluation;
 - (2) recording that operations returned to normal without operator action (such as through response by a computerized distribution control system); or
 - (3) any necessary follow-up actions to return operation to within the indicator range, designated condition, or below the applicable emission limitation or standard, as applicable.
- (c) A determination of whether the Permittee has used acceptable procedures in response to an excursion or exceedance will be based on information available, which may include, but is not limited to, the following:
 - (1) monitoring results;
 - (2) review of operation and maintenance procedures and records;
 - (3) inspection of the control device, associated capture system, and the process.
- (d) Failure to take reasonable response steps shall be considered a deviation from the permit.
- (e) The Permittee shall maintain the following records:
 - (1) monitoring data;

- (2) monitor performance data, if applicable; and
- (3) corrective actions taken.

C.13 Emergency Provisions [326 IAC 2-7-16]

- (a) An emergency, as defined in 326 IAC 2-7-1(12), is not an affirmative defense for an action brought for noncompliance with a federal or state health-based emission limitation.
- (b) An emergency, as defined in 326 IAC 2-7-1(12), constitutes an affirmative defense to an action brought for noncompliance with a technology-based emission limitation if the affirmative defense of an emergency is demonstrated through properly-signed, contemporaneous operating logs or other relevant evidence that describe the following:
 - (1) An emergency occurred, and the Permittee can, to the extent possible, identify the causes of the emergency.
 - (2) The permitted facility was at the time being properly operated.
 - (3) During the period of an emergency, the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in this permit.
 - (4) For each emergency lasting one (1) hour or more, the Permittee notified IDEM, OAQ within four (4) daytime business hours after the beginning of the emergency, or after the emergency was discovered or reasonably should have been discovered.

Telephone Number: 1-800-451-6027
(ask for Office of Air Quality, Compliance Section), or
Telephone Number: 317-233-0178 (ask for Compliance Section)
Facsimile Number: 317-233-6865

- (5) For each emergency lasting one (1) hour or more, the Permittee submitted the attached Emergency Occurrence Report Form or its equivalent, either by mail or facsimile, to:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

within two (2) working days of the time when emission limitations were exceeded due to the emergency.

The notice fulfills the requirement of 326 IAC 2-7-5(3)(C)(ii) and must contain the following:

- (A) A description of the emergency;
- (B) Any steps taken to mitigate the emissions; and,
- (C) Corrective actions taken.

The notification which shall be submitted by the Permittee does not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

- (6) The Permittee immediately took all reasonable steps to correct the emergency.
- (c) In any enforcement proceeding, the Permittee seeking to establish the occurrence of an emergency has the burden of proof.
- (d) This emergency provision supersedes 326 IAC 1-6 (Malfunctions). This permit condition is in addition to any emergency or upset provision contained in any applicable requirement.
- (e) The Permittee seeking to establish the occurrence of an emergency shall make records available upon request to ensure that failure to implement a PMP did not cause or contribute to an exceedance of any limitations on emissions. However, IDEM, OAQ may require that the Preventive Maintenance Plans required under 326 IAC 2-7-4-(c)(10) be revised in response to an emergency.
- (f) Failure to notify IDEM, OAQ by telephone or facsimile of an emergency lasting more than one (1) hour in accordance with (b)(4) and (5) of this condition shall constitute a violation of 326 IAC 2-7 and any other applicable rules.
- (g) If the emergency situation causes a deviation from a technology-based limit, the Permittee may continue to operate the affected emitting facilities during the emergency provided the Permittee immediately takes all reasonable steps to correct the emergency and minimize emissions.

C.14 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-7-5] [326 IAC 2-7-6]

- (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 response actions. The Permittee shall submit a description of these response actions to IDEM, OAQ, within thirty (30) days of receipt of the test results. The Permittee shall take appropriate action to minimize excess emissions from the affected facility while the response actions are being implemented.
- (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, OAQ that retesting in one hundred and twenty (120) days is not practicable, IDEM, OAQ may extend the retesting deadline.
- (c) IDEM, OAQ reserves the authority to take any actions allowed under law in response to non-compliant stack tests.

The response action documents submitted pursuant to this condition require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

C.15 General Record Keeping Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-6] [326 IAC 2-2] [326 IAC 2-3]

- (a) Records of all required monitoring data, reports and support information required by this permit shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. These records shall be physically present or electronically accessible at the source location for a minimum of three (3) years. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.

- (b) Unless otherwise specified in this permit, all record keeping requirements not already legally required shall be implemented within ninety (90) days of permit issuance.
- (c) If there is a reasonable possibility that a “project” (as defined in 326 IAC 2-2-1(qq)) and/or 326 IAC 2-3-1(ll) at an existing emissions unit other than projects at a Clean Unit), which is not part of a “major modification” (as defined in 326 IAC 2-2-1(ee)) or 326 IAC 2-3-1(z)) may result in significant emissions increase and the Permittee elects to utilize the “projected actual emissions” (as defined in 326 IAC 2-2-1(rr)) and/or 326 IAC 2-3-1(mm)), the Permittee shall comply with following:
 - (1) Before beginning actual construction of the “project” (as defined in 326 IAC 2-2-1(qq)) and/or 326 IAC 2-3-1(ll)) at an existing emissions unit, document and maintain the following records:
 - (A) A description of the project;
 - (B) Identification of any emissions unit whose emissions of a regulated new source review pollutant could be affected by the project;
 - (C) A description of the applicability test used to determine that the project is not a major modification for any regulated NSR pollutant, including:
 - (i) Baseline actual emissions;
 - (ii) Projected actual emissions;
 - (iii) Amount of emissions excluded under section 326 IAC 2-2-1(rr)(2)(A)(iii) and/or 326 IAC 2-3-1(mm)(2)(A)(iii); and
 - (iv) An explanation for why the amount was excluded, and any netting calculations, if applicable.
 - (2) Monitor the emissions of any regulated NSR pollutant that could increase as a result of the project and that is emitted by any existing emissions unit identified in (1)(B) above; and
 - (3) Calculate and maintain a record of the annual emissions, in tons per year on a calendar year basis, for a period of five (5) years following resumption of regular operations after the change, or for a period of ten (10) years following resumption of regular operations after the change if the project increases the design capacity of or the potential to emit that regulated NSR pollutant at the emissions unit.

C.16 General Reporting Requirements [326 IAC 2-7-5(3)(C)] [326 IAC 2-1.1-11] [326 IAC 2-2]
[326 IAC 2-3]

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- (a) The Permittee shall submit the attached Quarterly Deviation and Compliance Monitoring Report or its equivalent. Any deviation from permit requirements, the date(s) of each deviation, the cause of the deviation, and the response steps taken must be reported. This report shall be submitted within thirty (30) days of the end of the reporting period. The Quarterly Deviation and Compliance Monitoring Report shall include the certification by the “responsible official” as defined by 326 IAC 2-7-1(34).
 - (b) The report required in (a) of this condition and 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 Quality
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

- (c) 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, OAQ, on or before the date it is due.
- (d) Unless otherwise specified in this permit, all reports required in Section D of this permit shall be submitted within thirty (30) days of the end of the reporting period. All reports do require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).
- (e) 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. Reporting periods are based on calendar years, unless otherwise specified in this permit. For the purpose of this permit "calendar year" means the twelve (12) month period from January 1 to December 31 inclusive.
- (f) If the Permittee is required to comply with the recordkeeping provisions of (c) in Section C - General Record Keeping Requirements for any "project" (as defined in 326 IAC 2-2-1(qq)) and/or 326 IAC 2-3-1(II)) at an existing emissions unit, and the project meets the following criteria, then the Permittee shall submit a report to IDEM, OAQ:
 - (1) The annual emissions, in tons per year, from the project identified in (c)(1) in Section C - General Record Keeping Requirements exceed the baseline actual emissions, as documented and maintained under Section C - General Record Keeping Requirements (c)(1)(C)(i), by a significant amount, as defined in 326 IAC 2-2-1(xx) and/or 326 IAC 2-3-1(qq), for that regulated NSR pollutant, and
 - (2) The emissions differ from the preconstruction projection as documented and maintained under Section C - General Record Keeping Requirements (c)(1)(C)(ii).
- (g) The report for a project at an existing emissions unit shall be submitted within sixty (60) days after the end of the year and contain the following:
 - (1) The name, address, and telephone number of the major stationary source.
 - (2) The annual emissions calculated in accordance with (c)(2) and (3) in Section C - General Record Keeping Requirements.
 - (3) The emissions calculated under the actual-to-projected actual test stated in 326 IAC 2-2-2(d)(3) and/or 326 IAC 2-3-2(c)(3).
 - (4) Any other information that the Permittee deems fit to include in this report.

Reports required in this part shall be submitted to:

Indiana Department of Environmental Management
Air Compliance Section, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

- (h) The Permittee shall make the information required to be documented and maintained in accordance with (c) in Section C - General Record Keeping Requirements available for review upon a request for inspection by IDEM, OAQ. The general public may request this information from the IDEM, OAQ under 326 IAC 17.1.

SECTION D.1 FACILITY OPERATION CONDITIONS

Section D.1 of PSD Significant Source Modification, Permit No. 063-16628-00037, issued on August 29, 2003 is superceded by this Section D.1 of PSD/SSM 063-22329-00037.

Facility Description [326 IAC 2-7-5(15)]

(1) One (1) batch mode EAF, with a nominal capacity of 125 tons of steel per hour, utilizing capture system on a fourth hole duct or direct shell evacuation (DSE) system venting to a baghouse (EAF Baghouse) and a canopy hood for overhead roof exhaust. The EAF is equipped with natural gas fired oxy-fuel burners. The EAF Baghouse has a nominal flow rate of 675,000 acf/min.

(2) One (1) Ladle Metallurgy station (LMS), rated at nominally 125 tons/hour, and exhausting to its own baghouse (LMS Baghouse). The LMS Baghouse has a nominal flow rate of 85,000 acf/min.

Both the EAF Baghouse and LMS Baghouse exhaust to the same common stack. The meltshop does not have a roof monitor.

(3) The EAF dust is conveyed to a dust storage silo, identified as EAF Dust Handling System.

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)] [326 IAC 2-2-3(a)(3)]

D.1.1 EAF and LMS PSD BACT [326 IAC 2-2]

Pursuant to 326 IAC 2-2, the Permittee shall comply with the following BACT requirements:

- (a) Steel production shall not exceed a maximum production rate of 1,095,000 tons per twelve (12) consecutive month period with compliance demonstrated at the end of each month.
- (b) The sulfur dioxide (SO₂) emissions from the EAF Baghouse/LMS Baghouse stack shall not exceed 190 pounds per hour averaged over a 24-hour block period.
- (c) The EAF Baghouse and LMS Baghouse shall exhaust to a common stack.
- (d) Nitrogen oxide (NO_x) emissions from the EAF Baghouse/LMS Baghouse stack shall not exceed 0.35 pounds per ton of steel produced and 43.75 pounds of NO_x per hour.
- (e) Carbon monoxide (CO) emissions from the EAF Baghouse/LMS Baghouse stack shall not exceed 2 pounds per ton of steel produced and 250 pounds of CO per hour, based on a 3-hour block average.
- (f) Volatile organic compound (VOC) emissions from the EAF Baghouse/LMS Baghouse stack shall not exceed 0.09 pounds per ton of steel produced and 11.5 pounds of VOC per hour. This VOC limit also satisfies the requirements under 326 IAC 8-1-6.
- (g) Filterable particulate matter (PM) emissions from the EAF Baghouse/LMS Baghouse stack shall not exceed 0.0018 grains per dry standard cubic foot (gr/dscf).

- (h) Filterable and condensable PM₁₀ emissions from the EAF Baghouse shall not exceed 0.0052 gr/dscf.
- (i) Visible emissions from the EAF Baghouse/LMS Baghouse stack shall not exceed 3% opacity, based on a 6-minute average (24 readings taken in accordance with 40 CFR Part 60, Appendix A, Method 9).
- (j) Visible emissions from the EAF Dust Handling system shall not exceed 3% opacity, based on a 6-minute average as determined in 326 IAC 5-1-4.
- (k) Fugitive emissions generated at each EAF during each complete cycle from tap to tap shall not exceed 3% opacity when emitted from any roof monitor or building opening, based on a 6-minute average as determined in 326 IAC 5-1-4.

D.1.2 General Provisions Relating to NSPS [326 IAC 12-1][40 CFR Part 60, Subpart A]

The provisions of 40 CFR Part 60, Subpart A (General Provisions), which are incorporated by reference in 326 IAC 12-1, apply to the EAF and dust handling system, except when otherwise specified in 40 CFR Part 60, Subpart AAa.

D.1.3 PM and Opacity [40 CFR 60.272a]

- (a) Pursuant to 40 CFR 60.272a(a)(1), the particulate matter (PM) emissions from the EAF Baghouse/LMS Baghouse stack shall not exceed 0.0052 gr/dscf.
- (b) Pursuant to 40 CFR 60.272a(a)(2), the visible emissions from the EAF Baghouse/LMS Baghouse stack shall not exceed 3% opacity, based on a 6-minute average.
- (c) Pursuant to 40 CFR 60.272a(a)(3), the visible emissions from the Meltshop operations shall not exceed 6% opacity, based on a 6-minute average.
- (d) Pursuant to 40 CFR 60.272a(b), the visible emissions from the EAF Dust Handling System shall not exceed 10% opacity, based on a 6-minute average.

D.1.4 PSD Minor Pollutants [326 IAC 2-2]

The Permittee shall emit less than the following emission rates from the EAF Baghouse:

Pollutant	Emission Rate (lb/hr)	PSD Significant Level (tons/year)
Lead	0.134	0.6
Beryllium	5.75x10 ⁻⁵	0.0004
Fluorides	0.68	3.0
Mercury	0.023	0.1

Compliance by the Permittee with these limitations makes the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration) not applicable.

D.1.5 Hazardous Air Pollutants (HAPs) [326 IAC 2-4.1-1]

The Permittee shall emit less than 10 tons/year of any single HAP and 25 tons/year of any combination of HAPs. Compliance with these limits makes 326 IAC 2-4.1-1 and Section 112(j) of the CAA not applicable.

D.1.6 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan (PMP), in accordance with Section C - Preventive Maintenance Plan, of this permit, is required for these units and control devices.

Compliance Determination Requirements [326 IAC 2-1.1-11]

D.1.7 Particulate Matter Control [326 IAC 2-2] [326 IAC 2-7-6(6)]

- (a) Pursuant to 326 IAC 2-2, the EAF Baghouse for particulate control shall be in operation and control emissions at all times that the EAF is in operation.
- (b) Pursuant to 326 IAC 2-2, the LMS Baghouse for particulate control shall be in operation and control emissions at all times that the LMS is in operation.
- (c) Pursuant to 326 IAC 2-2, fugitive emissions generated during EAF operations shall be captured by the roof canopies or contained and collected within the EAF building.
- (d) There shall be no roof monitor in the Meltshop.
- (e) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

D.1.8 PSD BACT Control and Work Practices [326 IAC 2-2]

Pursuant to 326 IAC 2-2, the Permittee shall comply with the following:

- (a) The EAF shall be equipped and operated with oxy fuel burners.
- (b) The EAF shall be controlled by a direct shell evacuation (DSE) system and canopy hood.
- (c) VOC emissions shall be controlled through an extensive scrap management program. All grades of scrap shall contain no observable non-ferrous metals, or non-metallics, and shall be free of excessive dirt, oil, grease, and tin plate. Heavily oiled scrap shall not be used.

The Permittee shall implement the scrap management plan (SMP) attached to this permit (Attachment A - SMP).

- (d) Good working practices shall be observed.

D.1.9 Testing Requirements [326 IAC 2-7-6(1),(6)] [326 IAC 2-1.1-11] [326 IAC 2-2] [40 CFR 60.275a]

- (a) Pursuant to 326 IAC 2-2, and 40 CFR 60.270a (Subpart AAa), within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up of the modified EAF, the Permittee shall perform testing on the common EAF Baghouse/LMS Baghouse stack for the following:

- (1) Filterable PM,
- (2) Filterable and condensable PM₁₀,
- (3) SO₂,
- (4) NO_x,

- (5) Lead and
- (6) VOC
- (b) Within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up of the modified EAF, the Permittee shall perform opacity testing on the EAF dust handling system.
- (c) The baghouse EAF dust shall be sampled and analyzed for Lead content on a monthly basis according to the procedures specified in the EPA publication SW-846-6010B, entitled Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.
- (d) With the submission of the test protocol, at a minimum, the Permittee shall include the information of sulfur content of injection carbon, charge carbon and sulfurizing agent to be used in testing.
- (e) The PM and PM₁₀ testings shall utilized 40 CFR Part 60, Appendix A, Method 5, Method 201 or 201A, Method 202 or other methods as approved by the Commissioner.
- (f) Any stack which has multiple processes which exhaust to the same stack shall operate all of the processes simultaneously in accordance with 326 IAC 3-6 (Source Sampling Procedures) and 40 CFR 60.274a(b).
- (g) These tests shall be performed using methods as approved by the Commissioner.
- (h) The PM, PM₁₀, SO₂, NO_x and Lead tests shall be repeated at least once every 2.5 years from the date of a valid compliance demonstration.
- (i) Testing shall be conducted in accordance with Section C - Performance Testing.

D.1.10 CO and SO₂ Continuous Emission Rate Monitoring Requirement [326 IAC 2-2] [326 IAC 3-5]

- (a) Pursuant to 326 IAC 2-2 and 326 IAC 3-5-1(d), the Permittee shall install, calibrate, certify, operate, and maintain continuous emission monitoring system(s) (CEMS) and related equipment for measuring CO and SO₂ emissions rates in pounds per hour from the common EAF Baghouse/LMS Baghouse stack in accordance with 326 IAC 3-5-2 and 326 IAC 3-5-3.
- (b) The Permittee shall submit to IDEM, OAQ, upon initial start up, a complete written continuous monitoring standard operating procedure (CMSOP), in accordance with the requirements of 326 IAC 3-5-4.
- (c) The Permittee shall record the output of the continuous monitoring system(s) and shall perform the required record keeping and reporting, pursuant to 326 IAC 3-5-6 and 326 IAC 3-5-7.

D.1.11 Continuous Opacity Monitoring (COM) [326 IAC 2-2] [326 IAC 3-5] [40 CFR 60.273a]

- (a) Pursuant to 326 IAC 2-2, 326 IAC 3-5, and 40 CFR 60.273a, the Permittee shall install, calibrate, certify, operate, and maintain a continuous monitoring system and related equipment to measure opacity from the common EAF Baghouse/LMS Baghouse stack in accordance with 326 IAC 3-5-2 and 326 IAC 3-5-3.
- (b) The Permittee shall submit to IDEM, OAQ, upon initial start up, a complete written continuous monitoring standard operating procedure (CMSOP), in accordance with the requirements of 326 IAC 3-5-4.

- (c) The Permittee shall record the output of the continuous monitoring system(s) and shall perform the required record keeping and reporting, pursuant to 326 IAC 3-5-6 and 326 IAC 3-5-7.

Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

D.1.12 Total Hydrocarbon Continuous Emission Rate Monitoring Requirement

- (a) Pursuant to 326 IAC 2-2 (PSD, 326 IAC 2-7-5(3), and 326 IAC 3-5-1(d)), the Permittee shall install, calibrate, certify, operate, and maintain a continuous emissions monitoring system (CEMS) for measuring total hydrocarbons emissions rates in pounds per hour from the EAF Baghouse/LMS Baghouse stack, in accordance with 326 IAC 3-5-2 and 326 IAC 3-5-3.
- (b) The Permittee shall submit to IDEM, OAQ, within ninety (90) days after monitor installation, a complete written continuous monitoring standard operating procedure (CMSOP), in accordance with the requirements of 326 IAC 3-5-4.
- (c) The Permittee shall record the output of the system and shall perform the required record keeping and reporting, pursuant to 326 IAC 3-5-6 and 326 IAC 3-5-7.
- (d) The pound per hour rate of the total hydrocarbons, based on a 3-hour block shall be maintained at or below the maximum concentration established during the latest stack test. If a condition exists which should result in a response step, the Permittee shall take reasonable response steps in accordance with Section C - Response to Excursions or Exceedances. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances, shall be considered a deviation from this permit.

D.1.13 Maintenance of CEMS [326 IAC 2-7-5(3)(A)(iii)]

- (a) In the event that a breakdown of the CO or SO₂ continuous emission monitoring system (CEMS) occurs, a record shall be made of the times and reasons of the breakdown and efforts made to correct the problem.
- (b) Whenever the CO CEMS is malfunctioning or will be down for calibration, maintenance or repairs for a period of four (4) hours or more, the Permittee shall perform once per shift operational status inspections of the fourth hole duct or direct shell evacuation (DSE) system, the dampers, the damper switches and the outsides of the ductwork and hoods for the presence of holes or flow constrictions caused by dents. Any deficiencies shall be noted and proper maintenance performed. This requirement does not replace the routine monthly inspections of the same equipment.
- (c) Whenever the SO₂ CEMS is malfunctioning or will be down for calibration, maintenance, or repairs for a period of four (4) hours or more, the Permittee shall monitor and record the sulfur content of the charge carbon and injection carbon added to the EAF. Vendor certifications or analyses may be used to verify the sulfur content of the charge carbon and injection carbon.
- (d) Nothing in this permit shall excuse the Permittee from complying with the requirements to operate a continuous emissions monitoring system pursuant to 326 IAC 2-2 and 326 IAC 3-5.

D.1.14 Maintenance of COM [326 IAC 2-7-5(3)(A)(iii)]

- (a) All COM systems shall meet the performance specifications of 40 CFR 60, Appendix B, Performance Specification No. 1, and are subject to monitor system certification requirements pursuant to 326 IAC 3-5.

- (b) In the event that a breakdown of a COM system occurs, a record shall be made of the time and reason of the breakdown and efforts made to correct the problem.
- (c) Whenever a COM is malfunctioning or will be down for calibration, maintenance, or repairs for a period of one (1) hour or more during EAF operation, compliance with the applicable opacity limits shall be demonstrated by the following:
 - (1) Visible emission (VE) notations shall be performed once per hour during daylight operations following the shutdown or malfunction of the primary COM. A trained employee shall record whether emissions are normal or abnormal for the state of operation of the EAF at the time of the reading.
 - (A) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.
 - (B) If abnormal emissions are noted during two consecutive emission notations, the Permittee shall begin Method 9 opacity observations within daylight four (4) hours of the second abnormal notation.
 - (C) VE notations may be discontinued once a COM is online or formal Method 9 readings have been implemented.
 - (2) If a COM is not online within twenty-four (24) hours of shutdown or malfunction of the primary COM, the Permittee shall provide certified opacity reader(s), who may be employees of the Permittee or independent contractors, to self-monitor the emissions from the EAF stack.
 - (A) Visible emission readings shall be performed in accordance with 40 CFR 60, Appendix A, Method 9, for a minimum of five (5) consecutive six (6) minute averaging periods beginning not more than twenty-four (24) hours after the start of the malfunction or down time.
 - (B) Method 9 opacity readings shall be repeated for a minimum of five (5) consecutive six (6) minute averaging periods at least once every four (4) hours during daylight operations, until such time that a COM is in operation.
 - (C) Method 9 readings may be discontinued once a COM is online.
 - (3) If abnormal emissions are observed, the Permittee shall take reasonable response steps in accordance with Section C - Response to Excursions or Exceedances. Observation of abnormal emissions that do not violate an applicable opacity limit is not a deviation from this permit. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances, shall be considered a deviation from this permit.
 - (4) All of the opacity readings during this period shall be reported with the Quarterly Opacity Exceedances Reports.
- (d) Nothing in this permit shall excuse the Permittee from complying with the requirements to operate a COM system pursuant to 326 IAC 2-2, 326 IAC 3-5, and 40 CFR 60.273a.

D.1.15 Bag Leak Detection System (BLDS)

- (a) The Permittee shall install and operate a continuous bag leak detection system (BLDS).
- (b) The BLDS shall meet the following requirements:
 - (1) The bag leak detection system must be certified by the manufacturer to be capable of detecting particulate matter emissions at concentrations of 0.0018 grains per actual cubic foot or less.
 - (2) The bag leak detection system sensor must provide output of relative particulate matter loading.
 - (3) The bag leak detection system must be equipped with an alarm system that will alarm when an increase in relative particulate loading is detected over a preset level established or verified during a stack test.
 - (4) The bag leak detection system shall be installed and operated in a manner consistent with available written guidance from the U.S. Environmental Protection Agency or, in the absence of such written guidance, the manufacturer's written specifications and recommendations for installation, operation, and adjustment of the system.
 - (5) The initial adjustment of the system shall, at a minimum, consist of establishing the baseline output by adjusting the sensitivity (range) and the averaging period of the device, and establishing the alarm set points and the alarm delay time.
 - (6) In no event shall the sensitivity be increased by more than 100 percent or decreased by more than 50 percent over a 365 day period unless such adjustment follows a complete baghouse inspection, which demonstrates the baghouse, is in good operating condition.
 - (7) The bag detector must be installed downstream of the baghouse.

D.1.16 Monitoring of Operations [40 CFR 60.274a]

Pursuant to 40 CFR 60.274a, the Permittee shall comply with the following monitoring requirements:

- (a) Pursuant to 40 CFR 60.274a(b), the Permittee shall check and record on a once-per-shift basis the furnace static pressure and either:
 - (1) Check and record the control system fan motor amperes and damper positions on a once-per-shift basis; or
 - (2) Install, calibrate, and maintain a monitoring device that continuously records the volumetric flow rate through each separately ducted hood; or
 - (3) Install, calibrate, and maintain a monitoring device that continuously records the volumetric flow rate at the control device inlet and records damper positions on a once-per-shift basis.

The monitoring device(s) may be installed in any appropriate location in the exhaust duct such that reproducible flow rate monitoring will result. The flow rate monitoring device(s) shall have an accuracy of \pm 10 percent over its normal operating range and shall be calibrated according to the manufacturer's instructions. The IDEM, OAQ, or the U.S. EPA may require the Permittee to demonstrate the accuracy of the monitoring device(s)

relative to Methods 1 and 2 of 40 CFR Part 60, Appendix A.

- (b) Pursuant to 40 CFR 60.274a(c), when the Permittee is required to demonstrate compliance with the opacity standard and at any other time IDEM, OAQ, or the U.S. EPA may require, that either the control system fan motor amperes and all damper positions or the volumetric flow rate through each separately ducted hood shall be determined during all periods in which a hood is operated for the purpose of capturing emissions from the EAF.
- (c) Pursuant to 40 CFR 60.274a(d), the Permittee shall perform monthly operational status inspections of the equipment that is important to the performance of the total capture system (i.e., pressure sensors, dampers, and damper switches). This inspection shall include observations of the physical appearance of the equipment (e.g., presence of holes in ductwork or hoods, flow constrictions caused by dents or accumulated dust in ductwork, and fan erosion). Any deficiencies shall be noted and proper maintenance performed.

D.1.17 EAF Baghouse

The Permittee shall convey the collected materials from the EAF Baghouse in an enclosed loading area.

Record Keeping and Reporting Requirement [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.1.18 Record Keeping Requirements

- (a) The Permittee shall maintain records required under 326 IAC 3-5-6 at the source in a manner that they may be inspected by the IDEM, OAQ, or the U.S. EPA, if so requested or required.
- (b) The Permittee shall maintain records of the amount and percentage of steel produced.
- (c) The Permittee shall maintain records of the readings of the CO, SO₂ and total hydrocarbons CEMS.
- (d) The Permittee shall maintain records of the readings of the COM.
- (e) The Permittee shall maintain records of the verification of sulfur content of charge carbon, and injection carbon added into the EAF and make available upon request to IDEM, OAQ, and the U.S. EPA.
- (f) The Permittee shall maintain records of the following:
 - (1) Records of the once-per-shift furnace static pressure and either:
 - (2) Records of the once-per-shift control system fan motor amperes and records of the once per shift damper positions, or
 - (3) Records of the volumetric flow rate through each separately ducted hood, or
 - (4) Records the volumetric flow rate at the control device inlet and records of the once per shift damper positions.
- (g) The Permittee shall maintain records of the monthly operational status inspections of the equipment that is important to the performance of the total capture system under 40 CFR 60.274a(d) and make available upon request to IDEM, OAQ, and the U.S. EPA.

- (h) The Permittee shall maintain records of any additional inspections prescribed by the Preventive Maintenance Plan and make available upon request to IDEM, OAQ, and the U.S. EPA.
- (i) Pursuant to 40 CFR 60.276a, records of the measurements required in 40 CFR 60.274a, must be retained for at least 5 years following the date of the measurement.
- (j) All records shall be maintained in accordance with Section C - General Record Keeping Requirements of this permit.
- (k) Records necessary to demonstrate compliance shall be available within 30 days of the end of each compliance period.

D.1.19 Reporting Requirements [326 IAC 2-1.1-11] [40 CFR 60.276a]

- (a) The Permittee shall submit a quarterly report of the actual amount of steel produced and the specific allocations of the bars, using the Quarterly Production Report, or equivalent.
- (b) The Permittee shall submit a quarterly report of excess emissions, using the Quarterly Deviation and Compliance Monitoring Report or equivalent, of the following:
 - (1) CO, SO₂ and total hydrocarbons readings from the CEMS,
 - (2) Opacity readings from the COM,
 - (3) Furnace static pressure and either:
 - (4) Values of control system fan motor amperes that exceed 15 percent of the value established under 40 CFR 60.274a(c), and position of the damper during the exceedance or
 - (5) Values of volumetric flow rates through each separate ducted hood or
 - (6) Values of volumetric flow rates at the control device inlet, lower than those established under 40 CFR 60.274a(c) and the position of the damper during this flow rate.
- (c) These reports shall be submitted no later than thirty (30) calendar days following the end of each calendar quarter and in accordance with Section C - General Reporting Requirements of this permit.
- (d) These reports do require the certification by the responsible official, as defined by 326 IAC 2-7-1(34).
- (e) Pursuant to 40 CFR 60.276a, the Permittee shall furnish to IDEM, OAQ, a written report of the results of the compliance emission tests. This report shall include, at a minimum, the following information:
 - (1) Facility name and address;
 - (2) Plant representative;
 - (3) Make and model of process, control device, and continuous monitoring equipment;

- (4) Flow diagram of process and emissions capture equipment including other equipment or process(es) ducted to the same control device;
- (5) Rated (design) capacity of process equipment;
- (6) The following operating conditions:
 - (A) List of charge and tap weights and materials;
 - (B) Heat times and process log;
 - (C) Control device operation log; and
 - (D) Continuous monitor or Reference Method 9 data.
- (7) Test dates and test times;
- (8) Test company;
- (9) Test company representative;
- (10) Test observers from outside agency;
- (11) Description of test methodology used, including any deviation from standard reference methods;
- (12) Schematic of sampling location;
- (13) Number of sampling points;
- (14) Description of sampling equipment;
- (15) Listing of sampling equipment calibrations and procedures;
- (16) Field and Laboratory data sheets;
- (17) Description of sample recovery procedures;
- (18) Sampling equipment leak check results;
- (19) Description of quality assurance procedures;
- (20) Description of analytical procedures;
- (21) Notation of sample blank corrections; and
- (22) Sample emission calculations.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE BRANCH
100 North Senate Avenue
Indianapolis, Indiana 46204-2251**

**PART 70 OPERATING PERMIT
CERTIFICATION**

Source Name: Steel Dynamics, Inc. (SDI) - Engineered Bar Products Division
Source Location: 8000 North County Road 225 East, Pittsboro, Indiana 46167

**This certification shall be included when submitting monitoring, testing reports/results
or other documents as required by this approval.**

Please check what document is being certified:

Test Result (specify)

Report (specify)

Notification (specify)

Affidavit (specify)

Other (specify)

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Signature:

Printed Name:

Title/Position:

Date:

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE BRANCH
100 North Senate Avenue
Indianapolis, Indiana 46204-2251
Phone: 317-233-0178
Fax: 317-233-6865**

**PART 70 OPERATING PERMIT
EMERGENCY OCCURRENCE REPORT**

Source Name: Steel Dynamics, Inc. (SDI) - Engineered Bar Products Division
Source Address: 8000 North County Road 225 East, Pittsboro, Indiana 46167
Mailing Address: 8000 North County Road 225 East, Pittsboro, Indiana 46167

This form consists of 2 pages

Page 1 of 2

<input type="checkbox"/> This is an emergency as defined in 326 IAC 2-7-1(12)
<input type="checkbox"/> The Permittee must notify the Office of Air Quality (OAQ), within four (4) business hours (1-800-451-6027 or 317-233-0178, ask for Compliance Section); and
<input type="checkbox"/> The Permittee must submit notice in writing or by facsimile within two (2) working days (Facsimile Number: 317-233-6865), and follow the other requirements of 326 IAC 2-7-16.

If any of the following are not applicable, mark N/A

Facility/Equipment/Operation:
Control Equipment:
Permit Condition or Operation Limitation in Permit:
Description of the Emergency:
Describe the cause of the Emergency:

If any of the following are not applicable, mark N/A

Page 2 of 2

Date/Time Emergency started:
Date/Time Emergency was corrected:
Was the facility being properly operated at the time of the emergency? Y N Describe:
Type of Pollutants Emitted: TSP, PM-10, SO ₂ , VOC, NO _x , CO, Pb, other:
Estimated amount of pollutant(s) emitted during emergency:
Describe the steps taken to mitigate the problem:
Describe the corrective actions/response steps taken:
Describe the measures taken to minimize emissions:
If applicable, describe the reasons why continued operation of the facilities are necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw materials of substantial economic value:

Form Completed by: _____
Title / Position: _____
Date: _____
Phone: _____

A certification is not required for this report.

Indiana Department of Environmental Management Office of Air Quality

Addendum to the Technical Support Document for a Significant Source Modification to a Part 70 Operating Permit

Source Name: Steel Dynamics, Inc. (SDI) - Engineered Bar Products Division
Source Location: 8000 North County Road 225 East, Pittsboro, Indiana 46167
County: Hendricks
Operation Permit No.: PSD/SSM 063-16628-00037
Significant Source Modification No.: PSD/SSM 063-22329-00037
SIC Code: 3312
Permit Reviewer: Frank P. Castelli

On January 8, 2007, the Office of Air Quality (OAQ) had a notice published in the Hendricks County Flyer, Avon, Indiana, stating that Steel Dynamics, Inc. (SDI) - Engineered Bar Products Division had applied for a Significant Source Modification to a Part 70 source for a steel mini-mill. The notice also stated that OAQ proposed to issue a Significant Source Modification and provided information on how the public could review the proposed Significant Source Modification 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 Significant Source Modification to a Part 70 source should be issued as proposed.

On February 7, 2007, Mike Brooks, Environmental Engineer of SDI, submitted comments on the proposed Significant Source Modification to a Part 70 Operating Permit. The comments are as follows (the permit language, if changed, has deleted language as ~~strikeouts~~ and new language **bolded**):

Comment 1:

Condition A.1 - This condition fails to allow either the Plant Manager or a designee to act as a responsible official for the facility, as allowed in 326 IAC 2-7-1(34). Please insert "or designee" after "Plant Manager."

Response 1:

Condition A.1 has been revised to delete the specific responsible official for this source as it may change in the future. IDEM, OAQ has determined that it should not be necessary to change the permit every time the responsible official's title changes. Therefore, Condition A.1 has been revised as follows:

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

The Permittee owns and operates a stationary steel mini-mill that manufactures different types of bars.

Source Name: Steel Dynamics, Inc. (SDI) - Engineered Bar Products Division
Source Location: 8000 North County Road 225 East, Pittsboro, Indiana 46167
Mailing Address: 8000 North County Road 225 East, Pittsboro, Indiana 46167
General Telephone Number: 317-892-7000
Responsible Official: ~~Plant Manager~~
County: Hendricks
County Status: Nonattainment for the 8-hour ozone standard
 Nonattainment for PM2.5
 Attainment for the other regulated pollutants

SIC Code: 3312 (Steel Mill)
Source Categories: 1 of 28 Listed Source Categories
Major Source, under PSD and Emission Offset Rules
Minor Source, under Section 112 of the Clean Air Act

Comment 2:

Condition A.2 – Please add “nominal” as shown below to account for the descriptive nature of the estimated flow rates and throughputs:

- (a) One (1) batch mode EAF, with a nominal capacity of 125 tons of steel per hour, utilizing capture system on a fourth hole duct or direct shell evacuation (DSE) system venting to a baghouse (EAF Baghouse) and a canopy hood for overhead roof exhaust. The EAF is equipped with natural gas fired oxy-fuel burners. The EAF Baghouse has a nominal flow rate of 675,000 acf/min.
- (b) One (1) Ladle Metallurgy station (LMS), nominally rated at 125 tons/hour, and exhausting to its own baghouse (LMS Baghouse). The LMS Baghouse has a nominal flow rate of 85,000 acf/min.

Both the EAF Baghouse and LMS Baghouse exhaust to the same common stack. The meltshop does not have a roof monitor.

Response 2:

The descriptive information in Condition A.2 and the box in Section D.1 have been revised as requested as follows:

A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)] [326 IAC 2-7-5(15)]
This modification to a stationary source is approved to operate the following:

- (a) One (1) batch mode EAF, with a nominal capacity of 125 tons of steel per hour, utilizing capture system on a fourth hole duct or direct shell evacuation (DSE) system venting to a baghouse (EAF Baghouse) and a canopy hood for overhead roof exhaust. The EAF is equipped with natural gas fired oxy-fuel burners. The EAF Baghouse has a **nominal** flow rate of 675,000 acf/min.
- (b) One (1) Ladle Metallurgy station (LMS), **nominally** rated at 125 tons/hour, and exhausting to its own baghouse (LMS Baghouse). The LMS Baghouse has a **nominal** flow rate of 85,000 acf/min.

Both the EAF Baghouse and LMS Baghouse exhaust to the same common stack. The meltshop does not have a roof monitor.

- (c) The EAF dust is conveyed to a dust storage silo, identified as EAF Dust Handling System.

SECTION D.1

FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]

(1) One (1) batch mode EAF, with a nominal capacity of 125 tons of steel per hour, utilizing capture system on a fourth hole duct or direct shell evacuation (DSE) system venting to a baghouse (EAF Baghouse) and a canopy hood for overhead roof exhaust. The EAF is equipped with natural gas fired oxy-fuel burners. The EAF Baghouse has a **nominal** flow rate of 675,000 acf/min.

(2) One (1) Ladle Metallurgy station (LMS), **nominally** rated at 125 tons/hour, and exhausting to its own baghouse (LMS Baghouse). The LMS Baghouse has a **nominal** flow rate of 85,000 acf/min.

Both the EAF Baghouse and LMS Baghouse exhaust to the same common stack. The meltshop does not have a roof monitor.

(3) The EAF dust is conveyed to a dust storage silo, identified as EAF Dust Handling System.

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

Comments 3 through 15:

Comment 3:

Condition B.1 should be deleted because these emission units were approved for construction under a prior permit – the condition seems unnecessary and confusing.

Comment 4:

Condition B.2 – Please modify this condition consistent with agreed-upon language in other recent IDEM permits, as follows:

B.2 Permit No Defense [IC 13-11 through 13-20][IC 13-22 through 13-25]

This permit to construct does not relieve the Permittee of the responsibility to comply with the applicable 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.

Comment 5:

Condition B.4 should be deleted because it seems unnecessary – no construction is needed. In any event, this condition does not accurately reflect PSD rules allowing an extension of the 18-month period if justified.

Comment 6:

Condition B.5 should be deleted because no construction is needed.

Comment 7:

Condition C.1 – Please modify this condition consistent with agreed-upon language in other recent IDEM permits (in (a), delete the words “Where specifically designated by this permit or required by an applicable requirement, a”) and add wording to (b) as follows:

C.1 Certification [326 IAC 2-7-4(f)][326 IAC 2-7-6(1)][326 IAC 2-7-5(3)(C)]

- (a) Any application form, report, or compliance certification submitted shall contain certification by a responsible official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.
- (b) One (1) certification shall be included, using the attached Certification Form or its equivalent, with each submittal requiring certification.
- (c) A responsible official is defined at 326 IAC 2-7-1(34).

Comment 8:

Condition C.2 – In (a)(1), please insert the phrase “by job title or classification” after “individual(s).” In (b), please delete the phrase “or potential to emit.”

Comment 9:

Condition C.7 – At the end of paragraph (c), please insert the sentence “Test reports do not require certification by the “responsible official” as defined by 326 IAC 2-7-1(34).”

Comment 10:

Condition C.10 – Please modify this condition (in (a), delete the word “install”; in (d), delete the words “Nothing in this permit shall excuse the Permittee from complying with the requirements to operate a continuous emission monitoring system pursuant to 40 CFR 63.1209 and 40 CFR 63.8”). There is no need for this provision (c) in this SSM – this is already addressed in the stay agreement of a prior permit; it is not a Part 75 source; and the condition is inconsistent with Condition D.1.13.

C.10 Maintenance of Continuous Emission Monitoring Equipment [326 IAC 2-7-5(3)(A)(iii)]

- (a) The Permittee shall calibrate, maintain, and operate all necessary continuous emission monitoring systems (CEMS) and related equipment.
- (b) In the event that a breakdown of a continuous emission monitoring system occurs, a record shall be made of the times and reasons of the breakdown and efforts made to correct the problem.

Comment 11:

Condition C.12 – Please modify this condition (in (a), delete the words “Upon detecting an excursion or exceedance”; and in (b)(2), delete the words “such as through response by a computerized distribution control system”) consistent with agreed-upon language in other recent IDEM permits, as follows:

C.12 Response to Excursions or Exceedances [326 IAC 2-7-5] [326 IAC 2-7-6]

- (a) The Permittee shall restore operation of the emissions unit (including any control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for mini-

mizing emissions.

- (b) The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup or shutdown conditions). Corrective actions may include, but are not necessarily limited to, the following:
 - (1) initial inspection and evaluation;
 - (2) recording that operations returned or are returning to normal without operator action; or
 - (3) any necessary follow-up actions to return operation to within the indicator range, designated condition, or below the applicable emission limitation or standard, as applicable.
- (c) A determination of whether the Permittee has used acceptable procedures in response to an excursion or exceedance will be based on information available, which may include, but is not necessarily limited to, the following:
 - (1) monitoring results;
 - (2) review of operation and maintenance procedures and records;
 - (3) inspection of the control device, associated capture system, and the process.

Comment 12:

Condition C.13 – Please modify this condition (in (a) add except as otherwise provided in 326 IAC 2-7-16 or this condition; in (b)(3), replace the word “minimize” with “reduce”; in (b)(4), replace the words “within” and “after” with the phrase “not later than”, in (b)(5), delete the words “within” and “of” with the phrase “not later than”; in (e), add “for the emission unit that experienced the emergency”; in (g), substitute the word “reduce” instead of “minimize”) as follows:

C.13 Emergency Provisions [326 IAC 2-7-16]

- (a) An emergency, as defined in 326 IAC 2-7-1(12), is not an affirmative defense for an action brought for noncompliance with a federal or state health-based emission limitation except as otherwise provided in 326 IAC 2-7-16 or this condition.
- (b) An emergency, as defined in 326 IAC 2-7-1(12), constitutes an affirmative defense to an action brought for noncompliance with a technology-based emission limitation if the affirmative defense of an emergency is demonstrated through properly-signed, contemporaneous operating logs or other relevant evidence that describe the following:
 - (1) An emergency occurred, and the Permittee can, to the extent possible, identify the causes of the emergency.
 - (2) The permitted facility was at the time being properly operated.
 - (3) During the period of an emergency, the Permittee took all reasonable steps to reduce levels of emissions that exceeded the emission standards or other requirements in this permit.

- (4) For each emergency lasting one (1) hour or more, the Permittee notified IDEM, OAQ not later than four (4) daytime business hours after: the beginning of the emergency, or the emergency was discovered or reasonably should have been discovered.

Telephone Number: 1-800-451-6027
(ask for Office of Air Quality, Compliance Section), or
Telephone Number: 317-233-0178 (ask for Compliance Section)
Facsimile Number: 317-233-6865

- (5) For each emergency lasting one (1) hour or more, the Permittee submitted the attached Emergency Occurrence Report Form or its equivalent, either by mail or facsimile, to:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204-2251
Facsimile Number: 317-233-6865

not later than two (2) working days after the time when emission limitations were exceeded due to the emergency.

The notice fulfills the requirement of 326 IAC 2-7-5(3)(C)(ii) and must contain the following:

- (A) A description of the emergency;
- (B) Any steps taken to mitigate the emissions; and,
- (C) Corrective actions taken.

The notification which shall be submitted by the Permittee does not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

- (6) The Permittee immediately took all reasonable steps to correct the emergency.
- (c) In any enforcement proceeding, the Permittee seeking to establish the occurrence of an emergency has the burden of proof.
 - (d) This emergency provision supersedes 326 IAC 1-6 (Malfunctions). This permit condition is in addition to any emergency or upset provision contained in any applicable requirement.
 - (e) The Permittee seeking to establish the occurrence of an emergency shall make records available upon request to ensure that failure to implement a PMP did not cause or contribute to an exceedance of any limitations on emissions. However, IDEM, OAQ may require that the Preventive Maintenance Plans required under 326 IAC 2-7-4-(c)(10) for the emission unit that experienced the emergency be revised in response to an emergency.
 - (f) Failure to notify IDEM, OAQ by telephone or facsimile of an emergency lasting more than one (1) hour in accordance with (b)(4) and (5) of this condition shall constitute a violation of 326 IAC 2-7 and any other applicable rules.

- (g) If the emergency situation causes a deviation from a technology-based emission limit, the Permittee may continue to operate the affected emitting facilities during the emergency provided the Permittee immediately takes all reasonable steps to correct the emergency and reduce emissions.

Comment 13:

Condition C.14 – Please modify this condition (in (a), delete the words “within” and “of” and add where the response action descriptions should be sent to; in (b), also delete the words “within” and “of”) as follows:

C.14 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-7-5] [326 IAC 2-7-6]

- (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 response actions. The Permittee shall submit a description of these response actions to IDEM, OAQ, not later than thirty (30) days after receipt of the test results. The Permittee shall take appropriate action to minimize excess emissions from the affected facility while the response actions are being implemented.

Response action descriptions should be sent to:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

- (b) A retest to demonstrate compliance shall be performed not later than one hundred twenty (120) days after receipt of the original test results. Should the Permittee demonstrate to IDEM, OAQ that retesting in one hundred and twenty (120) days is not practicable, IDEM, OAQ may extend the retesting deadline.
- (c) IDEM, OAQ reserves the authority to take any actions allowed under law in response to non-compliant stack tests.

The response action documents submitted pursuant to this condition require the certification by the “responsible official” as defined by 326 IAC 2-7-1(34).

Comment 14:

Condition C.15 – Please modify this condition (in (a) add the sentence, “Information presented to IDEM, OAQ under this condition does not require certification by the “responsible official” as defined in 326 IAC 2-7-1(34).”; in (b), delete the words “within” and “of” with the phrase “not later than”) as follows:

C.15 General Record Keeping Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-6] [326 IAC 2-2][326 IAC 2-3]

- (a) Records of all required monitoring data, reports and support information required by this permit shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. These records shall be physically present or electronically accessible at the source location for a minimum of three (3) years. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time. Information presented to IDEM, OAQ under this condition does not require certification by the “responsible official” as defined in 326 IAC 2-7-1(34).

- (b) Unless otherwise specified in this permit, all record keeping requirements not already legally required shall be implemented not later than ninety (90) days after permit issuance.

Comment 15:

Condition C.16 – In the second-to-last sentence in Condition C.16(a), “within thirty (30) days of” should be changed to “not later than thirty (30) days after.” In the last sentence of Condition C.16(d), the phrase “Unless otherwise specified in Section D,” should be inserted at the beginning of the sentence. Quotation marks should be inserted around the word “project” in the first sentence of Condition C.16(g). Finally, in Condition C.16(h), the final sentence regarding public records requests should be deleted; the portion of provision (h) addressing the public’s right to obtain information from IDEM has no relevance to this permit.

C.16 General Reporting Requirements [326 IAC 2-7-5(3)(C)] [326 IAC 2-1.1-11] [326 IAC 2-2] [326 IAC 2-3]

- (a) The Permittee shall submit the attached Quarterly Deviation and Compliance Monitoring Report or its equivalent. Any deviation from permit requirements, the date(s) of each deviation, the cause of the deviation, and the response steps taken must be reported. This report shall be submitted not later than thirty (30) days after the end of the reporting period. The Quarterly Deviation and Compliance Monitoring Report shall include the certification by the “responsible official” as defined by 326 IAC 2-7-1(34).
- (b) The report required in (a) of this condition and 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 Quality
100 North Senate Avenue
Indianapolis, Indiana 46204-2251
- (c) 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, OAQ, on or before the date it is due.
- (d) Unless otherwise specified in this permit, all reports required in Section D of this permit shall be submitted within thirty (30) days of the end of the reporting period. Unless otherwise specified in this permit, all reports do require the certification by the “responsible official” as defined by 326 IAC 2-7-1(34).
- (e) 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. Reporting periods are based on calendar years, unless otherwise specified in this permit. For the purpose of this permit “calendar year” means the twelve (12) month period from January 1 to December 31 inclusive.
- (f) If the Permittee is required to comply with the recordkeeping provisions of (c) in Section C - General Record Keeping Requirements for any “project” (as defined in 326 IAC 2-2-1(qq)) and/or 326 IAC 2-3-1(II)) at an existing emissions unit, and the project meets the following criteria, then the Permittee shall submit a report to IDEM, OAQ:
- (1) The annual emissions, in tons per year, from the project identified in (c)(1) in Section C - General Record Keeping Requirements exceed the baseline actual emissions, as documented and maintained under Section C - General Record

- Keeping Requirements (c)(1)(C)(i), by a significant amount, as defined in 326 IAC 2-2-1(xx) and/or 326 IAC 2-3-1(qq), for that regulated NSR pollutant, and
- (2) The emissions differ from the preconstruction projection as documented and maintained under Section C - General Record Keeping Requirements (c)(1)(C)(ii).
- (g) The report for a "project" at an existing emissions unit shall be submitted within sixty (60) days after the end of the year and contain the following:
- (1) The name, address, and telephone number of the major stationary source.
 - (2) The annual emissions calculated in accordance with (c)(2) and (3) in Section C - General Record Keeping Requirements.
 - (3) The emissions calculated under the actual-to-projected actual test stated in 326 IAC 2-2-2(d)(3) and/or 326 IAC 2-3-2(c)(3).
 - (4) Any other information that the Permittee deems fit to include in this report.

Reports required in this part shall be submitted to:

Indiana Department of Environmental Management
Air Compliance Section, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

- (h) The Permittee shall make the information required to be documented and maintained in accordance with (c) in Section C - General Record Keeping Requirements available for review upon a request for inspection by IDEM, OAQ.

Response to Comments 3 through 15:

These comments are not specifically related to this revision to the SO₂ PSD BACT determination and should therefore be made as part of the public notice period for the Part 70 Operating Permit, T 063-20969-00037. The Part 70 Permit will be on public notice until March 18, 2007. No changes have been made to the proposed PSD/Significant Source Modification.

Comment 16:

Section D.1, Descriptive Box – Please change consistent with the comments on Section A above. Also, it seems unnecessary to repeat conditions from prior permits (e.g., limits for pollutants other than SO₂) that are not being modified in this permit. Please only list those conditions that are changing in this permit action.

Response 16:

The equipment list in Section D.1 has been revised as stated in the Response to Comment 2.

Regarding the repeated conditions, as stated in the Technical Support Document on Page 6, this modification changed the conditions in Section D.1 contained in the PSD Significant Source Modification, Permit No. 063-16628-00037, issued on August 29, 2003. Therefore, the permit includes all Section B and C conditions and those in Section D.1 and no further changes have been made to the proposed permit.

Comments 17 through 20:

Comment 17:

Conditions D.1.1(j) & (k) – The compliance method should list “40 CFR Part 60, Appendix A, Method 9” instead of “326 IAC 5-1-4.”

Comment 18:

Condition D.1.3(a) – To accurately reflect the NSPS, which uses Method 5 to measure compliance, the word “filterable” needs to be added before “particulate matter.”

Comment 19:

Condition D.1.7(c) – This condition does not make sense as written; fugitives by definition are not captured by the roof canopy or any control device. Further, the language connotes zero fugitive emissions, which is inconsistent with the opacity limit applicable to building openings. Please delete the condition.

Comment 20:

Condition D.1.8(c) – The “free of” standard in this condition is impossible to meet, and numerous portions are irrelevant to VOCs (*i.e.*, tin plate, non-metallics, non-ferrous metals). Please delete the second sentence, “All grades of scrap shall . . . grease, and tin plate.”

Response to Comments 17 through 20:

These comments are not specifically related to this revision to the SO₂ PSD BACT determination and should therefore be made as part of the public notice period for the Part 70 Operating Permit, T 063-20969-00037. The Part 70 Permit will be on public notice until March 18, 2007. No changes have been made to the proposed PSD/Significant Source Modification.

Comment 21:

Condition D.1.9 – Repeating the testing requirements that appeared in the prior permit implies that these conditions apply anew, even though initial testing has already been satisfied. Only the periodic retesting is relevant today. In addition, there is no need for SO₂ stack testing in subsections (a) and (h) since a SO₂ CEM is being used. Please modify the condition accordingly.

Response 21:

Even though SDI states that the initial testing required by Condition D.1.9(a) has been completed, IDEM, OAQ has retained this condition for all pollutants, except SO₂, to document the initial testing requirements.

The requirements to perform SO₂ stack testing in Conditions D.1.9(a)(3) and D.1.9(h) have been removed since Condition D.1.10 requires that the Permittee install, calibrate, certify, operate, and maintain a continuous emission monitoring system (CEMS) and related equipment for measuring CO and SO₂ emissions rates in pounds per hour. Therefore, the SO₂ testing requirements in Conditions D.1.9(a)(3) and D.1.9(h) have been deleted as follows:

D.1.9 Testing Requirements [326 IAC 2-7-6(1),(6)] [326 IAC 2-1.1-11] [326 IAC 2-2] [40 CFR 60.275a]
(a) Pursuant to 326 IAC 2-2, and 40 CFR 60.270a (Subpart AAa), within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up of the modified EAF, the Permittee shall perform testing on the common EAF Baghouse/LMS

Baghouse stack for the following:

- (1) Filterable PM,
 - (2) Filterable and condensible PM₁₀,
 - (3) ~~SO₂,~~
 - (3 4) NO_x,
 - (4 5) Lead and
 - (5 6) VOC
- (h) The PM, PM₁₀, ~~SO₂~~, NO_x and Lead tests shall be repeated at least once every 2.5 years from the date of a valid compliance demonstration.

Comment 22:

Conditions D.1.10, D.1.11, & D.1.12 – In (a), the word “install” should be removed from each condition as that requirement has already been fulfilled and is no longer applicable. Subsection (b) should be deleted because it has already been satisfied previously for each CEM.

Response 22:

This comment is not specifically related to this revision to the SO₂ PSD BACT determination and should therefore be made as part of the public notice period for the Part 70 Operating Permit, T 063-20969-00037. The Part 70 Permit will be on public notice until March 18, 2007. No changes have been made to the proposed PSD/Significant Source Modification.

Comment 23:

Conditions D.1.12(d), D.1.14(c), & D.1.15(c) – These conditions refer to a Compliance Response Plan, which is not a requirement in the permit. Please remove those references. Also, if response steps are not taken, such failure is a “deviation” and not a “violation”; please change accordingly.

Response 23:

Conditions D.1.12(d) and D.1.14(c) have been revised to remove references to a Compliance Response Plan and also to state that if response steps are not taken, it is a deviation from the permit and not a violation. Condition D.1.15(c) has been deleted since the EAF baghouse is not single compartment. To address multi-compartment baghouses, Condition D.1.7(e) has been added:

D.1.12 Total Hydrocarbon Continuous Emission Rate Monitoring Requirement

- (d) ~~Unless operated under conditions for which the Compliance Response Plan specifies otherwise, the~~ **The** pound per hour rate of the total hydrocarbons, based on a 3-hour block shall be maintained at or below the maximum concentration established during the latest stack test. ~~The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when the ppm reading is outside of the above mentioned range for any one reading. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records and Reports, shall be considered a violation of this permit. If a condition exists which should result in a response step, the Permittee shall take reasonable response steps in accordance with Section C - Response to Excursions or~~

Exceedances. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances, shall be considered a deviation from this permit.

D.1.14 Maintenance of COM [326 IAC 2-7-5(3)(A)(iii)]

- (c) Whenever a COM is malfunctioning or will be down for calibration, maintenance, or repairs for a period of one (1) hour or more during EAF operation, compliance with the applicable opacity limits shall be demonstrated by the following:
- (1) Visible emission (VE) notations shall be performed once per hour during daylight operations following the shutdown or malfunction of the primary COM. A trained employee shall record whether emissions are normal or abnormal for the state of operation of the EAF at the time of the reading.
 - (A) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.
 - (B) If abnormal emissions are noted during two consecutive emission notations, the Permittee shall begin Method 9 opacity observations within daylight four (4) hours of the second abnormal notation.
 - (C) VE notations may be discontinued once a COM is online or formal Method 9 readings have been implemented.
 - (2) If a COM is not online within twenty-four (24) hours of shutdown or malfunction of the primary COM, the Permittee shall provide certified opacity reader(s), who may be employees of the Permittee or independent contractors, to self-monitor the emissions from the EAF stack.
 - (A) Visible emission readings shall be performed in accordance with 40 CFR 60, Appendix A, Method 9, for a minimum of five (5) consecutive six (6) minute averaging periods beginning not more than twenty-four (24) hours after the start of the malfunction or down time.
 - (B) Method 9 opacity readings shall be repeated for a minimum of five (5) consecutive six (6) minute averaging periods at least once every four (4) hours during daylight operations, until such time that a COM is in operation.
 - (C) Method 9 readings may be discontinued once a COM is online.
 - (3) If abnormal emissions are observed, the Permittee shall take reasonable response steps in accordance with Section C - ~~Compliance Response Plan Preparation, Implementation, Records, and Reports~~ **Response to Excursions or Exceedances**. Observation of abnormal emissions that do not violate an applicable opacity limit is not a deviation from this permit. ~~Failure to take response steps in accordance with Section C - Compliance Response Plan Preparation, Implementation, Records, and Reports, shall be considered a violation of this permit.~~ **Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances, shall be considered a deviation from this permit.**
 - (4) All of the opacity readings during this period shall be reported with the Quarterly Opacity Exceedances Reports.

D.1.15 Bag Leak Detection System (BLDS)

~~(c) In the event that bag failure has been observed:~~

- ~~(1) For multi-compartment units, the affected compartments will be shut down immediately until the failed units have been repaired or replaced. No later than six (6) business hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised no later than six (6) business hours of discovery of the failure and shall include a timetable for completion. Failure to take response steps in accordance with Section C – Compliance Response Plan – Preparation, Implementation, Records and Reports, shall be considered a violation of this permit.~~
- ~~(2) For single-compartment baghouses, failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section C – Emergency Provisions)~~

D.1.7 Particulate Matter Control [326 IAC 2-2] **[326 IAC 2-7-6(6)]**

- (a) Pursuant to 326 IAC 2-2, the EAF Baghouse for particulate control shall be in operation and control emissions at all times that the EAF is in operation.
- (b) Pursuant to 326 IAC 2-2, the LMS Baghouse for particulate control shall be in operation and control emissions at all times that the LMS is in operation.
- (c) Pursuant to 326 IAC 2-2, fugitive emissions generated during EAF operations shall be captured by the roof canopies or contained and collected within the EAF building.
- (d) There shall be no roof monitor in the Meltshop.
- (e) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.**

Comments 24 through Comment 27

Comment 24:

Condition D.1.14(d) – This provision should be changed to require that all of the opacity “exceedances,” rather than “readings,” during this period shall be reported. The report is only for opacity exceedances, so reporting of compliant readings is not required.

Comment 25:

Condition D.1.15(b)(4) & (5) – The installation requirements in these subsections should be deleted.

Comment 26:

Condition D.1.15(c) – To be consistent with agreed-upon language in other IDEM permits, the language in subsection (c)(1) should be changed from “shut down immediately” to “shut down as soon as possible.” Further, subsection (c)(2) should be deleted altogether since the EAF bag-house is not single compartment.

Comment 27:

Condition D.1.19(e) – This provision, which comes directly from Subpart AAa, only applies to filterable particulate testing. Thus, it should be changed to reference “a written report of the results of the filterable particulate matter compliance emission tests.”

Response to Comments 24 through 27:

These comments are not specifically related to this revision to the SO₂ PSD BACT determination and should therefore be made as part of the public notice period for the Part 70 Operating Permit, T 063-20969-00037. The Part 70 Permit will be on public notice until March 18, 2007. No changes have been made to the proposed PSD/Significant Source Modification.

Comment 28:

Emergency Occurrence Form – To make the form consistent with the rule, the word “Report” should be replaced with “Form” and the word “daytime” should be added before “business hours.”

Response 28:

The Emergency Occurrence Report Form has been revised as shown to be consistent with Condition C.13(b)(4 and 5) which refers to the “Report Form” and refers to “daytime” business hours. The revision also specifically replaces the phrase “no later than” with “within” as follows:

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY, COMPLIANCE BRANCH
100 North Senate Avenue
Indianapolis, Indiana 46204-2251**

**PART 70 OPERATING PERMIT
EMERGENCY OCCURRENCE REPORT**

Source Name: ~~Steel Dynamics, Inc. (SDI) - Engineered Bar Products Division~~
Source Location: ~~8000 North County Road 225 East, Pittsboro, Indiana 46167~~

<p><input type="checkbox"/> This is an emergency as defined in 326 IAC 2-7-1(12)</p> <p>The Permittee must notify the Office of Air Quality (OAQ), no later than four (4) business hours (1-800-451-6027 or 317-233-0178, ask for Compliance Section); and</p> <p>The Permittee must submit notice in writing or by facsimile no later than two (2) working days (Facsimile Number: 317-233-6865), and follow the other requirements of 326 IAC 2-7-16.</p> <p>Address: 100 North Senate Avenue, Indianapolis, Indiana 46204-2251</p>

~~_____~~ This Emergency Occurrence Report consists of 2 pages.

If any of the following are not applicable, mark N/A

Facility/Equipment/Operation:
Control Equipment:
Permit Condition or Operation Limitation in Permit:
Description of the Emergency:
Describe the cause of the Emergency:
Date/Time Emergency started:
Date/Time Emergency was corrected:

Page 2 of 2 of the Emergency Occurrence Report

<p>Was the facility being properly operated at the time of the emergency? Y N</p> <p>Describe:</p>
<p>Type of Pollutants Emitted: TSP, PM₁₀, SO₂, VOC, NO_x, CO, Pb, other:</p>
<p>Estimated amount of pollutant(s) emitted during emergency:</p>
<p>Describe the steps taken to mitigate the problem:</p>
<p>Describe the corrective actions/ response steps taken:</p>
<p>Describe the measures taken to reduce emissions:</p>
<p>If applicable, describe the reasons why continued operation of the facilities are necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw materials of substantial economic value:</p>

<p>Form Completed By:</p>
<p>Title/Position:</p>
<p>Date:</p>
<p>Telephone:</p>

A certification by the responsible official as defined by 326 IAC 2-7-1(34) is NOT required for this report.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE BRANCH
100 North Senate Avenue
Indianapolis, Indiana 46204-2251
Phone: 317-233-0178
Fax: 317-233-6865**

**PART 70 OPERATING PERMIT
EMERGENCY OCCURRENCE REPORT FORM**

Source Name: Steel Dynamics, Inc. (SDI) - Engineered Bar Products Division
Source Address: 8000 North County Road 225 East, Pittsboro, Indiana 46167
Mailing Address: 8000 North County Road 225 East, Pittsboro, Indiana 46167

This form consists of 2 pages

Page 1 of 2

<input type="checkbox"/> This is an emergency as defined in 326 IAC 2-7-1(12) C The Permittee must notify the Office of Air Quality (OAQ), within four (4) daytime business hours (1-800-451-6027 or 317-233-0178, ask for Compliance Section); and C The Permittee must submit notice in writing or by facsimile within two (2) working days (Facsimile Number: 317-233-6865), and follow the other requirements of 326 IAC 2-7-16.
--

If any of the following are not applicable, mark N/A

Facility/Equipment/Operation:
Control Equipment:
Permit Condition or Operation Limitation in Permit:
Description of the Emergency:
Describe the cause of the Emergency:

If any of the following are not applicable, mark N/A

Page 2 of 2

Date/Time Emergency started:
Date/Time Emergency was corrected:
Was the facility being properly operated at the time of the emergency? Y N Describe:
Type of Pollutants Emitted: TSP, PM-10, SO ₂ , VOC, NO _x , CO, Pb, other:
Estimated amount of pollutant(s) emitted during emergency:
Describe the steps taken to mitigate the problem:
Describe the corrective actions/response steps taken:
Describe the measures taken to minimize emissions:
If applicable, describe the reasons why continued operation of the facilities are necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw materials of substantial economic value:

Form Completed by: _____
Title / Position: _____
Date: _____
Phone: _____

A certification is not required for this report form.

Comment 29:

Various Conditions – To conserve the parties' resources, any changes agreed upon in the Joint Stipulation for Stay between the parties should be incorporated into this permit.

Response 29:

As a result of the stay agreement jointly stipulated by SDI and IDEM on June 10, 2005, Conditions D.1.13(b), (c), (d) and (e) of Section D.1 were revised as documented in the Technical Support Document and in this proposed permit modification. Therefore, no further changes have been made to the permit as a result of this comment.

Comment 30:

Supercession – All preexisting conditions that are changing as a result of this permit action need to include supercession language below each term. This is particularly true for the emission limitations changes that are being made.

Response 30:

Since Section D.1 of PSD Significant Source Modification, Permit No. 063-16628-00037, issued on August 29, 2003, has been modified by and included in its entirety in this Significant Source Modification, wording has been added to Section D.1 to indicate that Section D.1 of PSD Significant Source Modification, Permit No. 063-16628-00037 has been superceded as follows:

SECTION D.1 FACILITY OPERATION CONDITIONS

Section D.1 of PSD Significant Source Modification, Permit No. 063-16628-00037, issued on August 29, 2003 is superceded by this Section D.1 of PSD/SSM 063-22329-00037.

On January 24, 2007 Ethan Chatfield of U.S. EPA Region V submitted comments on the proposed Significant Source Modification to a Part 70 Operating Permit. The comments are as follows (the permit language, if changed, has deleted language as ~~strikeouts~~ and new language **bolded**):

U.S. EPA Comment 1:

Section D.1/BACT analysis: As described in a 2000 US EPA Environmental Appeals Board (EAB) decision (<http://www.epa.gov/eab/disk11/steeldyn.pdf> - see page 58 of 78), BACT limits should include both an hourly emissions limit and a production limit to assure that the BACT limits are met continuously and at all levels of production. In this decision the EAB agreed that "the permit must prevent situations where control devices may be used less efficiently than intended because production has decreased". We understand that IDEM has determined in the current BACT analysis that are no technically feasible add-on SO₂ emission controls for an EAF, however the EAB also recognized in its decision that the sulfur content of the input material can vary and greatly affect the SO₂ emissions. Therefore, we believe that the source could still potentially decrease production levels to allow the burning of higher sulfur raw materials. We suggest IDEM either add raw sulfur content limits into the permit or add back into the permit production limitations (lb/tons of steel produced) to ensure BACT is met at all levels of production.

U.S. EPA Response 1:

In the EAB opinion referred to above, U.S. EPA supported IDEM's decision not to include an SO₂ production limit in the SDI Whitley County facility's permit, stating that BACT for SO₂ is no control and that compliance with the hourly emissions limit will be demonstrated through annual stack tests and vendor certifications regarding the raw materials fed into the EAF (see page 58 of 78 of

that opinion). According to the opinion, U.S. EPA specifically argued that “[b]ecause controls are not applied to reduce SO₂, production limits [e.g., lb/ton or lb/MMBtu] are not necessary to prevent the source from attempting to meet the hourly limit by reducing production while using a less effective control,” (see footnote 64, on page 58). The EAB agreed with IDEM and U.S. EPA, stating that “[t]he sulfur-related conditions in the permit (i.e., vendor certifications, stack tests) and the fact that BACT for SO₂ is no control alleviate any concerns about SO₂ emissions exceeding the BACT limit at any given rate of production,” (see page 60). Therefore the proposed permit as written is consistent with the EAB opinion cited above.

Further, like the production process at the Whitley County facility, the production of steel at the Hendricks County facility is a batch process, and the SO₂ emissions are not linear. Using calculations based on the actual SO₂ continuous emissions monitoring system (CEMS) and production data, SDI had difficulty demonstrating compliance on a continuous basis with the existing pounds per ton SO₂ limits. Variability in operating schedules, process times, production tonnages, and the applicability of multiple emission limits contributed to SDI’s difficulty in complying with the existing pounds per ton limits on a continuous basis. Therefore, SDI requested that the SO₂ PSD BACT limit be expressed in pounds per hour and not pounds of SO₂ per ton of production.

One (1) major difference between the two (2) facilities is that much of the steel produced at the SDI Bar Products facility is engineered for very specific end products that require steel with a higher sulfur content. To obtain a product that meets its users’ specifications, SDI must actually re-sulfurize (add sulfur to) much of the steel it produces. If the EAF inputs such as injection and charge carbon do not have sufficient sulfur content, SDI must add in more sulfur to the heat for metallurgical specifications. The uniqueness of this process makes limiting sulfur input (sulfur content), as was done at the Whitley County facility, inappropriate in this case, because it will result in an end product that is unusable by SDI’s customers.

In this case, expressing the SO₂ PSD BACT limit in terms of a pound per hour SO₂ limit accounts for the variability of sulfur levels in the molten steel, SO₂ emissions, process times and production levels. The proposed modification does not change the existing steel production limit, and since the existing steel making operations are also not being altered, there should be no increase in actual SO₂ emissions. In addition, this permit contains CEMs requirements for SO₂ emissions, which means that SDI will be monitoring SO₂ emissions at all levels of production.

Therefore, no changes to the permit have been made based upon this comment.

U.S. EPA Comment 2:

Condition D.1.8: Why is the "low sulfur charge carbon" BACT requirement on page 11 of 11 of Appendix B not included as an enforceable condition in the permit?

U.S. EPA Response 2:

Condition D.1.8 of the existing permit has not been revised by this modification and is as follows:

D.1.8 PSD BACT Control and Work Practices [326 IAC 2-2]

Pursuant to 326 IAC 2-2, the Permittee shall comply with the following:

- (a) The EAF shall be equipped and operated with oxy fuel burners.
- (b) The EAF shall be controlled by a direct shell evacuation (DSE) system and canopy hood.
- (c) VOC emissions shall be controlled through an extensive scrap management program. All grades of scrap shall contain no observable non-ferrous metals, or non-metallics, and shall be free of excessive dirt, oil, grease, and tin plate. Heavily oiled scrap shall not be used.

The Permittee shall implement the scrap management plan (SMP) attached to this permit (Attachment A - SMP).

(d) Good working practices shall be observed.

Paragraph (c) of Condition D.1.8 contains the qualitative requirement of low sulfur charge carbon by specifying that the scrap melted shall contain no observable non-ferrous metals, or non-metallics, and shall be free of excessive dirt, oil, grease, and tin plate. Heavily oiled scrap shall not be used.

Therefore there are no revisions due to this comment.

On January 29, 2007, Robert Lake, resident of Pittsboro, submitted comments on the proposed Significant Source Modification to a Part 70 Operating Permit. The comments are as follows (the permit language, if changed, has deleted language as ~~strikeouts~~ and new language **bolded**):

Comment 1:

I do not feel that OAQ has been doing a good job tracking their current operations. Then this application allows them to emit more. I do not feel that this is fair. There is always an orange cloud around this plant. Something should be done about that. OAQ needs to make a monthly check on the emissions at this plant. They should especially check the emissions at night. I am sure that there is something being emitted at night that is greater than the levels during the daytime.

This company should not be given this permit to release more emissions. The company should not be in charge of the monitoring around the plant that determines whether they are making excessive emissions or not.

Response 1:

IDEM generates a schedule that determines when the inspector for Steel Dynamics, Inc. (SDI) - Engineered Bar Products Division will visit the source. Inspector visits are unannounced. The IDEM inspector assigned to this steel mini-mill is Richard Sekula and he is committed to completing at least one (1) full inspection per year. This source was inspected by the IDEM OAQ's Compliance Branch on September 22 and October 1, 2004, April 11, 21, and 25, May 4 and 26, September 1 and November 22, 2005 as well as on January 27, August 11 and December 18, 2006. As evidenced by the twelve (12) inspections conducted by the inspector during the last two (2) years, IDEM, OAQ is routinely monitoring SDI's operations. No violations were determined during any of these inspections.

However, prior to September 2004, inspections conducted on April 7 and June 8, 2004 indicated that the emissions exceeded the opacity limits contained in SDI's permit (063-16628-0037, issued on August 29, 2003). A Notice of Violation was issued in May 2005 which resulted in an agreed order, Case No. 2004-13993-A, which was finalized on May 12, 2006 and resulted in a civil penalty. The Notice of Violation can be viewed on the IDEM website, <http://www.state.in.us/idem/oe/cause/NOV/13993-A.htm> and the Agreed Order can be read at <http://www.state.in.us/idem/oe/cause/AO/13993-A.htm>.

The inspector has never observed an "orange cloud" during any of his inspections. The inspector has observed a large steam (water vapor) plume that is indicative of normal operation. The inspector has stated that the outdoor lighting at this source may have made the steam plume appear to be orange in color at night. Prior to this comment regarding an "orange cloud," neither IDEM, OAQ nor the inspector have received a verbal or written complaint regarding an orange cloud emanating from this source. If an orange plume is seen again, please write down the date

and time to assist IDEM, OAQ with its investigation. Knowing the color of the smoke may assist IDEM in identifying if IDEM needs to modify conditions in a permit. There is not a requirement that an observer never see any smoke at all coming from the stack(s). There are limits on the amount of smoke that can be exhausted.

Mr. Sekula can be contacted at (317) 232-8437 if you suspect that SDI is out of compliance with any of the applicable regulations. There will be enforcement actions if SDI is found to be in violation of any conditions in this Part 70 Significant Source Modification.

In addition, if any member of the public observes fugitive dust crossing the property lines, or any other air pollution issues, please contact the IDEM inspector, Richard Sekula, toll free at (800) 451-6027, ext. 2-8437 or direct dial at (317) 232-8437. Complaints can also be submitted on-line at <http://www.in.gov/idem/contact/complaints/index.html> on IDEM's Complaint Clearinghouse website, by calling IDEM's Complaint Coordinator toll free at (800) 451-6027 ext. 2-4464, or by sending a written complaint to IDEM, Attn: Complaint Coordinator, 100 North Senate Avenue, MC 50-03 IGCN 1313, Indianapolis, Indiana 46204-2251. The IDEM, OAQ Compliance Branch inspector will conduct an inspection of the site within thirty (30) days of receiving a complaint. The inspector prepares a written report of each inspection. Copies of the inspection reports can be obtained by contacting IDEM, OAQ's Compliance Branch at 1-800-452-6027, ext. 3-0178.

The maximum production limit listed in Condition D.1.1 of the proposed permit is not being increased and remains at 1,095,000 tons of steel per year. Condition D.1.19 of the proposed permit requires that Steel Dynamics, Inc. (SDI) - Engineered Bar Products Division submit a quarterly report of the actual amount of steel produced and the specific allocations of the bars, using the Quarterly Production Report, or equivalent so that IDEM, OAQ can determine compliance with the overall steel production limit.

Although the short-term limit on sulfur dioxide emissions is proposed to increase, this increase is not due to any changes in the source's production rate, capacity or operations. The increase reflects an increase in the actual emissions measured by the continuous emissions monitoring system (CEMS) as opposed to those that were theoretically calculated when the process was first permitted. As in the past, the sulfur dioxide emissions are required to be continuously monitored and recorded by CEMS. The CEMS assures that the emissions are monitored regardless of time of day or night or the level of production. Condition D.1.13 of the proposed permit incorporates manual procedures that specifies what the Permittee is required to do if the CEMS is broken. These procedures are as follows:

D.1.13 Maintenance of CEMS [326 IAC 2-7-5(3)(A)(iii)]

- (a) In the event that a breakdown of the CO or SO₂ continuous emission monitoring system (CEMS) occurs, a record shall be made of the times and reasons of the breakdown and efforts made to correct the problem.
- (b) Whenever the CO CEMS is malfunctioning or will be down for calibration, maintenance or repairs for a period of four (4) hours or more, the Permittee shall perform once per shift operational status inspections of the fourth hole duct or direct shell evacuation (DSE) system, the dampers, the damper switches and the outsides of the ductwork and hoods for the presence of holes or flow constrictions caused by dents. Any deficiencies shall be noted and proper maintenance performed. This requirement does not replace the routine monthly inspections of the same equipment.
- (c) Whenever the SO₂ CEMS is malfunctioning or will be down for calibration, maintenance, or repairs for a period of four (4) hours or more, the Permittee shall monitor and record the sulfur content of the charge carbon and injection carbon added to the EAF. Vendor certifications or analyses may be used to verify the sulfur content of the charge carbon and injection carbon.

- (d) Nothing in this permit shall excuse the Permittee from complying with the requirements to operate a continuous emissions monitoring system pursuant to 326 IAC 2-2 and 326 IAC 3-5.

Since the CEMS readings are required to be recorded during daytime and nighttime hours, all exceedances of the hourly limits will be detectable.

The modification submitted will not affect actual emissions at this source.

**Indiana Department of Environmental Management
Office of Air Quality**

Technical Support Document (TSD)
for a Prevention of Significant Deterioration (PSD) and Significant Source Modification

Source Description and Location

Source Name:	Steel Dynamics, Inc. (SDI) - Engineered Bar Products Division
Source Location:	8000 North County Road 225 East, Pittsboro, Indiana 46167
Mailing Address:	8000 North County Road 225 East, Pittsboro, Indiana 46167
General Telephone Number:	317 892-7000
Responsible Official:	Plant Manager
County:	Hendricks
SIC Code:	3312 (Steel Mill)
Source Status:	1 of 28 Listed Source Categories Major Source, under PSD and Emission Offset Rules Minor Source, under Section 112 of the CAA
PSD/SSM Modification:	PSD/SSM 063-22329-00037
Permit Writer:	Frank P. Castelli

SDI owns and operates a steel mini-mill that manufactures different types of steel bars. This source is located at 8000 North County Road 225 East, Pittsboro, Indiana 46167.

Existing Approvals

The Office of Air Quality (OAQ) received an application from SDI for a Part 70 Operating Permit on March 15, 2005. At this time, this application is still under review. The source is operating under the PSD permit No. 063-16628-00037, issued on August 29, 2003. A minor source modification No. 063-22033-00037 was issued December 13, 2005. An administrative Amendment (063-22499-00037) to 063-22033-00037 was issued on February 9, 2006.

County Attainment Status

The source is located in Hendricks County.

County Status	
Pollutant	Status
PM ₁₀	Attainment
PM _{2.5}	Nonattainment
SO ₂	Attainment
NO ₂	Attainment
8-Hour Ozone	Nonattainment
CO	Attainment
Lead	Attainment

(a) 8-Hour Ozone Standard

On August 7, 2006, a temporary emergency rule took effect which revoked the one-hour ozone standard in Indiana. The Indiana Air Pollution Control Board has approved a permanent rule revision to incorporate these changes into 326 IAC 1-4-1. The permanent revision to 326 IAC 1-4-1 will take effect prior to the expiration of the emergency rule. Therefore, only the 8-hour ozone standard is considered in this operating permit.

Volatile organic compounds (VOC) and nitrogen oxides (NO_x) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC and NO_x emissions are considered when evaluating the rule applicability relating to the ozone standards. Hendricks County has been designated as nonattainment for the 8-hour ozone standard. Therefore, VOC and NO_x emissions were reviewed pursuant to the requirements for Emission Offset, 326 IAC 2-3.

(b) PM_{2.5}

U.S. EPA, in the Federal Register Notice 70 FR 943 dated January 5, 2005, has designated Hendricks County as nonattainment for PM_{2.5}. On March 7, 2005 the Indiana Attorney General's Office, on behalf of IDEM, filed a law suit with the Court of Appeals for the District of Columbia Circuit challenging U.S. EPA's designation of nonattainment areas without sufficient data. However, in order to ensure that sources are not potentially liable for a violation of the Clean Air Act, the OAQ is following the U.S. EPA's guidance to regulate PM₁₀ emissions as a surrogate for PM_{2.5} emissions pursuant to the requirements of Emission Offset, 326 IAC 2-3.

(c) Hendricks County has been classified as attainment or unclassifiable in Indiana for the other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

(d) Since this source is classified as a steel mini-mill, it is considered one of the twenty-eight (28) listed source categories, as specified in 326 IAC 2-2-1(gg)(1) and fugitive emissions are counted toward the determination of PSD and Emission Offset applicability.

Source Status

(a)	This existing source is a major stationary source, under Prevention of Significant Deterioration (PSD) (326 IAC 2-2) and Emission Offset (326 IAC 2-3), because at least one (1) regulated pollutant is emitted at a rate of one hundred (100) tons per year or more, and it is one of the twenty-eight (28) listed source categories, as specified in 326 IAC 2-2-1(gg)(1).
-----	--

(b)	This existing source is not a major source of HAPs, as defined in 40 CFR 63.41, because HAPs emissions are less than ten (10) tons per year for a single HAP and less than twenty-five (25) tons per year of a combination of HAPs. Therefore, this source is an area source under Section 112 of the Clean Air Act (CAA).
-----	--

Actual Emissions

The following table shows the actual emissions from the source. This information reflects the 2004 OAQ Emission Inventory data.

Actual Emissions	
Pollutant	tons/year
PM ₁₀	46.10
SO ₂	87.60
VOC	13.40
CO	597.80
NO _x	97.50
Lead	0.1

Description of Proposed Modification

The Office of Air Quality (OAQ) has received an application from SDI on December 1, 2005 for the revision of the existing SO₂ PSD BACT limits by using site-specific actual emissions from the plant since its initial start up of operation.

SDI is requesting to change the existing three (3) different SO₂ PSD BACT limits for the Electric Arc Furnace (EAF) Baghouse/Ladle Metallurgical Station (LMS) Baghouse to a single SO₂ PSD BACT limit. SDI also requested to remove the associated production limitations for the different product series, identified as SBQ (Special Bar Quality) series. The new proposed SO₂ PSD BACT limit is 190 pounds per hour with compliance determined on a twenty-four (24) hour block average basis. A formal PSD BACT analysis regarding the proposed changes is contained in Appendix B.

There will be no change in the maximum capacity of this steel mini-mill.

(a) Single SO₂ PSD BACT Limit

SDI had difficulty in determining emissions corresponding to specific grades of steel bars because the process time for a particular grade of steel bar can range from 60 minutes to several hours depending on refining needs and production delays. It is also common practice to process different grades of steel with different emission limits at the same time. Therefore, SDI is requesting a single SO₂ PSD BACT limit applicable to all grades of steel bar. A single SO₂ PSD BACT limit will simplify compliance determination for SDI, regulatory agencies and the public.

(b) Part per Million (PPM)

Since the production of steel is a batch process, the emissions are not linear. Using calculations based on the actual CEMS and production data, SDI had difficulty demonstrating compliance on a continuous basis with the pound per ton limit. Variability in operating schedules, process times, production tonnages, and the applicability of multiple emission limits contributed to SDI's difficulty in complying with the pound per ton limit on a continuous basis. Therefore, SDI requested that the SO₂ PSD BACT limit be expressed in parts per million (ppm), in addition to the pounds per hour limit.

IDEM, OAQ has determined it is not necessary or prudent to express the SO₂ BACT limitation in parts per million (ppm) because the SO₂ emissions are dependent upon specific air flow rates which can vary with time. A ppm concentration limit is not sufficient by itself to determine the equivalent pound per hour emission rate. Therefore, IDEM, OAQ proposes to express the new BACT SO₂ limit in pounds per hour and pounds per ton rather than in ppm.

(c) SO₂ Emission Calculations

The following tables show the net SO₂ emissions increase due to the revision of the PSD BACT limits:

Potential to Emit Based on the Existing SO ₂ PSD Limits			
Series	Production (tons/yr)	Existing SO ₂ PSD Limit (lbs/ton)	PTE (tons/yr)
Low Sulfur Grade Bar	711,750	0.25	88.97
1100 SBQ	219,000	1.5	164.25
1200 SBQ	164,250	1.8	147.83
Total	1,095,000	- -	401.05

Methodology:

- (1) This PTE is based on the worst-case scenario that the 1100 SBQ and 1200 SBQ series are produced at maximum levels.
- (2) $PTE = (Production\ tons/yr) * (SO_2\ Limit\ lbs/ton) * (1\ ton/2000\ lbs) = tons/yr$

Potential to Emit Based on the New SO ₂ PSD Limit			
Series	Production (tons/yr)	SO ₂ Limit (lbs/hr)	PTE (tons/yr)
Steel Bar	1,095,000	190	832

Methodology:

- (1) The new SO₂ PSD BACT limit is 190 pounds per hour.
- (2) $PTE = (PSD\ BACT\ Limit\ lbs/hr) * (8,760\ hrs/yr) * (1\ ton/2,000\ lbs) = tons/yr$

SO ₂ Net Emission Increase	
Process/Emission Unit	so ₂ (tons/yr)
PTE Based on the New SO ₂ PSD BACT Limit	832.0
PTE Based on the Existing SO ₂ PSD BACT Limits	401.05
Increase in SO ₂ Emissions	430.95

(d) A Review of Existing SO₂ Limitations at Other Steel Mills

Appendix B of this document provides an overview of PSD BACT requirements. A discussion of the SO₂ process formation at SDI is provided. In addition, a review of the feasibility of add-on control technology is presented. The existing SO₂ limitations are tabulated for similar types of sources. The U.S. EPA RACT/BACT/LAER Clearinghouse (RBLC) provided a total of six (6) sources for comparison. None of these sources are identical to SDI. Appendix B presents the rationale and the determination of the revised SO₂ BACT limitations for SDI.

(e) SO₂ PSD BACT Determination for SDI

The conclusion in the PSD BACT determination made in PSD 063-16628-00037 was that there were no feasible add-on control technologies to control the SO₂ emissions from the steel mill meltshop. This conclusion is still valid as shown in Appendix B.

IDEM, OAQ has determined that the SO₂ PSD BACT limitations for SDI should be revised to the following:

- (1) The use of low sulfur charge carbon for low sulfur steels,
- (2) The implementation of a scrap management plan, and
- (3) An SO₂ emission limit of 190 pounds per hour averaged over a 24-hour block period.

Air Quality Analysis

An air quality analysis has been conducted for the new proposed SO₂ emissions limit. The increase in SO₂ emissions will not cause an exceedance in the National Ambient Air Quality Standards (NAAQS) for SO₂. The SO₂ emission increase does not exceed the PSD increment. See Appendix A for the detailed air quality analysis.

Enforcement Issues

There are no pending enforcement actions related to this proposed modification.

Federal Rule Applicability Determination

(a) New Source Performance Standards (NSPS) 40 CFR Part 60 and 326 IAC 12

There are no new NSPS included in this permit for the proposed modification.

(b) National Emission Standards for Hazardous Air Pollutants (NESHAPs) 40 CFR Part 63, 326 IAC 14, and 326 IAC 20

There are no NESHAPs included in this permit for the proposed modification.

(c) Compliance Assurance Monitoring (CAM)

Pursuant to 40 CFR 64.2, CAM is applicable to new or modified emission units that involve a pollutant-specific emission unit and meet the following criteria:

- (1) has a potential to emit before or after controls equal to or greater than the major source threshold for the pollutant involved;
- (2) is subject to an emission limitation or standard for that pollutant; and
- (3) uses a control device, as defined in 40 CFR 64.1, to comply with that emission limitation or standard.

The following table is used to identify the applicability of each of the applicability criteria, under 40 CFR 64.1, to each new emission units involved in the proposed modification:

CAM Applicability							
Emission Unit	Control Device Used	Emission Limitation (Y/N)	Uncontrolled PTE (tons/yr)	Controlled PTE (tons/yr)	Major Source Threshold (tons/yr)	CAM Applicable (Y/N)	Large Unit (Y/N)
EAF/LMS	None for SO ₂	Yes	Greater than 100	Greater than 100	100	No	No

Based on this evaluation, the requirements of 40 CFR Part 64, CAM is not applicable to the EAF and LMS for SO₂ emissions.

State Rule Applicability Determination

There are no new additional state rules that apply due to this proposed modification.

Proposed Changes

The changes listed below have been made to the PSD Significant Source Modification, Permit No. 063-16628-00037 issued on August 29, 2003. Deleted language appears as ~~strikethroughs~~ and new language appears in **bold**:

Change 1:

The source has changed its name from Steel Dynamics, Inc. (SDI) Bar Products Division to Steel Dynamics, Inc. (SDI) - Engineered Bar Products Division. Therefore, the name of the source has been changed throughout the permit.

Change 2:

The batch mode EAF description has been revised in Condition A.2(a) and in Section D.1 as follows:

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

This modification to a stationary source is approved to operate the following:

- (a) One (1) batch mode EAF, with a nominal capacity of 125 tons of steel per hour, utilizing capture system on a fourth hole duct or direct shell evacuation (DSE) system venting to a baghouse (EAF Baghouse) and a canopy hood for overhead roof exhaust. The EAF is equipped with natural gas fired oxy-fuel burners ~~and uses low sulfur charge carbon~~. The EAF Baghouse has a flow rate of 675,000 acf/min.

SECTION D.1 FACILITY OPERATION CONDITIONS

<p>Facility Description [326 IAC 2-7-5(15)]</p> <ul style="list-style-type: none"> (1) One (1) batch mode EAF, with a nominal capacity of 125 tons of steel per hour, utilizing capture system on a fourth hole duct or direct shell evacuation (DSE) system venting to a baghouse (EAF Baghouse) and a canopy hood for overhead roof exhaust. The EAF is equipped with natural gas fired oxy-fuel burners and uses low sulfur charge carbon. The EAF Baghouse has a flow rate of 675,000 acf/min.
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Change 3:

Condition A.3 has been revised to change the description of the source to match that in Condition A.1 as follows:

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

This ~~integrated~~ steel **mini**-mill is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because:

Change 4:

Since this source is located in Hendricks County which is not under the jurisdiction of the Northwest Regional Office, the citation to the Office has been deleted from Condition C.13(b)(4) as follows:

C.13 Emergency Provisions [326 IAC 2-7-16]

(b) An emergency, as defined in 326 IAC 2-7-1(12), constitutes an affirmative defense to an action brought for noncompliance with a technology-based emission limitation if the affirmative defense of an emergency is demonstrated through properly-signed, contemporaneous operating logs or other relevant evidence that describe the following:

(4) For each emergency lasting one (1) hour or more, the Permittee notified IDEM, OAQ ~~and Northwest Regional Office~~ within four (4) daytime business hours after the beginning of the emergency, or after the emergency was discovered or reasonably should have been discovered.

Telephone Number: 1-800-451-6027
(ask for Office of Air Quality, Compliance Section), or
Telephone Number: 317-233-0178 (ask for Compliance Section)
Facsimile Number: 317-233-6865

~~Northwest Regional Office~~
~~Telephone Number: 219-881-6712~~
~~Facsimile Number: 219-881-6745~~

Change 5:

After taking into account the actual SO₂ CEMS data, production rates, product variability, comparison of the new proposed SO₂ PSD BACT limit with similar sources, and the results of the air quality analysis, IDEM, OAQ proposes to revise the SO₂ PSD BACT limit. Based on this determination, Condition D.1.1(b) of the existing PSD permit is revised and Condition D.1.1(d) has been deleted as follows.

D.1.1 EAF and LMS PSD BACT [326 IAC 2-2]

Pursuant to 326 IAC 2-2, the Permittee shall comply with the following BACT requirements:

(a) Steel production shall not exceed a maximum production rate of 1,095,000 tons per **twelve** (12) consecutive month period with compliance demonstrated at the end of each month.

~~(b) Sulfur dioxide (SO₂) emissions from the EAF Baghouse/LMS Baghouse stack shall not exceed the following rates with compliance demonstrated at the end of each month:~~

Table 1	
Series	Production (tons/year)
Low Sulfur Grade Bar	no limitation*
1100 SBQ	219,000
1200 SBQ	164,250

* Low Sulfur Grade Bar has no production restriction because it can be manufactured at any rate as long as the aggregate of the three (3) different product series does not exceed the maximum annual steel production specified in Condition D.1.1(a).

- (b) **The sulfur dioxide (SO₂) emissions from the EAF Baghouse/LMS Baghouse stack shall not exceed 190 pounds per hour averaged over a 24-hour block period.**
- (c) The EAF Baghouse and LMS Baghouse shall exhaust to a common stack.
- ~~(d) Sulfur dioxide (SO₂) emissions from the EAF Baghouse/LMS Baghouse stack shall not exceed the following rates:~~

Table 2		
Series	SO ₂ BACT Limit (lb/ton)	SO ₂ BACT Limit (lb/24-hour period)
Low Sulfur Grade Bar	0.25	750
1100 SBQ	1.5	4500
1200 SBQ	1.8	5400

- ~~(i) If the stack test required under Condition D.1.9 and the SO₂ CEMS show that the SO₂ actual emission rates are lower than the SO₂ limits specified for the 1100 SBQ and 1200 SBQ indicated in Table 2, the IDEM may reopen and modify the permit to re-evaluate and adjust the SO₂ limits.~~
 IDEM will use the authority under IC 13-15-7-2 and 326 IAC 2-7-9 to re-open and revise the SO₂ limits to more closely reflect the actual stack test results and CEMS data.
- ~~(ii) If the stack test required under Condition D.1.9 and the SO₂ CEMS show that the SO₂ actual emission rates are higher than the SO₂ limits specified for the 1100 SBQ and 1200 SBQ indicated in Table 2, the Permittee may apply for a permit modification to modify the permit to re-evaluate and adjust the SO₂ limits.~~
- ~~(iii) IDEM will provide an opportunity for public notice and comment prior to finalizing any permit modification, under the significant permit modification provisions of 326 IAC 2-7-12(d).~~
- ~~(iv) IC 13-15-7-3 (Revocation/Modification of a Permit: Appeal to Board) shall apply to this permit condition.~~

Change 6:

Before the Office of Environmental Adjudication (OEA), SDI appealed Conditions D.1.13(b), (c), (d) and (e) (Maintenance of CEMS) of PSD Permit 063-16628-00037, issued on August 29, 2003. SDI claimed that the conditions failed to clearly explain the inspections that must be performed and under what conditions such inspections must be performed. Several of the identified inspections cannot be conducted without shutting the entire process down. SDI objected to monitoring the sulfur content of the scrap, and calibrating the back up CO and SO₂ CEMS.

As a result of the stay agreement jointly stipulated by SDI and IDEM on June 10, 2005, Conditions D.1.13(b), (c), (d) and (e) have been revised.

D.1.13 Maintenance of CEMS [326 IAC 2-7-5(3)(A)(iii)]

- (a) In the event that a breakdown of the CO or SO₂ continuous emission monitoring system (CEMS) occurs, a record shall be made of the times and reasons of the breakdown and efforts made to correct the problem.
- (b) ~~Whenever the CO CEMS is malfunctioning or will be down for calibration, maintenance, or repairs for a period of four (4) hours or more, the Permittee shall perform once per shift operational status inspections of the equipment that is important to the performance of the DSE, canopy hood and total capture system (i.e., pressure sensors, dampers, and damper switches). This inspection shall include observations of the physical appearance of the equipment (e.g., presence of holes in ductwork or hoods, flow constrictions caused by dents or accumulated dust in ductwork, and fan erosion). Any deficiencies shall be noted and proper maintenance performed. This requirement does not replace the routine monthly inspections of the same equipment.~~

Whenever the CO CEMS is malfunctioning or will be down for calibration, maintenance or repairs for a period of four (4) hours or more, the Permittee shall perform once per shift operational status inspections of the fourth hole duct or direct shell evacuation (DSE) system, the dampers, the damper switches and the outsides of the ductwork and hoods for the presence of holes or flow constrictions caused by dents. Any deficiencies shall be noted and proper maintenance performed. This requirement does not replace the routine monthly inspections of the same equipment.

- (c) ~~Whenever the SO₂-CEMS is malfunctioning or will be down for calibration, maintenance, or repairs for a period of four (4) hours or more, the Permittee shall monitor the sulfur content of the scrap, charge carbon and injection carbon added to the EAF. Vendor certifications or analyses shall verify the sulfur content of raw materials.~~

Whenever the SO₂ CEMS is malfunctioning or will be down for calibration, maintenance, or repairs for a period of four (4) hours or more, the Permittee shall monitor and record the sulfur content of the charge carbon and injection carbon added to the EAF. Vendor certifications or analyses may be used to verify the sulfur content of the charge carbon and injection carbon.

- (d) ~~A calibrated backup CO or SO₂ CEMS shall be brought online no later than seventy two (72) hours of shutdown of the primary CEMS, and shall be operated until such time as the primary CEMS is back in operation.~~

Nothing in this permit shall excuse the Permittee from complying with the requirements to operate a continuous emissions monitoring system pursuant to 326 IAC 2-2 and 326 IAC 3-5.

- ~~(e) Nothing in this permit shall excuse the Permittee from complying with the requirements to operate a continuous emission monitoring system pursuant to 326 IAC 2-2 and 40 CFR 60, Subpart Aa.~~

Conclusion and Recommendation

- (a) The construction and operation of this proposed modification shall be subject to the conditions of the attached proposed PSD/SSM Modification No. **063-22329-00037**. The staff recommends to the IDEM Commissioner that this PSD Modification be approved.
- (b) Unless otherwise stated, information used in this review was derived from the application received by the Office of Air Quality (OAQ) on December 1, 2005.
- (c) Copies of the application and findings have been provided to the Brownsburg Public Library, 4 South Jefferson Street, Brownsburg, IN 46112.
- (d) A copy of the findings is also available on the Internet at www.in.gov/idem/permits/air/pending.html.

IDEM Contact

Questions regarding this proposed permit can be directed to Frank P. Castelli at the Indiana Department Environmental Management, Office of Air Quality, 100 North Senate Avenue, Indianapolis, Indiana 46204 or by telephone at (800) 451-6027, ask for extension (631) 691-3395 or dial directly: (631) 691-3395, ext. 13.

For additional information about air permits and how the public can participate, see IDEM's Guide for Citizen Participation and Permit Guide on the Internet at: www.in.gov/idem/permits/guide/.

**Indiana Department of Environmental Management
Office of Air Quality**

**Appendix B
BEST AVAILABLE CONTROL TECHNOLOGY ASSESSMENT**

Technical Support Document (TSD)
for a Prevention of Significant Deterioration (PSD) and Significant Source Modification

Source Description and Location
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Source Name:	Steel Dynamics, Inc. (SDI) - Engineered Bar Products Division
Source Location:	8000 North County Road 225 East, Pittsboro, Indiana 46167
Mailing Address:	8000 North County Road 225 East, Pittsboro, Indiana 46167
General Telephone Number:	317 892-7000
Responsible Official:	Plant Manager
County:	Hendricks
SIC Code:	3312 (Steel Mill)
Source Status:	1 of 28 Listed Source Categories Major Source, under PSD and Emission Offset Rules Minor Source, under Section 112 of the CAA
PSD/SSM Modification:	PSD/SSM 063-22329-00037
Permit Writer:	Frank P. Castelli

1. PSD BACT Overview

The Prevention of Significant Deterioration (PSD) Program requires a best available control technology (BACT) review to be performed in order to assess whether the requested changes in the existing BACT limits will still satisfy the requirements of BACT. BACT is an emission limitation based on the maximum degree of reduction of each pollutant that is subject to the PSD requirements. In accordance with the *“Top-Down” Best Available Control Technology Guidance Document* outlined in the 1990 draft U.S. EPA *New Source Review Workshop Manual*, this BACT analysis takes into account the energy, environmental, and economic impacts on the source. These considerations may be determined through the application of available control techniques, process design, work practices, and operational limitations. Such considerations are necessary to demonstrate that the emissions remaining after application of BACT will not cause or contribute to air pollution, thereby protecting public health and the environment.

All BACT analyses are conducted according to the guidelines set forth by the U.S. EPA's *New Source Review Workshop Manual* and *“Top-Down” Best Available Control Technology Guidance Document*. According to these guidance documents, the determination of BACT is dependent on both the technology and the limitation. These guidance documents also specify a five-step process to make these determinations.

- - The first step is to identify all control technologies.
- - The second step is to eliminate technically infeasible options.
- - The third step is to rank the remaining control technologies by effectiveness.
- - The fourth step is to evaluate the most effective controls and document results.
- - The last step is to select the BACT control and limit.

The current PSD BACT limitations for sulfur dioxide at SDI are inappropriate to assure compliance at all levels of their operation during the manufacturing of SBQ and re-sulfurized grades of steel. Therefore, SDI requested a revision to their present PSD BACT SO₂ limitations.

The following BACT determinations are based on information obtained from the application submitted by Steel Dynamics, Inc. (SDI) - Engineered Bar Products Division on December 1, 2005, additional documentation provided on July 24 and October 13, 2006 and the EPA RACT/BACT/LAER (RBLC) Clearinghouse. The RBLC is a database system that provides emission limit data for industrial processes throughout the United States.

2. SULFUR DIOXIDE FORMATION AT SDI

Sulfur is contained in trace amounts in several elements used to produce steel, including the scrap to be recycled, charge carbon, injection carbon, and in bulk and wire strands used to adjust sulfur levels to meet customer specifications. Sulfur in these materials becomes part of the liquid steel during the melting process. Some bar steel grades require the addition of sulfur for metallurgical reasons, while others require the removal of residual sulfur down to very low concentrations.

As part of this application, IDEM, OAQ has reviewed the following possible control methods for feasibility:

- Lower-Sulfur Charge Carbon Substitution
- Scrap Management
- Flue Gas Desulfurization (FGD)
 - Wet Scrubbing
 - Spray Dryer Absorption
 - Dry Sorbent Injection

3. CONTROL TECHNOLOGIES AND FEASIBILITY

A. LOW SULFUR CHARGE CARBON SUBSTITUTION

The use of low sulfur charge carbon is feasible. SDI currently uses low sulfur charge carbon. However, for those bar steel grades that require higher sulfur content for metallurgical reasons, low sulfur charge carbon necessitates the addition of relatively more bulk sulfur or wire strands.

B. SCRAP MANAGEMENT

The use of quality scrap management is feasible. This relates specifically to not melting scrap that contains excessive amounts of:

- oils or grease; and
- fuels, or other liquid or gaseous chemicals.

SDI currently implements a scrap management plan.

C. FLUE GAS DESULFURIZATION (FGD)

1. WET SCRUBBING

- Calcium-, sodium- and ammonium-based sorbents have been used in a slurry mixture, which is injected into a specially designed vessel to react with the SO₂ in the flue gas. The preferred sorbent in operating wet scrubbers is limestone followed by lime.
- There are several inherent limitations that would make it ineffective for use on an EAF or LMS, including:
 - Variability of SO₂ concentrations.
 - Variability of gas flow and temperature.
 - Inability to obtain manufacturer performance guarantees based on the above issues.
 - Relatively low SO₂ concentrations (typically 5 to 20 ppmv) and very large air flow volumes (675,000 acfm).
 - Waste disposal issues.
 - Removal of SO₂ would need to occur before the flue gas is filtered by the baghouse. Moisture from a wet scrubber would create an unacceptable pressure drop across the baghouse and also result in caking of particulate on the fabric filters and in the dust handling system.

Due to the above limitations, this technology is not considered technically feasible.

2. SPRAY DRYER ABSORPTION

- Involves the injection of fine droplets of sodium carbonate or slaked lime into the gas stream.
- There are several inherent limitations that make it ineffective for use on an EAF or LMS, including:
 - Relatively low SO₂ concentrations (typically 5 to 20 ppmv) and very large air flow volumes (675,000 acfm) resulting in little opportunity for the droplets to react with SO₂. Outlet concentrations typically found with these systems are higher than the proposed inlet concentration for this application.
 - Variability of SO₂ concentrations.
 - Low temperature of outlet gas if applied after the baghouse, and extreme particulate loading interference if applied before the baghouse.
 - Waste disposal issues if applied before the baghouse (commingling with K061 hazardous waste when it exits the silo).
 - Inability to obtain manufacturer performance guarantees based on the above issues.

Due to the above limitations, this technology is not considered technically feasible.

3. DRY SORBENT INJECTION

- Involves spraying a dry material (e.g., lime) into the gas stream.
- There are several inherent limitations that would make it ineffective in this application, including:
 - Relatively low SO₂ concentrations (typically <10 ppmv) and large air flow volumes (675,000 acfm) resulting in little opportunity for the droplets to react with SO₂. The outlet concentrations from processes where this technology is applied are typically significantly greater than the inlet concentrations for this application.
 - Variability of SO₂ concentrations would create significant metering, recording and conveying issues.
 - Inability to obtain manufacturer performance guarantees based on the above issues.

Due to the above limitations, this technology is not considered technically feasible.

In addition to the technical limitations, there are physical limitations that make each of the technologies described above impractical for this application, including:

- The potential for increased moisture, scaling and deposits of material in the ductwork and fabric filter collector media increasing wear and tear, and shortening bag life.
- Adding materials into the gas stream would increase the amount of particulate matter generated, and thus, by default, the amount of material regulated as K061 electric arc furnace dust (a hazardous waste).

4. **SO₂ Existing BACT Emission Limitations (Top-Down BACT)**

A review of U.S. EPA's RACT/BACT/LAER Clearinghouse (RBLC) identifies several non-SBQ (special bar quality) steel mills with emission limits. A comparison of emission limits between SDI and the other SBQ mills is not straightforward. The SO₂ limits for the other mills were established to make the PSD rules not applicable and, in many cases, lack meaningful compliance verification. Of those steel mills listed in the RBLC, none have add on control devices to control SO₂ emissions from EAFs.

There are few directly comparable SBQ mills listed in the RBLC. Even those listed cannot be directly compared because there can be substantial product differences between bar mills; difference in physical configuration, and because monitoring is far less frequent at other mills. U.S. EPA's New Source Review guidance clearly stipulates that BACT shall be based on emission rates that are achievable in practice. Actual site-specific SO₂ data collected on a continuous basis is available for SDI and serves as the single best determinant of the past and projected emission rates that are and will be achievable in practice.

Specifically, SO₂ emission limitations were examined for the following sources:

- (a) Nucor Steel, Jewett Plant in Texas
- (b) Quanex Corporation, MacSteel Division in Fort Smith, Arkansas
- (c) Quanex Corporation, MacSteel Division in Jackson, Michigan

- (d) Republic Technologies International, EAF Nos. 7 and 9 and LMF, in Canton, Ohio
- (e) The Timken Company, Faircrest Plant, in Canton, Ohio
- (f) The Timken Company, Harrison Plant, EAF Nos. 2 and 9, in Harrison, Ohio

The following table contrasts the SO₂ emission limitations for these identified sources with the current and proposed SO₂ BACT limitations for SDI.

Existing Bar Steel Mini-Mills			
Source	Permit/Issuance Date	Capacity (tons/hr)	SO₂ PSD BACT Limits and Compliance Methods
Nucor, Jewett Plant - Texas	PSD-1029 January 5, 2003	240	421.68 pounds per hour (equivalent to 1.76 pounds per ton) 1,132.09 tons per year
Quanex Corp - MacSteel Div. Arkansas	693-AOP-RO February 18, 1998	86	90.3 pounds per hour, 3-hour rolling averages (equivalent to 1.05 pounds per ton) 331.6 tons per year Compliance is by the use of SO ₂ CEMS.
Quanex Corp.- MacSteel Div. Michigan	PSD/BACT 535-96G December 8, 2003	640 tons per rolling 8 hours	1.0 pound per ton (24 hour) and 280 tons per year (12-month rolling)
Republic Technologies Int'l - Ohio Electric Arc Furnace No. 7	15-01314 January 27, 1999	85 tons per hour	5.95 pounds per hour and 26.1 tons per year
Republic Technologies Int'l - Ohio Electric Arc Furnace No. 9	15-01314 January 27, 1999	165 tons per hour	11.55 pounds per hour and 50.6 tons per year
Republic Technologies Int'l - Ohio LMF	15-01314 January 27, 1999	not identified	525 pounds per 3-hour period 1748 pounds per day and 318.84 tons per year
The Timken Company - (Faircrest) Ohio EAF	PTI 15-01339 February 20, 2003	200 tons per hour	0.15 pounds per ton and 30.0 pounds per hour
The Timken Company - (Harrison) Ohio EAF #2 and #9		130 tons per hour	244.68 pounds per hour (1.88 pounds per ton)

Existing Bar Steel Mini-Mills			
Source	Permit/Issuance Date	Capacity (tons/hr)	SO ₂ PSD BACT Limits and Compliance Methods
SDI - Indiana	Existing PSD 063-16628-00037 August 29, 2003 and a stay agreement	125	1200 SBQ: 1.8 pounds of SO ₂ per ton 5,400 pounds of SO ₂ per 24-hour 164,250 tons of steel per year 1100 SBQ: 1.5 pounds of SO ₂ per ton 4,500 pounds of SO ₂ per 24-hour 219,000 tons of steel per year Low Sulfur Bar: 0.25 pound of SO ₂ per ton 750 pounds per 24-hour 1,095,000 tons per year throughput Scrap Management Plan (SMP) Compliance is by the use of SO ₂ CEMS.
	Proposed PSD 063-22329-00037	125	190 pounds per hour, averaged over a 24-hour period 1,095,000 tons per year throughput Scrap Management Plan (SMP) Compliance is by the use of SO₂ CEMS

Source	Comparison of Sources to SDI
Nucor - Texas	This source manufactures hot rolled carbon steel products. This source is a bar mill that does not produce SBQ or resulfurized grades. The SO ₂ limitations are higher than the proposed SDI limitation for non-resulfurized grades.
Quanex - Arkansas	<p>This source has the capability to produce similar products.</p> <p>The description in Quanex's Title V permit (693-AOP-R7) indicates a combined capacity of 92 tons per hour for two furnaces, each with a diameter of 15 feet. SDI-Pittsboro operates one, 21-foot diameter furnace with a nominal capacity of 125 tons per hour. There are significant capacity and physical size differences between the furnaces. The physical dimensions of an EAF dictate the amount and method of scrap charging and melting, all of which could account for emissions differences. Quanex's operational cycle of 90 minutes also indicates some differences in the furnace capabilities and production practices.</p> <p>Quanex operates its furnace under positive pressure and the side draft system is the only method of control for the electrodes and other furnace roof penetrations. SDI-Pittsboro controls such secondary emissions from the furnace with a large overhead roof exhaust system that leads as well to the SO₂ CEMS. SDI-Pittsboro's furnace operates under negative pressure, which should result in more efficient primary emissions capture and potentially higher monitored emissions than that described at Quanex.</p>

Source	Comparison of Sources to SDI
Quanex - Michigan	This source does not appear to produce re-sulfurized grades of steel bar products. The manufacturing requirements are significantly different for their products than those requirements used at SDI. A company that does not need to add sulfur to meet product specifications is not comparable for BACT purposes.
Republic Technologies Int'l - Ohio Electric Arc Furnace No. 7	Modification pending to increase to 183.3 TPH. TV SO ₂ SIP limit is 0.07 lbs/tons. The LMF vents to a separate baghouse and will have an additional limit of 0.96 lbs of SO ₂ /ton based on the 183.3 TPH capacity. The higher limit for this LMF indicates that unlike SDI, Republic Technologies International does not have the same sulfur addition demands at the EAF. This source utilizes compliance stack testing and record keeping rather than CEMS. The lack of CEMS is critical. Given significant differences in the meltshop practices and methodologies used to determine compliance, this source should not be used.
Republic Technologies Int'l - Ohio Electric Arc Furnace No. 9	See discussion on EAF No. 7 above, SO ₂ limitation of 0.07 lbs/ton and PTE of 50.6 TPY
Republic Technologies Int'l - Ohio LMF	See discussion on EAF No. 7 above, SO ₂ limitation of 1,748 lbs/day, 318.84 TPY
The Timken Company - (Faircrest Plant) Ohio EAF	This source (Faircrest Plant) does not produce re-sulfurized grades. Therefore, a comparison with SDI is not valid.
The Timken Company - (Harrison) Ohio EAF #2 and #9	Harrison Plant has an SO ₂ limit higher than SDI's for non-resulfurized heats. Compliance is based on a combined limit that applies to each baghouse separately. No CEMS. No separate stack test for each EAF. Baghouse #4 SO ₂ limitation is 709.02 lbs/hr (5.45 lbs/ton) for the EAF, LMF and ladle refiner. Baghouse #5 SO ₂ limitation is 607.08 lbs/hr (4.67 lbs/ton) for the EAF, and tundish preheater. Therefore, the SO ₂ emission limits for non-resulfurized grades of steel bar products are all higher than SDI's with resulfurized grades of steel bar products.

5. Proposed SO₂ BACT Limitation for SDI, Inc. – Engineered Bar Products

The following summarizes the factors used in evaluating the SO₂ PSD BACT limit revision:

(a) Actual SO₂ Continuous Emission Monitoring Systems (CEMS) Data

As indicated in the existing permit, SDI may request to change the SO₂ PSD BACT limits once sufficient data (SO₂ CEMS and calculations) can be used to re-evaluate the existing SO₂ PSD BACT limits. The new SO₂ PSD BACT limit will reflect the emissions levels that are achievable in practice using the site-specific SO₂ CEMS. SDI started operation on March 21, 2004.

SO₂ CEMS data used in the evaluation were initially from March 21, 2004 through September 30, 2005. During this period, data were available for 12,964 hours out of 13,392 total operating hours (96.8%), excluding the downtime for calibrations, audits and maintenance of the plant. IDEM, OAQ has determined that the 2004 CEMS data were collected during the time the mill was still ramping up operations. Therefore, the 2004 CEMS data are not representative of normal operations and have not been evaluated. The 2005 CEMS data were evaluated and presented for comparison with the most recently available, uncertified, CEMS data from January 1 through June 30, 2006. IDEM,

OAQ has determined that since SDI has steadily diversified its bar product line, the more recent 2006 CEMS data are considered more representative of actual operations.

(1) Pounds per Hour

IDEM, OAQ evaluated the recorded SO₂ CEMS readings from 2005 and the 1st half of 2006. Without taking into account the product, the SO₂ CEMS readings were analyzed to determine, based on a 24-hour period, the distribution of the number of times readings in ten (10) pound per hour categories had occurred. A summary of SO₂ CEMS readings follows:

CEMs Readings (pounds per hour)	24-Hour Period			
	Jan. 1 - Dec. 31, 2005		Jan. 1 - June 30, 2006	
	Number of Occurrences	Percent (%)	Number of Occurrences	Percent (%)
190 and Greater	1	0.3	0	0.0
180 - 189	1	0.3	2	1.1
170 - 179	0	0.0	0	0.0
160 - 169	1	0.3	1	0.6
150 - 159	0	0.0	3	1.7
140 - 149	2	0.6	1	0.6
130 - 139	2	0.6	6	3.4
120 - 129	1	0.3	6	3.4
110 - 119	5	1.4	5	2.9
100 - 109	7	2.0	15	8.6
90 - 99	17	4.9	21	12.1
80 - 89	21	6.0	22	12.6
70 - 79	37	10.6	38	21.8
60 - 69	54	15.5	25	14.4
50 - 59	56	16.1	20	11.5
40 - 49	56	16.1	6	3.4
30 - 39	55	15.8	1	0.6
20 - 29	22	6.3	0	0.0
10 - 19	5	1.4	2	1.1
Less Than 10	5	1.4	0	0.0

For 2005, the SO₂ CEM data showed that 99% of the 24-hour averaged readings were less than one hundred fifty (150) pounds per hour. However during the first six (6) months of 2006, approximately 3.4% of the CEMS 24-hour averaged readings exceeded 150 pounds per hour.

During January through June 2006, the top 6 occurrences above 150 pounds per hours were 185.8, 183.0, 160.2, 158.9, 158.8 and 155.5 pounds per hour. Therefore, all of the 24-hour periods during the first six (6) months of 2006 would comply with the proposed 190 pounds per hour SO₂ emission limit.

In 2005, the highest 24-hour block average value occurred on April 26 and was 223.2 pounds per hour, equivalent to 4.72 pounds of SO₂ per ton of steel produced. In 2006, the highest 24-hour block average value occurred on May 4 and was 185.8 pounds per hour, equivalent to 2.91 pounds of SO₂ per ton of steel produced.

(2) Pounds per Ton

IDEM, OAQ also evaluated the recorded SO₂ CEMS readings from 2005 and the 1st half of 2006 with the actual production rates to determine the emission rate in pounds of SO₂ per ton of steel produced. A summary of 24-hour block values, in pounds of SO₂ per ton of steel produced, for January 1 through December 31, 2005 as well as January 1 through June 30, 2006 are presented in the following table:

SO ₂ Emission Rate (lbs/ton)	24- Hour Block Periods			
	Jan. 1 – Dec. 31, 2005		Jan. 1 – June 30, 2006	
	Number of Occurrences	Percent (%)	Number of Occurrences	Percent (%)
Greater 3.00	10	2.9	4	2.3
2.51 – 3.00	9	2.7	4	2.3
2.01 – 2.50	12	3.5	8	4.7
1.91 – 2.00	9	2.7	5	2.9
1.81 – 1.90	10	2.9	3	1.7
1.71 – 1.80	9	2.7	1	0.6
1.61 – 1.70	15	4.4	4	2.3
1.53 – 1.60	15	4.4	6	3.5
1.41 – 1.52	15	4.4	11	6.4
1.31 – 1.40	24	7.1	13	7.6
1.22 – 1.30	20	5.9	19	11.0
1.01 – 1.21	69	20.4	29	16.9
0.76 – 1.00	63	18.6	46	26.7
0.51 – 0.75	46	13.6	19	11.0
0.26 – 0.50	10	2.9	0	0.0
0.00 – 0.25	3	0.9	0	0.0

For 2005, the SO₂ emission rates showed that 26.3% (89/339) of the 24-hour block pound per ton averages were greater than 1.52 pounds per ton. During the first six (6) months of 2006, approximately 20.3% (35/172) of the 24-hour block pound per ton averages were greater than 1.52 pounds per ton.

In 2005, the highest 24-hour block average value was 11.96 pounds of SO₂ per ton of steel produced, equivalent to 60.5 pounds per hour. In 2006, the highest 24-hour block average value was 12.43 pounds of SO₂ per ton of steel produced, equivalent to 47.6 pounds per hour.

SDI conducted an assessment of their steel making process for steel bars, operational practices, and raw material. The data showed a significant variability and difference in the SO₂ emissions between the SBQ product series (1100 SBQ and 1200 SBQ) and non-SBQ grades (Low Sulfur Grade Bar). The variability generally occurred during the production of the low sulfur grade bars, which refers to the low amount of sulfur retained in the steel after refinement. This means that much of the sulfur has to be removed from the molten steel to meet the low sulfur content specifications of the end product. The removal of sulfur from the molten steel in order to meet customer's product specifications contributes to the increase in SO₂ emissions.

The following table summarizes the relationship of the emission rate (pounds per ton) and the actual steel production. These data are from January 1, 2006 to June 30, 2006. This time period was selected because it is representative of the mill's current production levels to date, and it also includes data from the production of many steel grades that the mill did not produce prior to 2006.

Actual Pounds per Ton Emission Rate	
Total SO ₂ Emissions	338,745.1 pounds
Total Steel Produced	280,799 tons
SO ₂ Emission Rate	1.21 pounds per ton

Since the production of steel is a batch process, the emissions are not linear. Using calculations based on the actual CEMS and production data, SDI had difficulty demonstrating compliance on a continuous basis with the pound per ton limit. Variability in operating schedules, process times, production tonnages, and the applicability of multiple emission limits contributed to SDI's difficulty in complying with the pounds per ton limits on a continuous basis. Therefore, SDI is requesting that the SO₂ PSD BACT limit be expressed in pounds per hour.

Removing the pound per ton SO₂ PSD BACT limits and expressing the SO₂ PSD BACT limit in terms of a pound per hour SO₂ limit accounts for the variability of sulfur levels in the molten steel, SO₂ emissions, process times and production levels at SDI.

After taking into account the SO₂ CEMS site specific emissions currently available and incorporating a reasonable safety margin that recognizes emission rates that are above the average and to assure compliance at all levels of operation, IDEM, OAQ proposes a new SO₂ PSD BACT limit of 190 pounds per hour. At a maximum production rate of 125 tons of steel per hour, 190 pounds of SO₂ per hour is equivalent to 1.52 pounds per ton. This proposed PSD BACT emission limit of 190 pounds per hour, equivalent to 1.52 pounds per ton, is 25.6% above the average of 1.21 pounds of SO₂ per ton of steel. There will be no change in the 24-hour compliance period originally indicated in the permit.

(b) Assessment of RBLC Information

Based on the preceding RBLC information, IDEM, OAQ concludes that all generally accepted add-on control devices for SO₂ have been determined to be technically infeasible for steel bar products.

Since SDI has provided documentation that the current SO₂ limit applied is inappropriate to assure compliance at all levels of operation during the manufacturing of SBQ and resulfurized grades of steel, the BACT limit must be achievable in practice in order to be valid.

A review of the facilities/sources described above from the RBLC leads IDEM, OAQ to conclude that Nucor Jewett Plant in Texas does not produce SBQ or resulfurized grades of steel bar and therefore has not been used to set the PSD BACT SO₂ determination. The Quanex Plant in Arkansas produces similar products, but the meltshop layout and processes are not identical. Hence, the lower equivalent pound per ton SO₂ emission limit may be an artifact of the actual layout and processes utilized at the Quanex Arkansas plant. Therefore, the Quanex Plant in Arkansas CEMS data are not representative of SDI's operation as are the actual SDI CEMS emission data.

The Quanex plant in Michigan source falls in the same category as the Nucor - Texas source and does not produce resulfurized grades of steel bar products. Therefore, the emission limitations for this source have not been used to set the PSD BACT SO₂ determination for SDI. The Republic Technologies International - Ohio facilities have a higher SO₂ limit for their LMF compared to their EAFs. This higher limit for the LMF indicates that unlike SDI, Republic Technologies International does not have the same sulfur addition demands at the EAF. In addition, this source utilizes compliance stack testing and record keeping rather than CEMS. Therefore, these facilities are not similar to SDI and have not been used to determine SDI's BACT limitation.

The Timken Faircrest plant does not produce resulfurized grades of steel bar products and therefore, has also not been utilized in the assessment of the revised SO₂ PSD BACT limitation for SDI. The Timken Harrison Plant has higher SO₂ emission limitations for nonresulfurized grades of steel bar products and therefore is not relevant to the SO₂ PSD BACT determination for SDI which produces resulfurized grades of steel bar products.

(c) BACT Determination

IDEM, OAQ therefore concludes that the actual site-specific SO₂ data collected by SDI on a continuous basis serves as the single best determinant of the past and projected emission rates that are and will be achievable in practice.

Therefore, IDEM, OAQ has determined that the PSD SO₂ BACT is as follows:

- (1) The use of low sulfur charge carbon for low sulfur steels,
- (2) The implementation of a scrap management plan, and
- (3) An SO₂ emission limit of 190 pounds per hour averaged over a 24-hour block period.

Compliance shall be determined by the use of an SO₂ CEMS.

**Indiana Department of Environmental Management
Office of Air Quality**

Appendix A - Air Quality Analysis
Technical Support Document (TSD)
for a Prevention of Significant Deterioration (PSD) Modification

Source Description and Location
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Source Name:	Steel Dynamics, Inc. (SDI) - Engineered Bar Products Division
Source Location:	8000 North County Road 225 East, Pittsboro, IN 46167
Mailing Address:	8000 North County Road 225 East, Pittsboro, IN 46167
General Telephone Number:	317/892-7000
Responsible Official:	Plant Manager
County:	Hendricks
SIC Code:	3312 (Steel Mill)
Source Status:	1 of 28 Listed Source Categories Major Source, under PSD and Emission Offset Rules Minor Source, under Section 112 of the CAA
PSD Modification:	063-22329-00037
Air Modeler:	Michael Mosier

Proposed Project

Steel Dynamics, Inc. (SDI) has submitted a request for a revision of their sulfur dioxide (SO₂) emission limits. SDI manufactures steel bar products at their Pittsboro, Indiana location.

Keramida Environmental, Inc. prepared the permit application for SDI. The Modeling Section in the Office of Air Quality (QAQ) received the permit application in December 1, 2005.

This technical support document provides the air quality analysis review of the permit application.

Analysis Summary

Based on the potential emissions after controls, a PSD air quality analysis was triggered for SO₂. The significant impact analysis determined that modeling concentrations for SO₂ exceeded the significant impact levels.

A refined analysis was required and showed no violation of the NAAQS and the PSD increment. The pre- and post-construction monitoring requirements are not necessary.

A Hazardous Air Pollutant (HAP) analysis was not performed since there was no HAP emissions increase. An additional impact analysis was conducted and showed no significant impact.

Based on the modeling results, the facility will not have a significant impact upon the federal air quality standards.

Air Quality Impact Objectives

The purpose of the air quality impact analysis in the permit application is to accomplish the following objectives. Each objective is individually addressed in this document in each section outlined below:

- Section A Establish which pollutants require an air quality analysis based on PSD significant emission rates.
- Section B Provide analyses of actual stack heights with respect to Good Engineering Practice (GEP), the meteorological data used, a description of the model used in the analysis, and the receptor grid utilized for the analyses.
- Section C Determine the significant impact level, the area impacted by the facility's emissions and background air quality levels.
- Section D Demonstrate that the facility will not cause or contribute to a violation of the National Ambient Air Quality Standard (NAAQS) or PSD increment if the applicant exceeds significant impact levels.
- Section E Perform a qualitative analysis of the facility's impact on general growth, soils, vegetation and visibility in the impact area with emphasis on any Class I areas. The nearest Class I area is Kentucky's Mammoth Cave National Park.
- Section F Summarize the Air Quality Analysis.

Section A - Pollutants Analyzed for Air Quality Impact

(1) Applicability

The PSD requirements, 326 IAC 2-2, apply in attainment and unclassifiable areas and require an air quality impact analysis of each regulated pollutant emitted in significant amounts by a major stationary source or modification. Significant emission levels for each pollutant are defined in 326 IAC 2-2-1.

(2) Proposed Project Emissions

SO₂ is the pollutant that will be emitted from the revision of SDI's emission limits. An air quality analysis is required for this pollutant because it exceeds the significant emission rate as shown in Table 1 - Significant Emission Rates for PSD.

TABLE 1 - Significant Emission Rates for PSD			
Pollutant	Facility Emission Rate	Significant Emission Rate	Preliminary AQ Analysis Required
	(tons/year)	(tons/year)	
SO ₂	431	40.0	Yes

Modeled emission rates were taken from Table 5-1, page 21 of the permit application submitted by SDI.

Section B – Good Engineering Practice (GEP), Meteorological Data, Model Used, Receptor Grid

(1) Applicability

Stacks should comply with GEP requirements established in 326 IAC 1-7-4. If stacks are lower than GEP, excessive ambient concentrations due to aerodynamic downwash may occur. Dispersion modeling credit for stacks taller than 65 meters (213 feet) are limited to GEP for the purpose of establishing emission limitations. The GEP stack height takes into account the distance and dimensions of nearby structures, which would affect the downwind wake of the stack. The downwind wake is considered to extend five times the lesser of the structure's height or width. A GEP stack height is determined for each nearby structure by the following formula:

$$H_g = H + 1.5L$$

Where: H_g = GEP stack height
 H = structure height
 L = structure's lesser dimension (height or width)

(2) Existing Stack

Since the existing stack height of the unit for which the modification is proposed is below GEP stack height, the effect of aerodynamic downwash will be accounted for in the air quality analysis for the project.

(3) Meteorological Data

The meteorological data used in the Industrial Source Complex Short Term (ISCST3) model consisted of 1990 through 1994 surface data from the Indianapolis Airport Weather Service station merged with the mixing heights from Peoria, Illinois Airport National Weather Service station. The meteorological data was purchased through the National Oceanic and Atmospheric Administration (NOAA) and National Climatic Data Center (NCDC) and preprocessed into ISCST3 ready format using U.S.EPA's PCRAMMET.

(4) Model Description

Keramida Environmental Inc. used ISC3, Version 02035. OAQ used the same model version to determine maximum off-property concentrations or impacts for each pollutant. All regulatory default options were utilized in the U.S. EPA approved model, as listed in the 40 Code of Federal Register Part 51, Appendix W "Guideline on Air Quality Models".

The Auer Land Use Classification Scheme was used to determine the land use in the area. The area is considered primarily rural; therefore, a rural classification was used.

(5) Receptor Grid

The OAQ modeling used the same receptor grids generated by Keramida Environmental Inc. The receptor grid extended to approximately ten (10) kilometers from the plant and consisted of 451 receptors. Fence line receptors were closely spaced (100 meters) near the plant boundary to identify the influence of aerodynamic building downwash.

Section C - Significant Impact Level/Area (SIA) and Background Air Quality Levels

A significant impact analysis was conducted to determine if the facility exceeded the PSD significant impact levels (concentrations).

If the facility's concentrations exceed these levels, further air quality analysis is required. Modeling for SO₂ was required because the results did exceed the significant impact levels.

Significant impact levels are defined by the following time periods in Table 2 - Significant Impact Analysis, with all maximum-modeled concentrations from the worst case operating scenarios.

TABLE 2 - Significant Impact Analysis				
Pollutant	Time Averaging Period	Maximum Modeled Impacts (ug/m ³)	Significant Impact Level (ug/m ³)	Refined AA Analysis Required
SO ₂	3 hour	289.7	25	Yes
SO ₂	24 hour	37.5	5	Yes
SO ₂	Annual	0.77	1	No

(1) Applicability

The PSD requirements, 326 IAC 2-2-4 requires an air quality analysis of the new source or the major modification to determine if the pre-construction monitoring threshold is triggered.

In most cases, post construction monitoring can satisfy this requirement if the pre-construction monitoring threshold has been exceeded.

(2) Modeling Results

A comparison of the preliminary modeling results was compared to the PSD preconstruction monitoring thresholds. The results are shown in Table 3 - Preconstruction Monitoring Analysis.

TABLE 3 - Preconstruction Monitoring Analysis				
Pollutant	Time Averaging Period	Maximum Modeled Impacts (ug/m ³)	Deminimis Level (ug/m ³)	Above De Minimis Level
SO ₂	24 hour	37.5	13	Yes

For the criteria pollutant, SO₂ did trigger the preconstruction monitoring.

SDI can satisfy the preconstruction monitoring requirement for SO₂ since there is post construction air quality monitoring data representative of the area.

Air quality monitors have already been established in the vicinity of the plant after it was constructed.

(3) Background Concentrations

EPA's "Ambient Monitoring Guidelines for Prevention of Significant Deterioration" (EPA-450/4-87-007) Section 2.4.1 is cited for approval of the monitoring sites for this area.

(4) Background Monitors

The results from the monitoring site are considered conservative since it is actually reading concentrations from SDI. This scenario lends itself to the possibility of double counting SDI's concentrations using values from the modeling and the monitor in the NAAQS analysis.

The monitoring site is approximately 900 meters from the source.

For all 3-hour and 24-hour background concentrations, the averaged second highest monitoring values were used.

Annual background concentrations were taken from the maximum annual values.

It was agreed between SDI and IDEM that a conservative approach be taken in place of the preconstruction monitoring requirement.

TABLE 4 - Existing Monitoring Data Used For Background Concentrations *			
Pollutant	Monitoring Site	Averaging Period	Concentration (ug/m ³)
SO ₂	Hendricks County 180630001-1	3 hour H2H	550
SO ₂	Hendricks County 180630001-1	24 hour H2H	113
SO ₂	Hendricks County 180630001-1	Annual	16

* OAQ used the most conservative values for the air quality analysis. It is standard policy to use the latest 3 years of data.

Section D - NAAQS and PSD Increment

(1) NAAQS Compliance Analysis and Results

IDEM supplied emission inventories of all sources within a 50-kilometer radius of SDI. Inventories were taken from the IDEM's air quality web site. The NAAQS inventories are generated from I-STEPS (State Emission Processing System) in accordance with 326 IAC 2-6. The PSD increment inventories include sources that affect the increment based on the major and minor source baseline dates and are compiled from permits issued by IDEM.

NAAQS modeling for the appropriate time-averaging periods for SO₂ was conducted and compared to the respective NAAQS limit. OAQ modeling results are shown in Table 5 - NAAQS Analysis.

All maximum-modeled concentrations were compared to the respective NAAQS limit. All maximum-modeled concentrations during the five (5) years were below the NAAQS limits and further modeling was not required.

Pollutant	Year	Time-Averaging Period	Maximum Concentration (ug/m ³)	Background Concentration (ug/m ³)	Total (ug/m ³)	NAAQS Limit (ug/m ³)	NAAQS Violation
SO ₂	1991	3 Hour H2H	274.7	550	824.7	1300	No
SO ₂	1993	24 hour H2H	25.0	113	138.0	365	No
SO ₂	1994	Annual	2.49	16	18.49	80	No

(2) Analysis and Results of Source Impact on the PSD Increment

Maximum allowable increases (PSD increments) are established by 326 IAC 2-2 for SO₂. This rule also limits a source to no more than 80 percent of the available PSD increment to allow for future growth.

(3) Source Impact

Since the impact for SO₂ from SDI modeled above significant impact levels, a PSD increment analysis for the existing major sources and its surrounding counties was required. Results of the increment modeling are summarized in Table 6 - Increment Analysis.

Pollutant	Year	Time-Averaging Period	Maximum Concentration (ug/m ³)	PSD Increment (ug/m ³)	Percent Impact on the PSD Increment	Increment Violation
SO ₂	1994	3 Hour H2H	274.7	512	53.6%	No
SO ₂	1993	24 Hour H2H	22.64	91	24.9%	No
SO ₂	1990	Annual	.77	20	3.85%	No

The results of the increment analysis shows all pollutants for all averaging periods were below 80% of the available increment.

Section E – Qualitative Analysis

(1) Additional Impact Analysis

All PSD permit applicants must prepare additional impacts analysis for each pollutant subject to regulation under the Act. This analysis assesses the impacts on soils and vegetation, caused by

any increase in emissions of any regulated pollutant from the facility. The SDI PSD permit application provided an additional impact analysis performed by Keramida Environmental.

(2) Economic Growth

Since there is no construction involved in revising the emission limit, there will be no growth associated with this change.

(3) Soils and Vegetation Analysis

A list of soil types present in the general area was determined. Soil types include the following: Loamy Glacial Till, Moderate Thick Loess Over Loamy Glacial Till, and Thin Loess Over Loamy Glacial Till. Due to the agricultural nature of the land, crops in the Hendricks County area consist mainly of corn, wheat, and soybeans (1997 Agricultural Census for Hendricks County). The maximum modeled concentrations for SDI are well below the threshold limits necessary to have adverse impacts on the surrounding vegetation, such as autumn bent, nimblewill, barnyard grass, bishopscap and horsetail, and milkweed (Flora of Indiana – Charles Deam). Livestock in Hendricks County consist mainly of hogs, beef and milk cows (1992 Agricultural Census for Hendricks County) and will not be adversely impacted from the facility. Trees in the area are mainly hardwoods. These are hardy trees and no significant adverse impacts are expected due to modeled concentrations.

(4) Federal Endangered Species Analysis

Federally endangered or threatened species are listed by the U.S. Fish and Wildlife Service; Division of Endangered Species for Indiana and includes twelve (12) species of mussels, four (4) species of birds, two (2) species of bat and butterflies and one (1) specie of snake. The mussels and birds listed are commonly found along major rivers and lakes while the bats are found near caves. The facility is not expected to have any additional adverse effects on the habitats of the species than what has already occurred from the industrial and residential activities in the area.

Federally endangered or threatened plants as listed by the U.S. Fish and Wildlife Service, Division of Endangered Species for Indiana list two (2) threatened and one (1) endangered species of plants. The endangered plant is found along the sand dunes in northern Indiana while the two threatened species do not thrive in industrialized and residential areas. The facility is not expected to impact that area.

(5) Additional Analysis Conclusions

Under SDI's current SO₂ limits, SDI has not caused any visibility impairment. No visibility issues have occurred to date and it appears unlikely that visibility can be impaired with the new emission limits.

Finally, the results of the additional impact analysis conclude the operation of the facility will have no significant impact on economic growth, soils, vegetation or visibility in the immediate vicinity or on any Class I area.

Section F - Summary of Air Quality Analysis
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SDI has applied for a revision of their SO₂ emission limits.

Steel Dynamics, Inc. (SDI) - Engineered Bar Products Division
Pittsboro Indiana
Air Modeler: Michael Mosier

Page 8 of 9
Appendix A - Air Quality Analysis - of TSD
PSD/SSM 063-22329-00037

Keramida Environmental, Inc. of Indianapolis, Indiana prepared the PSD application.

Hendricks County is designated as nonattainment for $PM_{2.5}$ and 8-hour ozone standards and attainment for all other criteria pollutants.

SO_2 emission rates associated with the proposed facility exceeded the respective significant emission rates.

Modeling results taken from the latest version of the ISC3 model showed SO_2 impacts were predicted to be greater than the significant impact levels.

SDI did trigger preconstruction monitoring for SO_2 but can satisfy the preconstruction monitoring requirement since there is existing air quality monitoring data representative of the area.

The NAAQS and increment modeling for SO_2 showed no violations of the standards. An air toxic analysis was not performed because there was no HAP increase.

The nearest Class I area is Mammoth Cave National Park in Kentucky over one hundred (100) kilometers away from the source.

Additional impact analysis was required, but the operation of the proposed facility will have no significant impact.