INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We make Indiana a cleaner, healthier place to live.

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: November 18, 2005

RE: Steel Dynamics, Inc. / 183-18426-00030

FROM: Paul Dubenetzky
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 1/10/05

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Prevention of Significant Deterioration
Part 70 Significant Source Modification

OFFICE OF AIR QUALITY

Steel Dynamics, Inc. (SDI)
2601 County Road 700 East
Columbia City, Indiana 46725

(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.

This permit is also issued under the provisions of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)).

Except as otherwise stated in this permit, the Permittee must comply with all conditions of this permit. Noncompliance with any provisions of this permit is grounds for enforcement action; permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. Except as otherwise stated in this permit, noncompliance with any provision of this permit, except any provision specifically designated as not federally enforceable, constitutes a violation of the Clean Air Act. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. An emergency does constitute an affirmative defense in an enforcement action provided the Permittee complies with the applicable requirements set forth in Section C.19 -Emergency Provisions.

PSD/SSM No.: 183-18426-00030	
Issued by: Original Signed By: Paul Dubenetzky, Assistant Commissioner Office of Air Quality	Issuance Date: **November 18, 2005**

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Certification
Quarterly Deviation and Compliance Monitoring Report
Emergency Occurrence Report
Steel Production Report
Natural Gas and Propane Usage Quarterly Report
Slag Production Report

Affidavit of Construction/Modification

SECTION A SOURCE SUMMARY

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

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

The Permittee owns and operates a steel beam mini mill.

Responsible Official:	General Manager or designee (pursuant to 326 IAC 2-7-1(34))
Source Address:	2601 County Road 700 East, Columbia City, Indiana 46725
Mailing Address:	2601 County Road 700 East, Columbia City, Indiana 46725
County Location:	Whitley
County Status:	Attainment for all criteria pollutants
SIC Code:	3312 (Steel Mill)
NAICS:	331111
Source Status:	1 of 28 Listed Source Categories Major source, under PSD Program Major source, under Part 70 Program Minor Source, CAA Section 112 Clean Units

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

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

SECTION D.1

(a) Electric Arc Furnaces (EAFs) - - Stack 1

Two (2) single shell electric arc furnaces (EAFs), identified as EAF-1a and EAF-1b. These furnaces operate at a nominal combined rate of 300 tons of molten steel per hour and utilize a direct-shell evacuation control (DEC) system (fourth hole duct), an overhead roof exhaust system consisting of a capture system consisting of a segmented canopy hood, scavenger duct, and cross-draft partitions.

These furnaces utilize the following emission control technologies:

(i) A DEC for carbon monoxide (CO) and volatile organic compounds (VOC) emissions;

(ii) Low NO_x/oxyfuel burners (combustion control) for nitrogen oxide (NO_x) emissions; and

(iii) A baghouse (identified as EAF Baghouse, ID# 1) for particulate (PM and PM_{10})

emissions.

The particulate and lead emissions escaping the DEC system are collected by the overhead roof exhaust system and exhaust through a stack identified as EAF Baghouse stack (Stack 1).

There are no roof monitors in the meltshop.

Opacity is measured with a continuous opacity monitor (COM).

CO and VOC emissions exhausting through the EAF Baghouse stack (Stack 1) are measured with a CO continuous emission monitor system (CEMS) and a VOC CEMS, respectively.

(b) Ladle Metallurgy Station (LMS) - - Stack 1
One (1) ladle metallurgy refining station (LMS) (ID# 3a) with a nominal rate of 300 tons of steel per hour.

The LMS particulate emissions are collected by the overhead roof exhaust system and exhaust through the common EAF Baghouse stack (Stack 1).

(c) Continuous Casters (CCs) - - Stack 1
The two (2) continuous casters are limited to a maximum combined casting capacity of 300 tons of steel per hour.

(1) One (1) continuous caster (CC) (ID# 3k) with a nominal casting rate of 200 tons of steel per hour.

(2) One (1) continuous caster, identified as ID# 42a, with a nominal casting rate of 200 tons of steel per hour.

The particulate emissions from the continuous casters are collected by the overhead roof exhaust system and exhaust through the common electric arc furnace baghouse stack (Stack 1).

SECTION D.2

(d) Preheaters - - Stack 1

(1) Four (4) natural gas-fired low NO_x ladle preheaters (ID#s 3b through 3e), each with a nominal heat input rate of 10 million British Thermal Units per hour (MMBtu/hour).

(2) One (1) natural gas-fired low NO_x tundish nozzle preheater (ID# 3g), with a nominal heat input rate of 10 MMBtu/hour.

(3) Two (2) natural gas-fired low NO_x tundish preheaters (ID#s 3h and 3i), each with a nominal heat input rate of 5 MMBtu/hour.

(4) One (1) natural gas-fired Tundish Nozzle Preheater, identified as ID# 3m, nominally rated at 10 million Btu per hour.

(5) One (1) natural gas-fired Tundish Preheater, identified as ID# 3n, nominally rated

at 10 million Btu per hour.

Combustion emissions from the preheaters exhaust inside the building, and are collected by the overhead roof exhaust system and ducted to the EAFs Baghouse.

(e) Dryers - - Stack 1

(1) Two (2) natural gas-fired low NO_x ladle dryers(ID# 3f and ID# 3l), each with a nominal heat input rate of 10 MMBtu/hour.

(2) One (1) natural gas-fired low NO_x tundish dryer (ID# 3j), with a nominal heat input rate of 5 MMBtu/hour.

(3) One (1) natural gas-fired Tundish Dryer, identified as ID# 3o, nominally rated at 5 million Btu per hour.

Combustion emissions from the dryers exhaust inside the building, and are collected by the overhead roof exhaust system and ducted to the common EAFs Baghouse.

SECTION D.3

(f) Reheat Furnaces - - Stack 2 and Stack 41

(1) One (1) natural gas-fired low NO_x reheat furnace (RH) (ID# 2) with a nominal heat input rate of 260 MMBtu per hour.

Combustion and process emissions from the RH (ID# 2) exhaust through a stack identified as Stack 2.

(2) One (1) natural gas-fired low NO_x burners reheat furnace, identified as ID# 41, with a nominal heat input rate of 260 million Btu per hour.

Combustion and process emissions from this reheat furnace (ID# 41) exhaust through a stack, identified as Stack 41.

SECTION D.4

(g) Ladle Vacuum Degasser (LVD) and LVD Boiler - - Stack 40

One (1) ladle vacuum degasser (LVD) (ID# 40) with a nominal capacity of 300 tons per hour of steel and one (1) boiler to power the LVD. The LVD Boiler (ID# 41) has a nominal heat input capacity of 41.8 MMBtu/hour, and uses natural gas as the primary fuel, with propane as an emergency back up fuel.

Gases from the LVD are directed to the boiler for combustion in the boiler. Emissions from the boiler exhausts through a stack identified as Stack 40.

SECTION D.5

(h) One (1) EAF dust storage silo (ID# 4), equipped with a bin vent filter for particulate control.

(i) Eight (8) raw material storage silos (ID#s 5 through 12) and the associated raw material receiving station.

Each silo is equipped with a bin vent filter for particulate control.

SECTION D.6

(j) A slag handling and processing area (ID# 14), operated by an independent contractor, with a nominal rated capacity of 250 tons per hour.

This processing area consists of slag pot dumping, deskulling, slag cooling, digging of slag pits by a front-end loader, loading of grizzly feeder by a front-end loader, crushing, screening, conveyor transfer points, loading of materials into piles, storage piles, load out of materials from piles, and vehicle movement around piles.

This processing area utilizes the following equipment: one (1) grizzly/feeder, three (3) conveyors, one (1) single deck screen, one (1) primary crusher, one (1) by-pass conveyor, one (1) screen, and seven (7) stackers.

Particulate emissions from the slag processing area are controlled, as needed, by water suppression and minimizing drop heights.

SECTION D.7

(k) Transporting on paved roadways and parking lots, unpaved roadways, and unpaved areas around slag storage piles and steel scrap piles.

SECTION D.8

(l) One (1) cooling tower (ID# 13), with a nominal water flow of 15,000 gallons per minute.

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

This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability), except as provided by 326 IAC 2-7-3, 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 (US EPA) under 40 CFR 70.3 (Part 70 - Applicability).

SECTION B GENERAL CONSTRUCTION CONDITIONS

B.1 Definitions [326 IAC 2-7-1]

Terms in this permit shall have the definition assigned to such terms in the referenced regulation. In the absence of definitions in the referenced regulation, the applicable definitions found in the statutes or regulations (IC 13-11, 326 IAC 1-2 and 326 IAC 2-7) shall prevail.

B.2 Effective Date of the Permit [IC 13-15-5-3]

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

B.3 Revocation of Permits [326 IAC 2-2-8]

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

The IDEM may extend the eighteen (18) month period upon satisfactory showing that an extension is justified.

B.4 Significant Source Modification [326 IAC 2-7-10.5(h)]

This document shall also become the approval to operate pursuant to 326 IAC 2-7-10.5(h) when, prior to start of operation, the following requirements are met:

(a) The attached affidavit of construction/modification shall be submitted to the Office of Air Quality (OAQ), verifying that the emission units were constructed or modified as proposed in the application or the permit.

The emissions units covered in the Significant Source Modification approval may begin operating on the date the affidavit of construction is postmarked or hand delivered to IDEM if constructed as proposed.

If construction is completed in phases: i.e.: the entire construction is not done continuously, a separate affidavit must be submitted for each phase of construction.

Any permit conditions associated with operation start up dates such as stack testing for NSPS shall be applicable for to each individual phase.

(b) If actual construction or modification of the emissions units differs from the construction or modification proposed in the application or the permit in a manner that is regulated under the provisions of 326 IAC 2-2, the Permittee may not begin operation until the source modification has been revised pursuant to the provisions of that rule and the provisions of 326 IAC 2-1.1-6 and an Operation Permit Validation Letter is issued.

(c) If actual construction of the emissions units differs from the construction proposed in the application or the permit in a manner that is not regulated under the provisions of 326 IAC 2-2, the Permittee may not begin operation until the source modification has been revised pursuant to the provisions of that rule and the provisions of 326 IAC 2-7-11 or 326 IAC 2-7-12 and an Operation Permit Validation Letter is issued.

(d) The Permittee shall attach the Operation Permit Validation Letter received from the OAQ to this permit.

(e) The changes covered by the Significant Source Modification will be included in the Title V draft.

(f) In the event that the Part 70 application is being processed at the same time as this application, the following additional procedures shall be followed for obtaining the right to operate:

(i) If the Part 70 draft permit has not gone on public notice, then the change/addition covered by the Significant Source Modification will be included in the Part 70 draft.

(ii) If the Part 70 permit has gone through final EPA proposal and would be issued ahead of the Significant Source Modification, the Significant Source Modification will go through a concurrent 45 day EPA review. Then the Significant Source Modification will be incorporated into the final Part 70 permit at the time of issuance.

(iii) If the Part 70 permit has gone through public notice, but has not gone through final EPA review and would be issued after the Significant Source Modification is issued, then the Modification would be added to the proposed Part 70 permit, and the Title V permit will issued after EPA review.

SECTION C GENERAL OPERATION CONDITIONS

C.1 Major Source [326 IAC 2-2] [326 IAC 2-7]

Pursuant to 326 IAC 2-2 (Prevention of Significant Deterioration), 326 IAC 2-7 (Part 70 Permit Program) and PSD Permits 183-10097-00030 and 183-12692-00030, this source is a major source.

C.2 Prior Permits Superseded [326 IAC 2-1.1-9.5]

All terms and conditions of the following previous permits:

PSD Permit Number	Issuance Dates
183-10097-00030	July 7, 1999
183-12692-00030	January 10, 2001
183-15170-00030	May 31, 2002
183-18658-00030	May 5, 2004

issued pursuant to permitting programs approved into the state implementation plan have been either incorporated as originally stated, revised, or deleted by this permit.

C.3 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.

One (1) certification may cover multiple forms in one (1) submittal.

(c) A responsible official is defined at 326 IAC 2-7-1(34).

C.4 Preventive Maintenance Plan (PMP) [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 prepare, maintain and implement Preventive Maintenance Plans (PMPs) upon start up of the new emission units, including the following information on each facility:

(i) Identification by jobs or titles of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;

(ii) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and

(iii) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

(b) The Permittee shall implement the PMPs, including any required record keeping, as necessary to ensure that failure to implement a PMP does not cause or contribute to an exceedance of any limitation on emissions or potential to emit.

(c) 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 PMP does not require the certification by the responsible official as defined by 326 IAC 2-7-1(34).

(d) To the extent the Permittee is required by 40 CFR Part 60 or 40 CFR 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.5 Permit Amendment or Modification [326 IAC 2-7-11] [326 IAC 2-7-12]

(a) Permit amendments and modifications are governed by the requirements of 326 IAC 2-7-11 or 326 IAC 2-7-12 whenever the Permittee seeks to amend or modify this permit.

(b) Any application requesting an amendment or modification of this permit shall be submitted to:

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

Any such application shall be certified by the responsible official as defined by 326 IAC 2-7-1(34).

(c) The Permittee may implement administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-7-11(c)(3)]

(d) No permit amendment or modification is required for the addition, operation or removal of a nonroad engine, as defined in 40 CFR 89.2.

C.6 Opacity [326 IAC 5-1]

Pursuant to 326 IAC 5-1-2 (Opacity Limitations) and PSD Permits 183-10097-00030 and 183-12692-00030, 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 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.

326 IAC 5-1-2 (Opacity Limitations) is not federally enforceable.

C.7 Fugitive Dust Emissions [326 IAC 6-4]

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

326 IAC 6-4-2(4) is not federally enforceable.

C.8 Fugitive Particulate Matter Emission Limitations [326 IAC 6-5] [326 IAC 2-2-3]

Pursuant to 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations), 326 IAC 2-2-3 and PSD Permits 183-10097-00030 and 183-12692-00030, fugitive particulate matter shall be controlled according to the Fugitive Dust Control Plan (FDCP) (Section E.1).

C.9 Stack Height [326 IAC 1-7]

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

C.10 Operation of Equipment [326 IAC 2-7-6(6)]

Except as otherwise provided by statute or rule, or in this permit, all air pollution control equipment listed in this permit and used to comply with an applicable requirement shall be operated at all times that the emission units vented to the control equipment are in operation.

C.11 Asbestos Abatement Projects [326 IAC 14-10] [326 IAC 18] [40 CFR 61, Subpart M]

The Permittee shall comply with the applicable requirements of 326 IAC 14-10, 326 IAC 18, and 40 CFR 61.140.

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

C.12 Performance Testing [326 IAC 3-6][326 IAC 2-1.1-11]

(a) All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this permit, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other applicable procedures approved by IDEM, OAQ.

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

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

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 not later than forty-five (45) days after the completion of the testing.

An extension may be granted by IDEM, OAQ, if the Permittee submits to IDEM, OAQ, a reasonable written explanation not later than five (5) days prior to the end of the initial forty-five (45) day period.

Compliance Requirements [326 IAC 2-1.1-11]

C.13 Compliance Requirements [326 IAC 2-1.1-11]

(a) 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.

(b) Any monitoring or testing shall be performed in accordance with 326 IAC 3 or other applicable methods approved by the commissioner or the US EPA.

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

C.14 Compliance Monitoring [326 IAC 2-7-5(3)] [326 IAC 2-7-6(1)]

Except as otherwise provided in this permit, all monitoring and record keeping requirements, not already legally required, shall be implemented when operation begins.

The Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment.

C.15 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.

C.16 Pressure Gauge and Instrument Specifications [326 IAC 2-1.1-11] [326 IAC 2-7-5(3)] [326 IAC 2-7-6(1)]

(a) Whenever a condition in this permit requires the measurement of a temperature, the instrument employed shall have a scale such that the expected normal reading shall be no less than twenty percent (20%) of full scale and be accurate within plus or minus two percent (<2%) of full scale reading.

(b) Whenever a condition in this permit requires the measurement of pressure drop across any part of the unit or its control device, the gauge employed shall have a scale such that the expected normal reading shall be no less than twenty percent (20%) of full scale and be accurate within plus or minus two percent (2%) of full scale reading.

(c) The Permittee may request the IDEM, OAQ approve the use of a pressure gauge or other instrument that does not meet the above specifications provided the Permittee can demonstrate an alternative pressure gauge or other instrument specification will adequately ensure compliance with permit conditions requiring the measurement of pressure drop or other parameters.

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

C.17 Compliance Response Plan (CRP) - Preparation, Implementation, Records, and Reports [326 IAC 2-7-5] [326 IAC 2-7-6]

(a) The Permittee is required to prepare a Compliance Response Plan (CRP) for each compliance monitoring condition specified in Section D of this permit.

A CRP shall be submitted to IDEM, OAQ upon request.

The CRP shall be prepared, prior to the start up operation of the modified or new units, by the Permittee, supplemented from time to time by the Permittee, maintained on site, and comprised of:

(i) Reasonable response steps that may be implemented in the event that a reasonable response step is needed pursuant to the requirements of Section D of this permit; and an expected timeframe for taking reasonable response steps.

(ii) If, at any time, the Permittee takes reasonable response steps that are not set forth in the Permittee's current Compliance Response Plan (CRP) and the Permittee documents such response in accordance with subsection (e) below, the Permittee shall amend its Compliance Response Plan (CRP) to include such reasonable response steps taken.

If a Permittee is required to have an Operation, Maintenance and Monitoring (OMM) Plan or Parametric Monitoring Plan and Start-up, Shutdown, and Malfunction (SSM) Plan under 40 CFR 60 or 40 CFR 63 , such plans shall be deemed to satisfy the requirements for a CRP for those compliance monitoring conditions.

(b) For each compliance monitoring condition of this permit, reasonable response steps shall be taken when indicated by the provisions of that compliance monitoring condition as follows:

(i) Reasonable response steps shall be taken as set forth in the Permittee's current Compliance Response Plan (CRP) or Operation, Maintenance and Monitoring (OMM) Plan or Parametric Monitoring Plan and Start-up, Shutdown, and Malfunction (SSM) Plan; or

(ii) If none of the reasonable response steps listed in the Compliance Response Plan (CRP) or Operation, Maintenance and Monitoring (OMM) Plan or Parametric Monitoring Plan and Start-up, Shutdown, and Malfunction (SSM) Plan is applicable or responsive to the excursion, the Permittee shall devise and implement additional appropriate reasonable response steps as expeditiously as practical.

Taking such additional reasonable response steps shall not be considered a deviation from this permit so long as the Permittee documents such appropriate reasonable response steps in accordance with this condition.

(iii) If the Permittee determines that additional reasonable response steps would necessitate that the emissions unit or control device be shut down, and it will be

ten (10) days or more until the unit or device will be shut down, then the Permittee shall promptly notify the IDEM, OAQ of the expected date of the shut down.

The notification shall also include the status of the applicable compliance monitoring parameter with respect to normal, and the results of the response actions taken up to the time of notification.

(iv) Failure to take reasonable response steps shall be considered a deviation from the permit.

The OMM Plan or Parametric Monitoring and SMM Plan shall be submitted no later than the time frames as specified by the applicable 40 CFR 60 or 40 CFR 63 requirement.

(c) The Permittee is not required to take any further reasonable response steps for any of the following reasons:

(i) A false reading occurs due to the malfunction of the monitoring equipment and prompt action was taken to correct the monitoring equipment.

(ii) The Permittee has determined that the compliance monitoring parameters established in the permit conditions are technically inappropriate, has previously submitted a request for a minor permit modification to the permit, and such request has not been denied.

(iii) An automatic measurement was taken when the process was not operating.

(iv) The process has already returned or is returning to operating within normal parameters and no reasonable response steps are required.

(d) When implementing reasonable steps in response to a compliance monitoring condition, if the Permittee determines that an exceedance of an emission limitation has occurred, the Permittee shall report such deviations pursuant to Section C.18 - Deviations from Permit Requirements and Conditions.

(e) The Permittee shall record all instances when, in accordance with Section D, reasonable response steps are taken. In the event of an emergency, the provisions of 326 IAC 2-7-16 (Emergency Provisions) requiring prompt corrective action to mitigate emissions shall prevail.

(f) Except as otherwise provided by a rule or provided specifically in Section D, all monitoring as required in Section D shall be performed when the emission unit is operating, except for time necessary to perform quality assurance and maintenance activities.

C.18 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.19 - Emergency Provisions), the probable cause of such deviations, and any reasonable 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

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.19 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:

(i) An emergency occurred and the Permittee can, to the extent possible, identify the causes of the emergency;

(ii) The permitted facility was at the time being properly operated;

(iii) 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;

(iv) 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: 317-233-5674 (ask for Compliance Section)
Facsimile Number: 317-233-5967

(v) 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

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).

(vi) 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) IDEM, OAQ may require that the Preventive Maintenance Plans required under 326 IAC 2-7-4-(c)(9) for the emission unit that experienced an 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 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.

(h) The Permittee shall include all emergencies in the Quarterly Deviation and Compliance Monitoring Report.

C.20 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.12 - 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 appropriate 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 noncompliance stack tests.

The response action documents submitted pursuant to this condition do 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.21 Emission Statement [326 IAC 2-7-5(3)(C)(iii)][326 IAC 2-7-5(7)][326 IAC 2-7-19(c)] [326 IAC 2-6]

(a) Pursuant to 326 IAC 2-6-3(a)(1), the Permittee shall submit by July 1 of each year an emission statement covering the previous calendar year. The emission statement shall contain, at a minimum, the information specified in 326 IAC 2-6-4(c) and shall meet the following requirements:

(i) Indicate estimated actual emission of pollutants listed in 326 IAC 2-6-4(a);

(ii) Indicate estimated actual emissions of regulated pollutants (as defined by 326 IAC 2-7-1 (32) ("Regulated pollutant, which is used only for purposes of Section 19 of this rule") from the source, for purpose of fee assessment.

The statement must be submitted to:

Indiana Department of Environmental Management
Technical Support and Modeling Section, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204

The emission statement does require the certification by the responsible official as defined by 326 IAC 2-1.1-1(1).

(b) The emission statement required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due.

If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.

C.22 General Record Keeping Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-6]

(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 not later than ninety (90) days of permit issuance.

C.23 General Reporting Requirements [326 IAC 2-7-5(3)(C)]

(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 reasonable 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

(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 not later than 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.

(f) Reporting periods are based on calendar years.

Post Construction Ambient Monitoring

C.24 Post Construction Ambient Monitoring [326 IAC 2-2-4]

Pursuant to 326 IAC 2-2-4, the two (2) ambient monitoring sites established at locations approved by IDEM, OAQ under PSD Permits 183-10097-00030 and 183-12692-00030 shall continue to operate for an additional 36 months from the initial start of the proposed modification:

(a) A downwind monitoring site near the maximum impact area (Annual Maximum Impact Area: UTM East 639300 and UTM North 4553700) shall measure PM_{10}, ozone, and the following meteorological parameters:
- - wind speed,
- - wind direction, and
- - outdoor temperature.

After the 36-month period, the Permittee may petition IDEM, OAQ, to cease the monitoring activities and the department shall grant such petition within 45 days after receipt of the petition if it is established that the PM_{10} and ozone levels continue to comply with the NAAQS and that the plant has minimal impact on air quality.

(b) A monitoring site upwind from the maximum impact area shall measure PM_{10}.

After the 36-month period, the Permittee may petition IDEM, OAQ, to cease the monitoring activities and the department shall grant such petition within 45 days after receipt of the petition if it is established that the PM_{10} levels continue to comply with the NAAQS and that the plant has minimal impact on air quality.

(c) The monitors shall meet the operating and maintenance criteria contained in the Indiana Department of Environmental Management, Office of Air Quality, Quality Assurance Manual. Additionally, a monitoring QA plan must be submitted and approved by IDEM, OAQ, if there are any changes to the QA plan.

(d) Ambient data along with precision and accuracy data from the monitors shall be submitted on a quarterly basis in a format approved by the Commissioner within sixty (60) days after the end of the quarter being reported.

Source Wide Hazardous Air Pollutant (HAP) Limitations

C.25 Source Wide Hazardous Air Pollutant (HAP) Limitations [326 IAC 2-4.1-1]

(a) The Permittee shall not allow any single HAP to be emitted from the source which exceeds ten (10) tons per year.

(b) The Permittee shall not allow any combination of HAPs to be emitted from the source which exceeds twenty-five (25) tons per year.

Therefore, the requirements of 326 IAC 2-4.1-1 (New Source Toxics Control) do not apply.

SECTION D.1 **FACILITY OPERATION CONDITIONS**

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

(a) Electric Arc Furnaces (EAFs) - - Stack 1
Two (2) single shell electric arc furnaces (EAFs), identified as EAF-1a and EAF-1b. These furnaces operate at a nominal combined rate of 300 tons of molten steel per hour and utilize a direct-shell evacuation control (DEC) system (fourth hole duct), an overhead roof exhaust system consisting of a capture system consisting of a segmented canopy hood, scavenger duct, and cross-draft partitions.

These furnaces utilize the following emission control technologies:

(i) A DEC for carbon monoxide (CO) and volatile organic compounds (VOC) emissions;

(ii) Low NO_x/oxyfuel burners (combustion control) for nitrogen oxide (NO_x) emissions; and

(iii) A baghouse (identified as EAF Baghouse, ID# 1) for particulate (PM and PM_{10}) emissions.

The particulate and lead emissions escaping the DEC system are collected by the overhead roof exhaust system and exhaust through a stack identified as EAF Baghouse stack (Stack 1). There are no roof monitors in the meltshop.

Opacity is measured with a continuous opacity monitor (COM).

CO and VOC emissions exhausting through the EAF Baghouse stack (Stack 1) are measured with a CO continuous emission monitor system (CEMS) and a VOC CEMS, respectively.

(b) Ladle Metallurgy Station (LMS) - - Stack 1
One (1) ladle metallurgy refining station (LMS) (ID# 3a) with a nominal rate of 300 tons of steel per hour.

The LMS particulate emissions are collected by the overhead roof exhaust system and exhaust through the common EAF Baghouse stack (Stack 1).

(c) Continuous Casters (CCs) - - Stack 1
The two (2) continuous casters are limited to a maximum combined casting capacity of 300 tons of steel per hour.

(1) One (1) continuous caster (CC) (ID# 3k) with a nominal casting rate of 200 tons of steel per hour.

(2) One (1) continuous caster, identified as ID# 42a, with a nominal casting rate of 200 tons of steel per hour.

The particulate emissions from the continuous casters are collected by the overhead roof exhaust system and exhaust through the common electric arc furnace baghouse stack (Stack 1).

(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)]

D.1.1 EAFs Operation Limitation [326 IAC 2-1.1-5] [326 IAC 2-2]

Pursuant to 326 IAC 2-1.1-5 (Air Quality Requirements) and 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the Permittee shall operate the electric arc furnaces (EAFs) at a maximum combined rate of:

(a) 300 tons of molten steel per hour, and

(b) 2,628,000 tons of molten steel per 12-consecutive month period, with compliance determined at the end of each month.

This requirement supersedes:
- - Condition D.1.1 of PSD Permit 183-12692-00030, issued on January 10, 2001, and
- - Condition D.1.1 of PSD Permit 183-10097-00030, issued on July 7, 1999.

D.1.2 Nitrogen Oxides (NO_x) - PSD Best Available Control Technology [326 IAC 2-2-3]

(a) Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements) and PSD Permits 183-10097-00030 and 183-12692-00030, the EAF auxiliary burners shall be equipped with Low NO_x/oxyfuel burners.

(b) Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the NO_x emissions from the EAFs Baghouse stack shall not exceed 0.35 pounds per ton of steel produced and 105 pounds of NO_x per hour, based on a three (3) hour block average.

This requirement supersedes:
- - Condition D.1.2 of PSD Permit 183-12692-00030, issued on January 10, 2001, and
- - Condition D.1.2 of PSD Permit 183-10097-00030, issued on July 7, 1999.

D.1.3 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 EAFs except when otherwise specified in 40 CFR Part 60, Subpart AAa.

D.1.4 Particulate Matter (PM) [40 CFR Part 60, Subpart AAa]

Pursuant to 40 CFR Part 60, Subpart AAa (Standards of Performance for Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed After August 7, 1983) and PSD Permits 183-10097-00030 and 183-12692-00030, the filterable PM emissions from the EAFs Baghouse shall not exceed 0.0052 grains per dry standard cubic feet.

D.1.5 Particulate Matter (PM/PM_{10}) - PSD Best Available Control Technology [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements) and PSD Permits 183-10097-00030 and 183-12692-00030:

(a) Filterable PM/PM_{10} emissions from the EAFs shall be controlled by a baghouse.

(b) Filterable PM/PM_{10} emissions from the EAFs Baghouse shall not exceed 0.0018 grains per dry standard cubic feet and 14.4 pounds of filterable particulate per hour based on a 3-hour block average.

(c) The total PM/PM_{10} (filterable and condensible PM_{10}) emissions from the EAFs Baghouse shall not exceed 0.0052 grains per dry standard cubic feet and 41.6 pounds of filterable and condensible particulate per hour based on a 3-hour block average.

(d) There shall be no roof monitors in the melt shop.

The meltshop shall be located in a total enclosure subject to general ventilation that maintains the meltshop at a lower than ambient pressure to ensure in-draft through any doorway opening.

Ventilation air from the total enclosure shall be conveyed to the meltshop EAFs Baghouse.

(e) The cross-draft partitions shall be constructed surrounding the EAFs in a manner that will promote good capture efficiency for the meltshop EAFs Baghouse.

(f) A segmented canopy hood shall be constructed above the EAFs. The canopy shall be divided into separate sections and the dampers operated in a manner that will maximize the draft directly above the point of greatest emissions.

D.1.6 Sulfur Dioxide (SO_2) - PSD Best Available Control Technology [326 IAC 2-2]

(a) Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD), SO_2 emissions from the EAFs shall be controlled in accordance with the Scrap Management Program (SMP) (Section E.2)

(b) Pursuant to 326 IAC 2-2-3 Prevention of Significant Deterioration (PSD), the SO_2 emissions from the EAFs Baghouse stack shall not exceed 75 pounds of SO_2 per hour based on a three (3) hour block average.

This requirement supersedes:
- - Condition D.1.7 of PSD Permit 183-12692-00030, issued on January 10, 2001, and
- - Condition D.1.7 of PSD Permit 183-10097-00030, issued on July 7, 1999.

(c) Pursuant to 326 IAC 2-1.1-11; PSD Permits 183-10097-00030 and 183-12692-00030; and Permit Amendment 183-18658-00030:

(1) The sulfur content of the direct iron (DRI), charge carbon, and injection carbon added into the EAFs shall not exceed the following:

Raw Material	Sulfur Content (%)
direct reduced iron (DRI)	0.20
charge carbon	0.6
injection carbon	2.5

(2) The Permittee may utilize the following alternative mixture of sulfur content of the charge carbon and injection carbon added into the EAFs:

Raw Material	Sulfur Content (%)

charge carbon	2.0
injection carbon	4.0

The Permittee shall not use DRI when charging this alternative mixture to the EAFs.

(3) The Permittee shall obtain vendor certifications and/or analyses to verify that shipments of raw materials do not exceed the thresholds stated in Conditions D.1.6(b)(1) and D.1.6(b)(2).

D.1.7 Carbon Monoxide (CO) - PSD Best Available Control Technology [326 IAC 2-2-3]

(a) Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements) and PSD Permits 183-10097-00030 and 183-12692-00030, the CO emissions from the EAF shall be controlled by thermal oxidation and maintaining a negative pressure at the direct-shell evacuation control (DEC) system air gap.

(b) Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the CO emissions from the EAFs Baghouse stack shall not exceed 2.0 pounds per ton of steel produced and 600 pounds of CO per hour, based on a three (3) hour block average.

This requirement supersedes:
- - Condition D.1.9 of PSD Permit 183-12692-00030, issued on January 10, 2001, and
- - Condition D.1.9 of PSD Permit 183-10097-00030, issued on July 7, 1999.

D.1.8 Carbon Monoxide (CO) [326 IAC 9-1]

Pursuant to 326 IAC 9-1 (Carbon Monoxide Emission Limits) and PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall not allow the discharge of CO from the EAF unless the waste gas stream is controlled by a direct-flame afterburner, boiler, or other approved method. The Permittee has elected thermal oxidation at the direct-shell evacuation control (DEC) system air gap.

D.1.9 Volatile Organic Compounds (VOC) - PSD Best Available Control Technology [326 IAC 2-2-3]

(a) Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements) and PSD Permits 183-10097-00030 and 183-12692-00030, the VOC emissions from the EAFs shall be controlled in accordance with the Scrap Management Program (SMP) (Section E.2) and shall be controlled by thermal oxidation and maintaining a negative pressure at the direct shell evacuation control (DEC) system air gap.

(b) Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the VOC emissions from the EAFs Baghouse shall not exceed 0.09 pounds per ton of steel and 27 pounds of VOC per hour, based on a three (3) hour block average.

This requirement supersedes:
- - Condition D.1.10 of PSD Permit 183-12692-00030, issued on January 10, 2001, and
- - Condition D.1.10 of PSD Permit 183-10097-00030, issued on July 7, 1999.

(c) These VOC limits are as defined in 326 IAC 1-2-90.

D.1.10 Lead - PSD Best Available Control Technology [326 IAC 2-2-3]

(a) Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements), the lead emissions from the EAFs shall be:

- - controlled in accordance with the Scrap Management Program (SMP) (Section E.2), and
- - controlled by a baghouse.

(b) Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the lead emissions from the EAFs Baghouse stack shall not exceed 0.00048 pounds per ton of steel and 0.144 pounds of lead per hour, based on a three (3) hour block average.

These requirements supersede:
- - Condition D.1.11 of PSD Permit 183-12692-00030, issued on January 10, 2001, and
- - Condition D.1.11 of PSD Permit 183-10097-00030, issued on July 7, 1999.

D.1.11 Mercury - PSD Best Available Control Technology [326 IAC 2-2]

(a) Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements), the mercury emissions from the EAFs shall be:

- - controlled in accordance with the Scrap Management Program (SMP) (Section E.2), and
- - controlled by a baghouse.

(b) Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the mercury emissions from the EAFs Baghouse stack shall not exceed 5.21 $x10^{-4}$ pounds per ton of steel and 0.1563 pounds of mercury per hour, based on a three (3) hour block average.

These requirements supersede:
- - Condition D.1.11(c) of PSD Permit 183-12692-00030, issued on January 10, 2001, and
- - Condition D.1.11(c) of PSD Permit 183-10097-00030, issued on July 7, 1999.

D.1.12 Fluorides- PSD Best Available Control Technology [326 IAC 2-2]

(a) Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements), the fluoride emissions from the EAFs shall be:

- - controlled by using the granular type of Fluorspar, instead of the powdered type and
- - controlled by a baghouse.

(b) Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the Fluorides emissions from the EAFs Baghouse stack shall not exceed 0.01 pounds per ton of steel and 2.09 pounds of Fluorides per hour based on a three (3) hour block average.

These requirements supersede:
- - Condition D.1.11(e) of PSD Permit 183-12692-00030, issued on January 10, 2001, and
- - Condition D.1.11(e) of PSD Permit 183-10097-00030, issued on July 7, 1999.

D.1.13 Hazardous Air Pollutant (HAP) Limitations [326 IAC 2-1.1-4] [326 IAC 2-2] [326 IAC 2-4.1-1]

Pursuant to 326 IAC 2-1.1-4 and PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall not allow:

(a) Beryllium to be emitted from the EAFs Baghouse stack in a quantity equal to or greater than 8.6 x 10^{-5} pounds per hour. This limitation is not federally enforceable.

This requirement supersedes:
- - Condition D.1.11(d) of PSD Permit 183-12692-00030, issued on January 10, 2001, and
- - Condition D.1.11(d) of PSD Permit 183-10097-00030, issued on July 7, 1999.

(b) Manganese compounds to be emitted from the EAFs Baghouse stack in a quantity equal to or greater than 1.14 pounds per hour.

Compliance with these limitations will assure that the requirements of 326 IAC 2-2 Prevention of Significant Deterioration (PSD) do not apply for beryllium and that the requirements of 326 IAC 2-4.1-1 (New Source Toxics Control) do not apply to the source.

D.1.14 Visible Emission Limitations - PSD Best Available Control Technology [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements) and PSD Permits 183-10097-00030 and 183-12692-00030:

(a) Visible emissions from the EAFs Baghouse stack (Stack 1) shall not exceed three percent (3%) opacity based on a six-minute average (24 readings taken in accordance with 40 CFR Part 60, Appendix A, Method 9).

(b) Fugitive particulate matter (PM and PM_{10}) emissions generated during furnace operations shall be captured by the melt shop roof canopy and ducted to the EAFs Baghouse such that visible emissions generated at the EAFs shall not exceed three percent (3%) opacity based on a six-minute average (24 readings taken in accordance with 40 CFR Part 60, Appendix A, Method 9) when emitted from any building opening.

(c) Inspections and preventive measures shall be performed as prescribed in the Preventive Maintenance Plan.

Compliance with the above opacity limitations shall also satisfy the requirements of 326 IAC 5-1-2 (Opacity Limitations) under Condition C.6 - Opacity.

D.1.15 Visible Emission Limitations [40 CFR Part 60, Subpart AAa]

Pursuant to 40 CFR 20.272a(a) and PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall not cause to discharge into the atmosphere from the EAFs any gases that:

(a) Exit from the EAF Baghouse Stack 1 and exhibit three percent (3%) opacity or greater; and

(b) Exit from the melt shop, and due solely to the operations of the EAFs, exhibit six percent (6%) opacity or greater.

Compliance with the above opacity limitations shall also satisfy the requirements of 326 IAC 5-1-2 (Opacity Limitations) under Condition C.6 - Opacity.

D.1.16 Ladle Metallurgy Station (LMS) PSD Best Available Control Technology (BACT) [326 IAC 2-2]

Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD) and PSD Permits 183-10097-00030 and 183-12692-00030, the filterable and condensible PM/PM_{10} emissions from the ladle metallurgy station (LMS) (ID# 3a) shall be controlled by the existing EAFs Baghouse.

D.1.17 Continuous Casters (CCs) PSD Best Available Control Technology (BACT) [326 IAC 2-2]

(a) Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD) and PSD Permits 183-10097-00030 and 183-12692-00030, the filterable and condensible PM/PM_{10} emissions from the continuous caster (CC) (ID# 3k) shall be controlled by the existing EAFs Baghouse.

(b) Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the filterable and condensible particulate matter (PM/PM_{10}) emissions from the second continuous caster (ID# 42a) shall be controlled by the existing common EAFs Baghouse.

D.1.18 Preventive Maintenance Plan (PMP) [326 IAC 1-6-3] [326 IAC 2-7-5(13)]

Pursuant to 326 IAC 1-6-3 and PSD Permits 183-10097-00030 and 183-12692-00030, a Preventive Maintenance Plan (PMP), in accordance with Condition C.4 - Preventive Maintenance Plan (PMP) of this permit, is required for the EAFs and LMS and their associated control devices.

D.1.19 Clean Unit [326 IAC 2-2.2]

(a) EAFs (EAF-1a and EAF-1b), LMS (ID# 3a), and CC (ID# 3k)

(1) Pursuant to 326 IAC 2-2.2, the:

- - EAFs (EAF-1a and EAF-1b),
- - LMS (ID# 3a), and
- - CC (ID# 3k)

are classified as Clean Units for:

(A) NO_x,
(B) PM/PM_{10},
(C) SO_2,
(D) CO,
(E) VOC,
(F) Lead,
(G) Mercury, and
(H) Fluorides.

(2) The Clean Unit designations for the EAFs, LMS, and CC are in effect for ten (10) years from the issuance date of this permit.

(3) In order to maintain the clean unit designations for the EAFs, LMS, and CC, the Permittee shall comply with the following:

(4) The EAFs, LMS, and CC (designated as clean units) shall comply with the emissions limitations or work practice requirements in the following conditions as part of the BACT:

(A) D.1.1 EAF Operation Limitation (all pollutants),
(B) D.1.2 Nitrogen Oxides (NO_x) - PSD BACT,

(C)	D.1.5	Particulate Matter (PM/ PM_{10}) - PSD BACT,
(D)	D.1.6	Sulfur Dioxide (SO_2) - PSD BACT,
(E)	D.1.7	Carbon Monoxide (CO) - PSD BACT,
(F)	D.1.9	Volatile Organic Compounds (VOC) - PSD BACT,
(G)	D.1.10	Lead - PSD BACT,
(H)	D.1.11	Mercury - PSD BACT,
(I)	D.1.12	Fluorides- PSD BACT,
(J)	D.1.14	Visible Emission Limitations - PSD BACT,
(K)	D.1.16	Ladle Metallurgy Station (LMS) PSD BACT,
(L)	D.1.17(a)	Continuous Casters (CCs) PSD BACT, and
(M)	D.1.22	CO and VOC CEMS Requirement.

(b) Continuous Caster (ID# 42a)

(1) Pursuant to 326 IAC 2-2.2 (Clean Unit), the continuous caster (ID# 42a) is classified as Clean Unit for filterable and condensible particulate matter (PM/PM_{10}) and opacity.

(2) The Clean Unit designation for this continuous caster (ID# 42a) is in effect for ten (10) years from its initial start up.

(3) In order to maintain the clean unit designation for the continuous caster (ID# 42a), the Permittee shall comply with the continuous caster (ID# 42a) filterable and condensible particulate matter (PM/PM_{10}) and Opacity PSD BACT limits.

(c) EAFs (EAF-1a and EAF-1b), LMS (ID# 3a), and CCs (ID# 3k and ID# 42a)

(1) In addition, the EAFs, LMS, and CCs shall comply with all applicable requirements per 326 IAC 2-7 contained in this permit.

(2) No physical change or change in the method of operation shall be undertaken at these emissions units that would allow them to operate in a manner inconsistent with the physical or operational characteristics of the emission units.

(3) The EAFs, LMS, and CCs (designated as clean units) are subject to the following requirements:

(A) Any project at these emissions units for which actual construction begins after the effective date of the clean unit designations and before the expiration date shall be considered to have occurred while the emissions units were clean units.

(B) If a project at these emission units does not cause the need for a change in the emission limitations or work practice requirements in this permit for these units that were adopted in conjunction with BACT and the project would not alter any physical or operational characteristics that formed the basis for the BACT determination, the clean unit designations remain unchanged.

(C) If a project causes the need for a change in the emission limitations or work practice requirements in this permit for these units that were adopted in conjunction with BACT or the project would alter any physical or operational characteristics that formed the basis for the BACT determination, then the clean unit designations shall expire upon

issuance of the necessary permit modifications, unless the units requalify as clean units. If the Permittee begins actual construction on the project without first applying to modify the emissions unit's permit, the clean unit designations shall expire immediately prior to the time when actual construction of this project begins.

(D) A project that causes emissions units to lose their clean unit designations shall be subject to the applicability requirements of 326 IAC 2-2-2(d)(1) through 326 IAC 2-2-2(d)(4) and 326 IAC 2-2-2(d)(6).

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

D.1.20 EAFs Baghouse Operation [326 IAC 2-2]

Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the EAFs Baghouse shall be in operation and control emissions at all times when the electric arc furnaces (EAFs), Ladle Metallurgy Station (LMS) and/or Continuous Casters (CCs) are in operation.

D.1.21 Testing Requirements [326 IAC 2-1.1-11] [40 CFR 60.275a]

(a) NO_x
Pursuant to 326 IAC 2-1.1-11, the Permittee shall test for NO_x on the EAFs Baghouse stack (Stack 1) within 60 days after achieving maximum capacity of the modification, but no later than 365 days after start up of the modification, utilizing methods as approved by the Commissioner.

Pursuant to 326 IAC 2-1.1-11, this NO_x test shall be repeated at least once every 2.5 years from the date of the last valid compliance demonstration.

(b) Filterable and Condensible PM/PM_{10}
Pursuant to 326 IAC 2-1.1-11, the Permittee shall test for PM/PM_{10} on the EAFs Baghouse stack (Stack 1) within 60 days after achieving maximum capacity of the modification, but no later than 365 days after start up of the modification, utilizing methods as approved by the Commissioner.

Pursuant to 326 IAC 2-1.1-11 and 40 CFR 60.275a, this filterable and condensible PM/PM_{10} test shall be repeated at least once every five (5) years from the date of the last valid compliance demonstration, utilizing 40 CFR Part 60, Appendix A, Method 5, Method 201 or 201A, Method 202 or other methods as approved by the Commissioner.

(c) Lead
Pursuant to 326 IAC 2-1.1-11, the Permittee shall stack test for lead on the EAFs Baghouse stack (Stack 1), utilizing Method 12 and a method detection level which is below the emission limit, within 60 days after achieving maximum capacity of the modification, but no later than 365 days after start up of the modification, utilizing methods as approved by the Commissioner.

Pursuant to 326 IAC 2-1.1-1, this Lead test shall be repeated at least once every year from the date of the last valid compliance demonstration.

(d) SO_2
Pursuant to 326 IAC 2-1.1-11, the Permittee shall test for SO_2 on the EAFs Baghouse stack (Stack 1) within 60 days after achieving maximum capacity of the modification, but no later than 365 days after start up of the modification, utilizing methods as approved by the Commissioner.

Pursuant to 326 IAC 2-1.1-11, this SO_2 test shall be repeated at least once every 2.5 years from the date of the last valid compliance demonstration.

(e) Mercury
Pursuant to 326 IAC 2-1.1-11, the Permittee shall test for Mercury on the EAFs Baghouse stack (Stack 1) within 60 days after achieving maximum capacity of the modification, but no later than 365 days after start up of the modification, utilizing methods as approved by the Commissioner.

Pursuant to 326 IAC 2-1.1-1, this Mercury test shall be repeated at least once every year from the date of the last valid compliance demonstration.

(f) Fluorides
Pursuant to 326 IAC 2-1.1-11, the Permittee shall test for Fluorides on the EAFs Baghouse stack (Stack 1) within 60 days after achieving maximum capacity of the modification, but no later than 365 days after start up of the modification, utilizing methods as approved by the Commissioner.

Pursuant to 326 IAC 2-1.1-11, this Fluorides test shall be repeated at least once every five (5) years from the date of the last valid compliance demonstration.

(g) Manganese
Pursuant to 326 IAC 2-1.1-11, the Permittee shall test for Manganese on the EAFs Baghouse stack (Stack 1) within 60 days after achieving maximum capacity of the modification, but no later than 365 days after start up of the modification, utilizing methods as approved by the Commissioner.

Pursuant to 326 IAC 2-1.1-11, this Manganese test shall be repeated at least once every five (5) years from the date of the last valid compliance demonstration.

(h) Testing shall be conducted in accordance with Section C.12 - Performance Testing.

D.1.22 CO and VOC Continuous Emission Rate Monitoring Requirement [326 IAC 2-1.1-11] [326 IAC 3-5]

(a) Pursuant to 326 IAC 2-1.1-11 and 326 IAC 3-5-1(d) and PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall calibrate, certify, operate, and maintain a continuous emission monitoring system (CEMS) for measuring CO and VOC emissions rates in pounds per hour from the EAFs Baghouse stack (Stack 1) in accordance with 326 IAC 3-5-2 and 326 IAC 3-5-3.

(b) Pursuant to 326 IAC 2-1.1-11, the Permittee shall submit to IDEM, OAQ, within ninety (90) days after installation of a new monitor, a complete written continuous monitoring standard operating procedure (SOP), in accordance with the requirements of 326 IAC 3-5-4. The Permittee shall also submit a revised SOP whenever changes were made to the existing SOP.

(c) Pursuant to 326 IAC 2-1.1-11 and PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall record the output of the system and shall perform the required record keeping, pursuant to 326 IAC 3-5-6, and reporting, pursuant to 326 IAC 3-5-7.

(d) 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.

(e) Whenever the CO or VOC continuous emission monitor 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 day operational status inspections of the equipment that is important to the performance of the DEC, 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.

D.1.23 Visible Emission Observations and Continuous Opacity Monitoring (COM) [326 IAC 2-1.1-11] [326 IAC 3-5] [40 CFR 60.273a]

(a) Pursuant to 326 IAC 2-1.1-11, 326 IAC 3-5, and 40 CFR 60.273a and PSD Permits 183-10097-00030 and 183-12692-00030:

(i) The Permittee shall calibrate, certify, operate, and maintain a continuous monitoring system to measure opacity from the EAFs Baghouse stack (Stack 1) in accordance with 326 IAC 3-5-2 and 3-5-3.

(ii) The Permittee shall submit to IDEM, OAQ, within (90) days after installation of a new monitor, a complete written continuous monitoring standard operating procedure (SOP), in accordance with the requirements of 326 IAC 3-5-4. The Permittee shall also submit a revised SOP whenever changes were made to the existing SOP.

(b) All continuous opacity monitoring 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.

(c) In the event that a breakdown of a continuous opacity monitoring system occurs, a record shall be made of the times and reasons of the breakdown and efforts made to correct the problem.

(d) 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 emission unit 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.

(D) Any opacity exceedances determined by Method 9 readings shall be reported with the Quarterly Opacity Exceedances Reports.

(e) If abnormal emissions are observed, the Permittee shall take reasonable response steps in accordance with Section C.17 - Compliance Response Plan (CRP) - Preparation, Implementation, Records, and Reports.

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.17 - Compliance Response Plan (CRP) - Preparation, Implementation, Records, and Reports, shall be considered a deviation from this permit.

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

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

D.1.24 Bag Leak Detection System (BLDS) [326 IAC 2-2]

Pursuant to PSD Permit 183-12692-00030:

(a) The Permittee shall operate continuous bag leak detection systems (BLDS) for the EAFs Baghouse. The bag leak detection systems (BLDS) shall meet the following requirements:

(i) The bag leak detection systems (BLDS) 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.

(ii) The bag leak detection system (BLDS) sensor must provide output of relative particulate matter loading.

(iii) The bag leak detection system (BLDS) must be equipped with an alarm system that will alarm when an increase in relative particulate loading is detected over a preset level.

(iv) The bag leak detection system (BLDS) 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.

(v) 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.

(vi) The bag detector must be installed downstream of the baghouses.

(vii) Each sensor should be inspected at least once per month to remove any build-up of material that may collect on the probe or insulator.

(viii) Monthly QA checks shall be performed to ensure the monitor is operating properly. If the results of the response test or electronics drift check are not favorable, the cause shall be investigated and any malfunctions corrected.

(b) In the event of a bag leak detection system alarm:

(i) The affected compartments will be shut down as soon as possible 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 emergency provisions of this permit (Section C.19 - Emergency Provisions).

(ii) Not later than eight (8) business hours of the determination of failure, reasonable response steps according to the timetable described in the Compliance Response Plan (CRP) shall be initiated.

For any failure with corresponding reasonable response steps and timetable not described in the Compliance Response Plan (CRP), reasonable response steps shall be devised not later than eight (8) business hours of discovery of the failure and shall include a timetable for completion.

Failure to take reasonable response steps in accordance with Section C.17 - Compliance Response Plan (CRP) - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.

(c) If operations continue after bag failure is observed and it will be 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.1.25 Monitoring of Operations [40 CFR 60.274a]

Pursuant to 40 CFR 60.274a and PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall comply with the following monitoring requirements:

(a) Except as provided under item (e) of this condition, the Permittee shall check and record on a once-per-shift basis the furnace static pressure provided the DEC system is in use,

and a furnace static pressure gauge is installed according to Condition D.1.25(d) and either:

(i) check and record the control system fan motor amperes and damper positions on a once-per-shift basis; or

(ii) install, calibrate, and maintain a monitoring device that continuously records the volumetric flow rate through each separately ducted hood; or

(iii) 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 ± 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) The Permittee shall determine either the control system fan motor amperes and all damper positions or the volumetric flow rate through each separately ducted hood during all periods in which a hood is operated for the purpose of capturing emissions from the EAFs.

(c) 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) Except as provided under item (f) of this condition, the Permittee shall install, calibrate, and maintain a monitoring device that allows the pressure in the free space inside the EAF to be monitored.

The monitoring device may be installed in any appropriate location in the EAF or DEC duct prior to the introduction of ambient air such that reproducible results will be obtained.

The pressure monitoring device shall have an accuracy of ± 5 millimeter of water gauge over its normal operating range and shall be calibrated according to the manufacturer's instructions.

(e) Except as provided under item (f) of this condition, the pressure in the free space inside the EAF shall be determined during the melting and refining period(s) using the monitoring device required under item (d) of this condition.

The pressure determined during the most recent demonstration of compliance shall be maintained at all times when the EAF is operating in a meltdown and refining period.

(f) Pursuant to 40 CFR 60.273a(d), a furnace static pressure monitoring device is not required on any EAF equipped with a DEC system if observations of the shop opacity are performed by a certified visible emission observer.

D.1.26 Monitoring for Total Building Enclosure [326 IAC 2-2]

Pursuant to 326 IAC 2-2 and PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall demonstrate compliance with the requirement to provide total enclosure of the meltshop using the procedures listed in either (1) or (2) below.

This compliance demonstration shall be repeated at the time of each Method 12 stack test for lead emissions from the meltshop baghouse stack.

The results of this compliance demonstration shall be submitted to IDEM, OAQ with the test results of each Method 12 stack test for lead emissions from the meltshop baghouse.

(1)(A) The Permittee shall use a propeller anemometer or equivalent device meeting the requirements specified in (i) through (iii) below:

(a) The propeller of the anemometer shall be made of a material of uniform density and shall be properly balanced to optimize performance.

(b) The measurement range of the anemometer shall extend to at least 300 meters per minute (1,000 feet per minute).

(c) A known relationship shall exist between the anemometer signal output and air velocity, and the anemometer must be equipped with a suitable readout system.

(B) Doorway in-draft shall be determined by placing the anemometer in the plane of the doorway opening near its center.

(C) Doorway in-draft shall be demonstrated for each doorway that is open during normal operation with all remaining doorways in the position that they are in during normal operation.

The Preventive Maintenance Plan (PMP) for the meltshop shall contain troubleshooting contingency and response steps for when doorway in-draft is not demonstrated for any doorway that is open during normal operation.

(2)(A) The Permittee shall install a differential pressure gauge on the leeward wall of the building to measure the pressure difference between the inside and outside of the building.

(B) The pressure gauge shall be certified by the manufacturer to be capable of measuring pressure differential in the range of 0.02 to 0.2 mm Hg.

(C) Both the inside and outside taps shall be shielded to reduce the effects of wind.

(D) The Permittee shall demonstrate the inside of the building is maintained at a negative pressure as compared to the outside of the building of no less than 0.02 mm Hg when all doors are in the position they are in during normal operation.

The Preventive Maintenance Plan (PMP) for the meltshop shall contain troubleshooting contingency and response steps for when the pressure differential between the inside and outside of the building is less than 0.02 mm Hg.

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

D.1.27 Record Keeping Requirements [326 IAC 2-1.1-11] [40 CFR 60.276a]

(a) Pursuant to 326 IAC 2-1.1-11 and PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall maintain records required under 326 IAC 3-5-6 at the source in a manner so that they may be inspected by the IDEM, OAQ, or the U.S. EPA., if so requested or required.

(b) To document compliance with Condition D.1.1 - EAFs Operation Limitation, the Permittee shall maintain records of the amount of steel produced.

(c) To document compliance with Conditions D.1.7 - CO PSD BACT, and D.1.9 - VOC PSD BACT, the Permittee shall maintain records of the readings of the CO, and VOC CEMS.

(d) To document compliance with Conditions D.1.14 - Visible Emission Limitation PSD BACT, and D.1.15 - Visible Emission Limitations, the Permittee shall maintain records of the readings of the COM.

(e) Pursuant to PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall maintain records of visible emission readings at the EAFs Baghouse stack (Stack 1) and make the records available upon request to IDEM, OAQ, and the U.S. EPA.

(f) Pursuant to 40 CFR 60.276a and PSD Permits 183-10097-00030 and 183-12692-00030, records of the measurements required in 40 CFR 60.274a must be retained for at least 5 years following the date of the measurement.

(g) Pursuant to 326 IAC 2-1.1-11, 326 IAC 2-2 and PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall maintain records of the verification of sulfur content of DRI, charge carbon, and injection carbon added into the EAFs.

(h) Pursuant to 326 IAC 2-1.1-11 and PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall maintain records of the dates and times of all bag leak detection system alarms, the cause of each alarm, and an explanation of all corrective actions taken.

The Permittee shall also maintain records of the dates and results of the sensor inspections, response tests, electronic drift checks, and response steps taken.

(i) To document compliance with Condition D.1.18 - Preventive Maintenance Plan (PMP), the Permittee shall maintain records of any additional inspections prescribed by the Preventive Maintenance Plan (PMP) and make the records available upon request to IDEM, OAQ, and the U.S. EPA.

(k) All records shall be maintained in accordance with Condition C.22 - General Record Keeping Requirements of this permit.

(k) Records necessary to demonstrate compliance shall be available not later than 30 days of the end of each compliance period.

D.1.28 Reporting Requirements [326 IAC 2-1.1-11] [40 CFR 60.276a]

(a) To document compliance with Condition D.1.1 - EAFs Operation Limitation, the Permittee shall submit a quarterly summary of the actual amount of steel produced, using the Steel Production Report or its equivalent, located at the end of this permit. These reports shall be submitted not later than thirty (30) calendar days following the end of each calendar quarter and in accordance with Condition C.23 - General Reporting Requirements of this permit.

(b) Pursuant to 326 IAC 2-1.1-11 and PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall submit a quarterly excess emissions report, if applicable, based on the continuous emissions monitor (CEM) data for CO, and VOC, and continuous opacity monitor (COM) data, pursuant to 326 IAC 3-5-7.

These reports shall be submitted not later than thirty (30) calendar days following the end of each calendar quarter and in accordance with Condition C.23 - General Reporting Requirements of this permit.

(c) Pursuant to 40 CFR 60.276a and PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall comply with the following reporting requirements:

(i) The Permittee shall submit a semi-annual written report of exceedances of the control device opacity to IDEM, OAQ, and upon request, the U.S. EPA.

(ii) The Permittee shall submit semi-annually any values that exceed furnace static pressure established under 40 CFR 60.274a(g) and values of control system fan motor amperes that exceed 15 percent of the value established under 40 CFR 60.274a(c) or values of flow rates lower than those established under 40 CFR 60.274a(c) to IDEM, OAQ, and upon request, the U.S. EPA.

(iii) The Permittee shall furnish to IDEM, OAQ, and the U.S. EPA a written report of the results of the compliance emission tests. This report shall include the following information:

(A) Facility name and address;

(B) Plant representative;

(C) Make and model of process, control device, and continuous monitoring equipment;

(D) Flow diagram of process and emissions capture equipment including other equipment or process(es) ducted to the same control device;

(E) Rated (design) capacity of process equipment;

(F) The following operating conditions:

(1) List of charge and tap weights and materials;

(2) Heat times and process log;

(3) Control device operation log; and

(4) Continuous monitor or Reference Method 9 data.

(G) Test dates and test times;

(H) Test company;

(I) Test company representative;

(J) Test observers from outside agency;

(K) Description of test methodology used, including any deviation from standard reference methods;

(L) Schematic of sampling location;

(M) Number of sampling points;

(N) Description of sampling equipment;

(O) Listing of sampling equipment calibrations and procedures;

(P) Field and Laboratory data sheets;

(Q) Description of sample recovery procedures;

(R) Sampling equipment leak check results;

(S) Description of quality assurance procedures;

(T) Description of analytical procedures;

(U) Notation of sample blank corrections; and

(V) Sample emission calculations.

Non Applicable Existing Requirements

D.1.29 Non Applicable Existing Requirements [326 IAC 2-1.1-9.5]

Pursuant to 326 IAC 2-1.1-9.5, the following existing emission standards have not been carried over in this permit:

(a) Condition D.1.2(a) NO_x BACT [326 IAC 2-2-3]
PSD Permits 183-10097-00030 and 183-12692-00030

This existing requirement is not applicable because the NO_x BACT limits of 0.51 pounds per ton steel and 102 pounds per hour for the EAFs were specified only for the first 365 days of operation of the EAFs. This time period was over.

(b)	Condition D.1.5	Particulate Matter (PM) [326 IAC 6-3] PSD Permits 183-10097-00030 and 183-12692-00030 This existing requirement is not applicable pursuant to 326 IAC 6-3(c), because the particulate matter limitations for the EAFs had been established under 326 IAC 2-2 Prevention of Significant Deterioration (PSD).
(c)	Condition D.1.10(b)	Lead and Hazardous Air Pollutant (HAP) Limitations [326 IAC 2-1.1-4] [326 IAC 2-2] [326 IAC 2-4.1-1] PSD Permits 183-10097-00030 and 183-12692-00030 This existing requirement is not applicable, because Lead limitations had been established under 326 IAC 2-2 Prevention of Significant Deterioration (PSD).
(d)	Condition D.1.5(f)	Testing Requirements [326 IAC 2-1.1-11] PSD Permits 183-10097-00030 and 183-12692-00030 This existing requirement is not applicable, because compliance verification for Lead limitations has been established in this permit.
(e)	Condition D.2.2	Particulate Matter (PM) [326 IAC 6-3] PSD Permits 183-10097-00030 and 183-12692-00030 This existing requirement is not applicable pursuant to 326 IAC 6-3(c), because the particulate matter limitations for the Ladle Metallurgy Station (LMS) had been established under 326 IAC 2-2 Prevention of Significant Deterioration (PSD).
(f)	Condition D.4.2	Particulate Matter (PM) [326 IAC 6-3] PSD Permits 183-10097-00030 and 183-12692-00030 This existing requirement is not applicable pursuant to 326 IAC 6-3(c), because particulate matter limitations for the Continuous Caster (CC) had been established under 326 IAC 2-2 Prevention of Significant Deterioration (PSD).
(g)	Condition 7.2	Particulate Matter [326 IAC 6-3 PSD Permits 183-10097-00030 and 183-12692-00030 This existing requirement is not applicable pursuant to 326 IAC 6-3(c), because the particulate matter limitations for the slag processing had been established under 326 IAC 2-2 Prevention of Significant Deterioration (PSD).

SECTION D.2 FACILITY OPERATION CONDITIONS

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

Preheaters - - Stack 1

(1) Four (4) natural gas-fired low NO_x ladle preheaters (ID#s 3b through 3e), each with a nominal heat input rate of 10 million British Thermal Units per hour (MMBtu/hour).

(2) One (1) natural gas-fired low NO_x tundish nozzle preheater (ID# 3g), with a nominal heat input rate of 10 MMBtu/hour.

(3) Two (2) natural gas-fired low NO_x tundish preheaters (ID#s 3h and 3i), each with a nominal heat input rate of 5 MMBtu/hour.

(4) One (1) natural gas-fired Tundish Nozzle Preheater, identified as ID# 3m, nominally rated at 10 million Btu per hour.

(5) One (1) natural gas-fired Tundish Preheater, identified as ID# 3n, nominally rated at 10 million Btu per hour.

Combustion emissions from the preheaters exhaust inside the building, and are collected by the overhead roof exhaust system and ducted to the EAF Baghouse.

Dryers - - Stack 1

(1) Two (2) natural gas-fired low NO_x ladle dryers (ID# 3f and ID# 3l), each with a nominal heat input rate of 10 MMBtu/hour.

(2) One (1) natural gas-fired low NO_x tundish dryer (ID# 3j), with a nominal heat input rate of 5 MMBtu/hour.

(3) One (1) natural gas-fired Tundish Dryer, identified as ID# 3o, nominally rated at 5 million Btu per hour.

Combustion emissions from the dryers exhaust inside the building, and are collected by the overhead roof exhaust system and ducted to the common EAF Baghouse.

(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)]

D.2.1 Nitrogen Oxides (NO_x) - PSD Best Available Control Technology [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements) and PSD Permits 183-10097-00030 and 183-12692-00030, the following:

(a) Four (4) natural gas-fired low NO_x ladle preheaters (ID#s 3b through 3e),

(b) One (1) natural gas-fired low NO_x tundish nozzle preheater (ID# 3g),

(c) Two (2) natural gas-fired low NO_x tundish preheaters (ID#s 3h and 3i),

(d) One (1) natural gas-fired low NO_x ladle dryer (ID# 3f), and

(e) One (1) natural gas-fired low NO_x tundish dryer (ID# 3j)

shall be limited to the use of low NO_x natural gas-fired burners and NO_x emissions shall not exceed 0.10 pound per million British Thermal Units.

D.2.2 Clean Unit [326 IAC 2-2.2]

(a) Pursuant to 326 IAC 2-2.2, the following facilities:

(1) Four (4) natural gas-fired low NO_x ladle preheaters (ID#s 3b through 3e),

(2) One (1) natural gas-fired low NO_x tundish nozzle preheater (ID# 3g),

(3) Two (2) natural gas-fired low NO_x tundish preheaters (ID#s 3h and 3i),

(4) One (1) natural gas-fired low NO_x ladle dryer (ID# 3f), and

(5) One (1) natural gas-fired low NO_x tundish dryer (ID# 3j)

are classified as Clean Units for NO_x.

(b) The Clean Unit designations for the above mentioned facilities in Condition D.2.2(a) are in effect from September 9, 2004 to October 22, 2012.

The Clean Unit designations were based on the approval of the Affidavit of Construction for these units as permitted to be constructed under PSD Permits 193-10097-00030, issued on July 7, 1999 and PSD Permit 183-12692-00030, issued on January 10, 2001.

(c) In order to maintain the clean unit designations the above mentioned facilities in Condition D.2.2(a) , the Permittee shall comply with the following:

(1) The emissions units designated as clean unit s shall comply with the emissions limitations or work practice requirements in Condition D.2.1 (Nitrogen Oxides (NO_x) - PSD Best Available Control Technology) as part of the BACT.

In addition the emissions unit shall comply with all applicable requirements per 326 IAC 2-7 contained in this permit.

(2) No physical change or change in the method of operation shall be undertaken at these emissions units that would allow them to operate in a manner inconsistent with the physical or operational characteristics of the emission units.

(d) The above mentioned facilities in Condition D.2.2(a), designated as clean units, are subject to the following requirements:

(1) Any project at these emissions units for which actual construction begins after the effective date of the clean unit designations and before the expiration date shall be considered to have occurred while the emissions units were clean units.

(2) If a project at these emission units does not cause the need for a change in the emission limitations or work practice requirements in this permit for these units that were adopted in conjunction with BACT and the project would not alter any physical or operational characteristics that formed the basis for the BACT determination, the clean unit designations remain unchanged.

(3) If a project causes the need for a change in the emission limitations or work practice requirements in this permit for these units that were adopted in conjunction with BACT or the project would alter any physical or operational characteristics that formed the basis for the BACT determination, then the clean unit designations shall expire upon issuance of the necessary permit modifications, unless the units requalify as clean units. If the Permittee begins actual construction on the project without first applying to modify the emissions unit's permit, the clean unit designations shall expire immediately prior to the time when actual construction of this project begins.

(4) A project that causes emissions units to lose their clean unit designations shall be subject to the applicability requirements of 326 IAC 2-2-2(d)(1) through 326 IAC 2-2-2(d)(4) and 326 IAC 2-2-2(d)(6).

D.2.3 Ladle Preheater PSD BACT Limits [326 IAC 2-2]

Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the Permittee shall comply with the following Best Available Control Technology (BACT) requirements:

(a) The new second ladle dryer (ID# 3l) shall use natural gas as fuel.

(b) The nitrogen oxides (NO_x) emissions from the new second ladle dryer (ID# 3l) shall not exceed 0.050 pounds per million British Thermal Unit (MMBtu) and 0.5 pounds of NO_x per hour, based on a three (3) hour block average.

(c) The carbon monoxide (CO) emissions from the new second ladle dryer (ID# 3l) shall not exceed 0.084 pounds per MMBtu and 0.84 pounds of CO per hour, based on a three (3) hour block average.

(d) The volatile organic compound (VOC) emissions from the new second ladle dryer (ID# 3l) shall not exceed 0.0055 pounds per MMBtu and 0.055 pounds of VOC per hour, based on a three (3) hour block average.

(e) The sulfur dioxide (SO_2) emissions from the new second ladle dryer (ID# 3l) shall not exceed 0.0006 pounds per MMBtu and 0.006 pounds of SO_2 per hour based on a three (3) hour block average.

(f) The $PM_{(filterable)}$ emissions from the new second ladle dryer (ID# 3l) shall not exceed 0.0019 pounds per MMBtu and 0.019 pounds of filterable PM per hour, based on a three (3) hour block average.

(g) The $PM_{10\ (filterable\ and\ condensible)}$ emissions from the new second ladle dryer (ID# 3l) shall not exceed 0.0076 pounds per MMBtu and 0.076 pound of filterable and condensible PM_{10} per hour, based on a three (3) hour block average.

D.2.4 Clean Unit [326 IAC 2-2.2]

(a) Pursuant to 326 IAC 2-2.2, the new second ladle dryer (ID# 3l) is classified as Clean Unit for NO_x.

(b) The Clean Unit designation for this new second ladle dryer (ID# 3l) is in effect for ten (10) years from the initial start up of this dryer.

(c) In order to maintain the clean unit designation for new second ladle dryer, the Permittee shall comply with the following:

(1) The new second ladle dryer, designated as clean unit, shall comply with the emissions limitations or work practice requirements in Conditions D.2.3(a) and D.2.3(b) as part of the BACT.

In addition, the new second ladle dryer shall comply with all applicable requirements per 326 IAC 2-7 contained in this permit.

(2) No physical change or change in the method of operation shall be undertaken at this emissions unit that would allow them to operate in a manner inconsistent with the physical or operational characteristics of the emission units.

(d) The new second ladle dryer (ID# 3l), designated as clean unit, is subject to the following requirements:

(1) Any project at this emissions unit for which actual construction begins after the effective date of the clean unit designation and before the expiration date shall be considered to have occurred while the emissions unit was clean unit.

(2) If a project at this emission unit does not cause the need for a change in the emission limitations or work practice requirements in this permit for this unit that were adopted in conjunction with BACT and the project would not alter any physical or operational characteristics that formed the basis for the BACT determination, the clean unit designation remains unchanged.

(3) If a project causes the need for a change in the emission limitations or work practice requirements in this permit for this unit that were adopted in conjunction with BACT or the project would alter any physical or operational characteristics that formed the basis for the BACT determination, then the clean unit designation shall expire upon issuance of the necessary permit modifications, unless the unit requalifies as clean unit. If the Permittee begins actual construction on the project without first applying to modify the emissions unit's permit, the clean unit designation shall expire immediately prior to the time when actual construction of this project begins.

(4) A project that causes emissions unit to lose its clean unit designation shall be subject to the applicability requirements of 326 IAC 2-2-2(d)(1) through 326 IAC 2-2-2(d)(4) and 326 IAC 2-2-2(d)(6).

D.2.5 Tundish Nozzle Preheater PSD BACT Limits [326 IAC 2-2]

Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the Permittee shall comply with the following PSD Best Available Control Technology (BACT) standards:

(a) The Tundish Nozzle Preheater (ID# 3m) shall use natural gas as the primary fuel and propane as back up fuel.

(b) Low NO_x burners shall be installed and utilized to reduce the NO_x emissions from the Tundish Nozzle Preheater (ID# 3m).

(c) The NO_x emissions from the Tundish Nozzle Preheater (ID# 3m) shall not exceed 0.05 pounds per million Btu and 0.5 pounds per hour, based on a 3-hour block average.

(d) The CO emissions from the Tundish Nozzle Preheater (ID# 3m) shall not exceed 0.084 pounds per million Btu and 0.84 pounds per hour, based on a 3-hour block average.

(e) The VOC emissions from the Tundish Nozzle Preheater (ID# 3m) shall not exceed 0.0055 pounds per million Btu and 0.055 pounds per hour, based on a 3-hour block average.

(f) The SO_2 emissions from the Tundish Nozzle Preheater (ID# 3m) shall not exceed 0.0006 pounds per million Btu and 0.006 pounds per hour, based on a 3-hour block average.

(g) The filterable and condensible particulate matter (PM/PM_{10}) emissions from the Tundish Nozzle Preheater (ID# 3m) shall not exceed 0.0076 pounds per million Btu and 0.076 pounds per hour, based on a 3-hour block average.

(h) Good combustion practices shall be observed.

D.2.6 Tundish Preheater PSD BACT Limits [326 IAC 2-2]

Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the Permittee shall comply with the following PSD Best Available Control Technology (BACT) standards:

(a) The Tundish Preheater (ID# 3n) shall use natural gas as the primary fuel and propane as back up fuel.

(b) Low NO_x burners shall be installed and utilized to reduce the NO_x emissions from the Tundish Preheater (ID# 3n).

(c) The NO_x emissions from the Tundish Preheater (ID# 3m) shall not exceed 0.05 pounds per million Btu and 0.5 pounds per hour, based on a 3-hour block average.

(d) The CO emissions from the Tundish Preheater (ID# 3n) shall not exceed 0.084 pounds per million Btu and 0.84 pounds per hour, based on a 3-hour block average.

(e) The VOC emissions from the Tundish Preheater (ID# 3n) shall not exceed 0.0055 pounds per million Btu and 0.055 pounds per hour, based on a 3-hour block average.

(f) The SO_2 emissions from the Tundish Preheater (ID# 3n) shall not exceed 0.0006 pounds per million Btu and 0.006 pounds per hour, based on a 3-hour block average.

(g) The filterable and condensible particulate matter (PM/PM_{10}) emissions from the Tundish

Preheater (ID# 3n) shall not exceed 0.0076 pounds per million Btu and 0.076 pounds per hour, based on a 3-hour block average.

(h) Good combustion practices shall be observed.

D.2.7 Tundish Dryer PSD BACT Limits [326 IAC 2-2]

Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the Permittee shall comply with the following PSD Best Available Control Technology (BACT) standards:

(a) The Tundish Dryer (ID# 3o) shall use natural gas as the primary fuel and propane as back up fuel.

(b) Low NO_x burners shall be installed and utilized to reduce the NO_x emissions from the Tundish Dryer (ID# 3o).

(c) The NO_x emissions from the Tundish Dryer (ID# 3o) shall not exceed 0.05 pounds per million Btu and 0.25 pounds per hour, based on a 3-hour block average.

(d) The CO emissions from the Tundish Dryer (ID# 3o) shall not exceed 0.084 pounds per million Btu and 0.42 pounds per hour, based on a 3-hour block average.

(e) The VOC emissions from the Tundish Dryer (ID# 3o) shall not exceed 0.0055 pounds per million Btu and 0.028 pounds per hour, based on a 3-hour block average.

(f) The SO_2 emissions from the Tundish Dryer (ID# 3o) shall not exceed 0.0006 pounds per million Btu and pounds per hour, based on a 3-hour block average.

(g) The filterable and condensible particulate matter (PM/PM_{10}) emissions from the Tundish Dryer (ID# 3o) shall not exceed 0.0076 pounds per million Btu and 0.038 pounds per hour, based on a 3-hour block average.

(h) Good combustion practices shall be observed.

D.2.8 Clean Units [326 IAC 2-2.2]

(a) Pursuant to 326 IAC 2-2.2 (Clean Unit):

(1) The Tundish Nozzle Preheater (ID# 3m) is classified as Clean Unit for NO_x.

(2) The Tundish Preheater (ID# 3n) is classified as Clean Unit for NO_x.

(3) The Tundish Dryer (ID# 3o) is classified as Clean Unit for NO_x.

(b) The Clean Unit designations for these preheaters and dryer are in effect for ten (10) years from their initial start ups.

(c) In order to maintain the clean unit designations for the:

(1) Tundish Nozzle Preheater (ID# 3m):
The Permittee shall comply with the Tundish Nozzle Preheater (ID# 3m) NO_x PSD BACT limit.

(2) Tundish Preheater (ID# 3n):

The Permittee shall comply with the Tundish Preheater (ID# 3n) NO_x PSD BACT limit.

(3) Tundish Dryer (ID# 3o):
The Permittee shall comply with the Tundish Dryer (ID# 3o) NO_x PSD BACT limit.

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

D.2.9 Low NO_x Burners [326 IAC 2-2]

Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD):

(a) The Tundish Nozzle Preheater (ID# 3m) shall utilize the low NO_x burners at all times when the Tundish Nozzle Preheater (ID# 3m) is in operation.

(b) The Tundish Preheater (ID# 3n) shall utilize the low NO_x burners at all times when the Tundish Preheater (ID# 3n) is in operation.

(c) The Tundish Dryer (ID# 3o) shall utilize the low NO_x burners at all times when the Tundish Dryer (ID# 3o) is in operation.

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

None

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

D.2.10 Vendor Certification [326 IAC 2-2]

To document compliance with Conditions:
- - D.2.3 - Ladle Preheater PSD BACT limits,
- - D.2.5 - Tundish Nozzle Preheater PSD BACT limits,
- - D.2.6 - Tundish Preheater PSD BACT Limits, and
- - D.2.7 - Tundish Dryer PSD BACT Limits,

and pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the Permittee shall obtain and submit with the Affidavit of Construction/Modification (Condition B.4), all vendor guarantees for the new second ladle dryer (ID# 3l), Tundish Nozzle Preheater (ID# 3m), Tundish Preheater (ID# 3n) and Tundish Dryer (ID# 3o).

SECTION D.3 FACILITY OPERATION CONDITIONS

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

Reheat Furnaces - - Stack 2 and Stack 41

(1) One (1) natural gas-fired low NO_x reheat furnace (RH) (ID# 2) with a nominal heat input rate of 260 MMBtu per hour.

Combustion and process emissions from the RH (ID# 2) exhaust through a stack identified as Stack 2.

(2) One (1) natural gas-fired low NO_x burners reheat furnace, identified as ID# 41, with a nominal heat input rate of 260 million Btu per hour.

Combustion and process emissions from this reheat furnace (ID# 41) exhaust through a stack, identified as Stack 41.

(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)]

D.3.1 Nitrogen Oxides (NO_x) - Best Available Control Technology [326 IAC 2-2-3]

(a) Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements) and PSD Permits 183-10097-00030 and 183-12692-00030, the Reheat Furnace (RF) (ID# 2) shall be limited to the use of ultra low- NO_x natural gas-fired burners such that NO_x emissions shall not exceed 0.11 pound per million British Thermal Units.

(b) Pursuant to PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall not allow more than 189.8 million cubic feet of natural gas to be combusted in the Reheat Furnace (RF) (ID# 2) on a monthly basis averaged over a twelve (12) month period, with compliance determined at the end of each month.

D.3.2 Carbon Monoxide (CO) - Best Available Control Technology [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements) and PSD Permits 183-10097-00030 and 183-12692-00030, the CO emissions from the Reheat Furnace (RF) (ID# 2) shall not exceed 0.03 pound per million British Thermal Units.

D.3.3 Clean Unit [326 IAC 2-2.2]

(a) Pursuant to 326 IAC 2-2.2, the Reheat Furnace (RF) (ID# 2) is classified as Clean Unit for NO_x.

(b) The Clean Unit designation for this RF (ID# 2) is in effect from September 9, 2004 to October 22, 2012.

The Clean Unit designation was based on the approval of the Affidavit of Construction for this unit as permitted to be constructed under PSD Permits 193-10097-00030, issued on July 7, 1999 and PSD Permit 183-12692-00030, issued on January 10, 2001.

(c) In order to maintain the clean unit designation for the RF(ID# 2), the Permittee shall

comply with the following:

(1) The RF (ID# 2), designated as clean unit, shall comply with the emissions limitations or work practice requirements in Condition D.3.1 as part of the BACT:

In addition, the RF(ID# 2) shall comply with all applicable requirements per 326 IAC 2-7 contained in this permit.

(2) No physical change or change in the method of operation shall be undertaken at this emissions unit that would allow them to operate in a manner inconsistent with the physical or operational characteristics of the emission unit.

(d) The RF (ID# 2), designated as clean unit, is subject to the following requirements:

(1) Any project at this emissions unit for which actual construction begins after the effective date of the clean unit designation and before the expiration date shall be considered to have occurred while the emissions unit was clean unit.

(2) If a project at this emission unit does not cause the need for a change in the emission limitations or work practice requirements in this permit for this unit that were adopted in conjunction with BACT and the project would not alter any physical or operational characteristics that formed the basis for the BACT determination, the clean unit designation remains unchanged.

(3) If a project causes the need for a change in the emission limitations or work practice requirements in this permit for this unit that were adopted in conjunction with BACT or the project would alter any physical or operational characteristics that formed the basis for the BACT determination, then the clean unit designation shall expire upon issuance of the necessary permit modifications, unless the unit requalifies as clean unit. If the Permittee begins actual construction on the project without first applying to modify the emissions unit's permit, the clean unit designation shall expire immediately prior to the time when actual construction of this project begins.

(4) A project that causes emissions unit to lose its clean unit designation shall be subject to the applicability requirements of 326 IAC 2-2-2(d)(1) through 326 IAC 2-2-2(d)(4) and 326 IAC 2-2-2(d)(6).

D.3.4 Reheat Furnace PSD BACT [326 IAC 2-2]

Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the Permittee shall comply with the following PSD Best Available Control Technology (BACT) standards:

(a) The Reheat Furnace (ID# 41) shall use natural gas as the primary fuel and propane as back up fuel.

(b) Low NO_x burners shall be installed and utilized to reduce the NO_x emissions from the Reheat Furnace (ID# 41).

(c) The NO_x emissions from the Reheat Furnace (ID# 41) shall not exceed 0.08 pounds per million Btu and 20.8 pounds per hour, based on a 3-hour block average.

(d) The CO emissions from the Reheat Furnace shall not exceed 0.03 pounds per million Btu

and 7.8 pounds per hour, based on a 3-hour block average.

(e) The VOC emissions from the Reheat Furnace (ID# 41) shall not exceed 0.005 pounds per million Btu and 1.3 pounds per hour, based on a 3-hour block average.

(f) The SO_2 emissions from the Reheat Furnace (ID# 41) shall not exceed 0.0006 pounds per million Btu and 0.156 pounds per hour, based on a 3-hour block average.

(g) The filterable particulate matter (PM) emissions from the Reheat Furnace (ID# 41) shall not exceed 0.0019 pounds per million Btu and 0.49 pounds per hour, based on a 3-hour block average.

(h) The filterable and condensible particulate matter (PM/PM_{10}) emissions from the Reheat Furnace (ID# 41) shall not exceed 0.0076 pounds per million Btu and 1.98 pounds per hour, based on a 3-hour block average.

(i) The visible emissions from the Reheat Furnace (ID# 41) Stack 41 shall not exceed 3% opacity.

(j) The lead emissions from the Reheat Furnace (ID# 41) shall not exceed 0.0005 pounds per million Btu and 0.13 pounds per hour, based on a 3-hour block average.

(k) The mercury emissions from the Reheat Furnace (ID# 41) shall not exceed 0.00026 pounds per million Btu and 0.068 pounds per hour, based on a 3-hour block average.

(l) Good combustion practices shall be observed.

D.3.5 Reheat Furnace Clean Unit [326 IAC 2-2.2]

(a) Pursuant to 326 IAC 2-2.2 (Clean Unit), the Reheat Furnace (ID# 41) is classified as Clean Unit for NO_x.

(b) The Clean Unit designation for this Reheat Furnace (ID# 41) is in effect for ten (10) years from its initial start up.

(c) In order to maintain the clean unit designations for the Reheat Furnace, the Permittee shall comply with the Reheat Furnace (ID# 41) NO_x PSD BACT limit.

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

D.3.6 Low NO_x Burners [326 IAC 2-2]

Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the Reheat Furnace (ID# 41) shall utilize the low NO_x burners at all times when the Reheat Furnace (ID# 41) is in operation.

D.3.7 Testing Requirements [326 IAC 2-1.1-11]

(a) Pursuant to 326 IAC 2-1.1-11 and PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall perform NO_x and CO testing on the Reheat Furnace (RF) (ID# 2) at least once every five (5) years from the date of the last valid compliance demonstration.

(b) Pursuant to 326 IAC 2-1.1-11, the Permittee shall test for NO_x on the Reheat Furnace stack (Stack 41) within 60 days after achieving maximum capacity, but no later than 180 days after the initial start up of the Reheat Furnace, utilizing methods as approved by the Commissioner.

This NO_x test shall be repeated at least once every five (5) years from the date of the last valid compliance demonstration.

(c) Testing shall be conducted in accordance with Section C.12 - Performance Testing.

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

None

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

D.3.8 Record Keeping Requirements [326 IAC 2-7-5] [326 IAC 2-7-19]

(a) Pursuant to PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall maintain records of the natural gas and propane combusted in the Reheat Furnace (RF) (ID# 2) each month and make the records available upon request to IDEM, OAQ, and the US EPA.

(b) All records shall be maintained in accordance with Condition C.22 - General Record Keeping Requirements of this permit.

D.3.9 Vendor Certification [326 IAC 2-2]

To document compliance with Condition D.3.4 - Reheat Furnace PSD BACT, and pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the Permittee shall obtain and submit with the Affidavit of Construction (Condition B.4), vendor specifications and guarantees for the Reheat Furnace (ID# 41).

SECTION D.4 FACILITY OPERATION CONDITIONS

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

Ladle Vacuum Degasser (LVD) and LVD Boiler - - Stack 40

One (1) ladle vacuum degasser (LVD) (ID# 40) with a nominal capacity of 300 tons per hour of steel and one (1) boiler to power the LVD. The LVD Boiler (ID# 41) has a nominal heat input capacity of 41.8 MMBtu/hour, and uses natural gas as the primary fuel, with propane as an emergency back up fuel.

Gases from the LVD are directed to the boiler for combustion in the boiler. Emissions from the boiler exhausts through a stack identified as Stack 40.

(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)]

D.4.1 PM/ PM_{10} Limitations (PM) [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 Prevention of Significant Deterioration (PSD) and PSD Permit 183-15170-00030, the total PM/ PM_{10} (including both filterable and condensible) emissions from the LVD Boiler (ID# 41) shall not exceed 0.0076 pound per million Btu of heat input and 0.318 pound per hour.

D.4.2 NO_x Limitations (PM) [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 Prevention of Significant Deterioration (PSD) and PSD Permit 183-15170-00030, the NO_x emissions from the LVD Boiler (ID# 41) shall not exceed 0.04 pound per million Btu of heat input and 1.67 pounds per hour.

D.4.3 CO Limitations PSD BACT [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 Prevention of Significant Deterioration (PSD) and PSD Permit 183-15170-00030, the CO emissions from the LVD Boiler (ID# 41) shall not exceed 0.084 pound per million Btu of heat input and 3.51 pounds per hour.

D.4.4 VOC Limitations PSD BACT [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 Prevention of Significant Deterioration (PSD) and PSD Permit 183-15170-00030, the VOC emissions from the LVD Boiler (ID# 41) shall not exceed 0.0026 pound per million Btu of heat input and 0.11 pound per hour.

D.4.5 SO_2 Limitations PSD BACT [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 Prevention of Significant Deterioration (PSD) and PSD Permit 183-15170-00030, the SO_2 emissions from the LVD Boiler (ID# 41) shall not exceed 0.0006 pound per million Btu of heat input and 0.025 pound per hour.

D.4.6 Operating Parameters [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 (PSD) and PSD Permit 183-15170-00030, the following conditions shall apply:

(a) Only natural gas or propane fuels shall be used in the LVD Boiler (ID# 41).

(b) The amount of natural gas used in the LVD Boiler (ID# 41) shall not exceed 209 million cubic feet per 12-consecutive month period, with compliance determined at the end of each month.

(c) The amount of propane used in the LVD Boiler (ID# 41) shall not exceed 222 kilogallons per 12 consecutive month period with compliance determined at the end of each month.

(d) Combustion emissions shall be reduced through the use of good combustion practices.

D.4.7 PM/ PM_{10} Limitations (PM) [326 IAC 6-2-4]

Pursuant to 326 IAC 6-2-4 (Particulate emission limitations for sources of indirect heating: emission limitations for facilities specified in 326 IAC 6-2-1(d)) and PSD Permit 183-15170-00030, the particulate emissions from the LVD Boiler (ID# 41) shall not exceed 0.1 pound per million Btu of heat input.

D.4.8 Clean Unit [326 IAC 2-2.2]

(a) Pursuant to 326 IAC 2-2.2, the LVD Boiler (ID# 41) is classified as Clean Unit for NO_x.

(b) The Clean Unit designation for this LVD Boiler (ID# 41) is in effect from September 9, 2004 to June 5, 2013.

The Clean Unit designation was based on the approval of the Affidavit of Construction for this unit as permitted to be constructed under PSD Permit 183-15170-00030) was issued on May 31, 2002.

(c) In order to maintain the clean unit designation for the LVD Boiler (ID# 41), the Permittee shall comply with the following:

(1) The LVD Boiler (ID# 41), designated as clean unit, shall comply with the emissions limitations or work practice requirements in the following conditions as part of the BACT:

(A) D.4.2 NO_x Limitations PSD BACT, and

(B) D.4.6 Operating Parameters.

In addition, the LVD Boiler (ID# 41) shall comply with all applicable requirements per 326 IAC 2-7 contained in this permit.

(2) No physical change or change in the method of operation shall be undertaken at this emissions unit that would allow them to operate in a manner inconsistent with the physical or operational characteristics of the emission unit.

(d) The LVD Boiler (ID# 41), designated as clean unit, is subject to the following requirements:

(1) Any project at this emissions unit for which actual construction begins after the effective date of the clean unit designation and before the expiration date shall be considered to have occurred while the emissions unit was clean unit.

(2) If a project at this emission unit does not cause the need for a change in the

emission limitations or work practice requirements in this permit for this unit that were adopted in conjunction with BACT and the project would not alter any physical or operational characteristics that formed the basis for the BACT determination, the clean unit designation remains unchanged.

(3) If a project causes the need for a change in the emission limitations or work practice requirements in this permit for this unit that were adopted in conjunction with BACT or the project would alter any physical or operational characteristics that formed the basis for the BACT determination, then the clean unit designation shall expire upon issuance of the necessary permit modifications, unless the unit requalifies as clean unit. If the Permittee begins actual construction on the project without first applying to modify the emissions unit's permit, the clean unit designation shall expire immediately prior to the time when actual construction of this project begins.

(4) A project that causes emissions unit to lose its clean unit designation shall be subject to the applicability requirements of 326 IAC 2-2-2(d)(1) through 326 IAC 2-2-2(d)(4) and 326 IAC 2-2-2(d)(6).

D.4.9 Preventive Maintenance Plan (PMP) [316 IAC 1-6-3] [326 IAC 2-7-5(13)]

Pursuant to 326 IAC 1-6-3 and PSD Permit 183-15170-00030, a Preventive Maintenance Plan (PMP), in accordance with Section C.4 - Preventive Maintenance Plan (PMP), of this permit, is required for the LVD Boiler (ID# 41).

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

D.4.10 Testing Requirements [326 IAC 2-7-6(1),(6)] [326 IAC 2-1.1-11]

Pursuant to 326 IAC 2-1.1-11 and PSD Permit 183-15170-00030, the Permittee shall perform NO_x and CO testing on the LVD Boiler (ID# 41), at least once every five (5) years from the date of the last valid compliance demonstration, using methods as approved by the Commissioner.

Testing shall be performed in compliance with Section C.12 - Performance Testing.

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

None

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

D.4.11 Record Keeping Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19] [40 CFR 60, Subpart Dc]

(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 US EPA, if so requested or required.

(b) Pursuant to 40 CFR 60, Subpart Dc and PSD Permit 183-15170-00030, the Permittee shall maintain records of the amount of each type of fuel combusted in the LVD Boiler (ID# 41) each day.

(c) Pursuant to PSD Permit 183-15170-00030 and to document compliance with Condition D.4.6 - Operating Parameters, the Permittee shall keep records of monthly fuel used by LVD Boiler (ID# 41), including the types of fuel and amount used.

(d) To document compliance with Condition D.4.9 - Preventive Maintenance Plan (PMP), the Permittee shall maintain records of any additional inspections prescribed by the Preventive Maintenance Plan (PMP), and make the records available upon request to IDEM, OAQ and the US EPA.

(e) Records necessary to demonstrate compliance shall be available within 30 days of the end of each compliance period.

(f) All records shall be maintained in accordance with Section C.22 - General Record Keeping Requirements of this permit.

D.4.12 Reporting Requirements [326 IAC 2-1.1-11]

Pursuant to 326 IAC 2-1.1-11 and PSD Permit 183-15170-00030 and to document compliance with Condition D.4.6 - Operating Parameters, a quarterly summary of the following:

(a) the amount of natural gas used in the LVD boiler, and

(b) the amount of propane used in the LVD boiler

shall be submitted to the address listed in Section C.23 - General Reporting Requirements, of this permit, using the reporting form (Natural Gas and Propane Usage Quarterly Report) located at the end of this permit, or its equivalent, within thirty (30) calendar days following the end of each calendar quarter.

The report submitted by the Permittee does require the certification by the “responsible official” as defined by 326 IAC 2-7-1(34).

SECTION D.5 FACILITY OPERATION CONDITIONS

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

(a) One (1) EAF dust storage silo (ID# 4), equipped with a bin vent filter for particulate control.

(b) Eight (8) raw material storage silos (ID#s 5 through 12) and the associated raw material receiving station.

Each silo is equipped with a bin vent filter for particulate control.

(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)]

D.5.1 Particulate Matter (PM/PM_{10}) - PSD Best Available Control Technology [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements) and PSD Permits 183-10097-00030 and 183-12692-00030, the filterable PM/PM_{10} emissions from each of the nine (9) storage silos shall not exceed 0.01 grains per dry standard cubic feet.

D.5.2 Visible Emission Limitation - PSD Best Available Control Technology [326 IAC 2-2-3]

(a) Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements) and PSD Permits 183-10097-00030 and 183-12692-00030, the visible emissions from each of the nine (9) storage silos shall not exceed three percent (3%) opacity.

(b) Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements) and PSD Permits 183-10097-00030 and 183-12692-00030, the visible emissions from the EAFs dust handling system and the raw material receiving station shall not exceed three percent (3%) opacity or greater based on a six-minute average (24 readings taken in accordance with 40 CFR Part 60, Appendix A, Method 9).

D.5.3 Clean Unit [326 IAC 2-2.2]

(a) Pursuant to 326 IAC 2-2.2, the nine (9) storage silos are classified as Clean Units for PM/PM_{10}.

(b) The Clean Unit designations for these nine (9) storage silos are in effect from September 9, 2004 to October 22, 2012.

The Clean Unit designations were based on the approval of the Affidavit of Construction for these units as permitted to be constructed under PSD Permits 193-10097-00030, issued on July 7, 1999 and PSD Permit 183-12692-00030, issued on January 10, 2001.

(c) In order to maintain the clean unit designations for the nine (9) storage silos, the Permittee shall comply with the following:

(1) The nine (9) storage silos, designated as clean units, shall comply with the emissions limitations or work practice requirements in the following conditions as part of the BACT:

(A) D.5.1 Particulate Matter (PM/PM_{10}) - PSD Best Available Control Technology, and
(B) D.5.2 Visible Emission Limitation - PSD Best Available Control Technology.

In addition, the nine (9) storage silos shall comply with all applicable requirements per 326 IAC 2-7 contained in this permit.

(2) No physical change or change in the method of operation shall be undertaken at these emissions units that would allow them to operate in a manner inconsistent with the physical or operational characteristics of the emission units.

(d) The nine (9) storage silos, designated as clean units, are subject to the following requirements:

(1) Any project at these emissions units for which actual construction begins after the effective date of the clean unit designations and before the expiration date shall be considered to have occurred while the emissions units were clean units.

(2) If a project at these emission units does not cause the need for a change in the emission limitations or work practice requirements in this permit for these units that were adopted in conjunction with BACT and the project would not alter any physical or operational characteristics that formed the basis for the BACT determination, the clean unit designations remain unchanged.

(3) If a project causes the need for a change in the emission limitations or work practice requirements in this permit for these units that were adopted in conjunction with BACT or the project would alter any physical or operational characteristics that formed the basis for the BACT determination, then the clean unit designations shall expire upon issuance of the necessary permit modifications, unless the units requalify as clean units. If the Permittee begins actual construction on the project without first applying to modify the emissions unit's permit, the clean unit designations shall expire immediately prior to the time when actual construction of this project begins.

(4) A project that causes emissions units to lose their clean unit designations shall be subject to the applicability requirements of 326 IAC 2-2-2(d)(1) through 326 IAC 2-2-2(d)(4) and 326 IAC 2-2-2(d)(6).

D.5.4 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 Dust Handling System except when otherwise specified in 40 CFR Part 60, Subpart AAa.

D.5.5 Visible Emission Limitations [40 CFR Part 60, Subpart AAa]

Pursuant to 40 CFR 60.272a(a) and PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall not cause to discharge into the atmosphere from the EAF Dust Handling System any gases that exhibit ten percent (10%) opacity or greater.

D.5.6 Preventive Maintenance Plan (PMP) [326 IAC 1-6-3] [326 IAC 2-7-5(13)]

Pursuant to 326 IAC 1-6-3 and PSD Permits 183-10097-00030 and 183-12692-00030, a Preventive Maintenance Plan (PMP), in accordance with Condition C.4 - Preventive Maintenance Plan (PMP), of this permit, is required for the bin vent filters.

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

D.5.7 Bin Vent Operation [326 IAC 2-2]

Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD) and PSD Permits 183-10097-00030 and 183-12692-00030, the bin vent filters shall be in operation and control emissions at all times when the storage silos are in operation.

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

D.5.8 Visible Emissions Notations [326 IAC 2-1.1-11]

Pursuant to 326 IAC 2-1.1-11 and PSD Permits 183-10097-00030 and 183-12692-00030:

(a) Weekly visible emission notations of the nine (9) storage silos exhaust vents and the raw material receiving station shall be performed during normal daylight operations when loading or unloading material. A trained employee shall record whether emissions are normal or abnormal.

(b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, when the process is in operation, not counting startup or shut down time.

(c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

(d) 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.

(e) The Compliance Response Plan (CRP) for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed.

D.5.9 Bin Vent Filter Inspections [326 IAC 2-1.1-11]

Pursuant to PSD Permits 183-10097-00030 and 183-12692-00030, an inspection shall be performed each calendar quarter of all bin vent filters controlling the nine (9) storage silos. All defective filters shall be replaced. A record shall be kept of the results of the inspection and the number of bags replaced.

D.5.10 Broken or Failed Bin Vent Filter Detection [326 IAC 2-1.1-11]

Pursuant to 326 IAC 2-1.1-11 and PSD Permits 183-10097-00030 and 183-12692-00030:

In the event that filter failure has been observed, for single compartment filters, failed units and the associated process will be shut down as soon as possible until the failed units have been repaired or replaced.

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

D.5.11 Record Keeping Requirements [326 IAC 2-7-5] [326 IAC 2-7-19]

(a) Pursuant to PSD Permits 183-10097-00030 and 183-12692-00030 and to document compliance with Condition D.5.2 - Visible Emission Limitation PSD BACT , the Permittee shall maintain records of the following and make the records available upon request to IDEM, OAQ, and the US EPA:

(i) Weekly visible emission notations of the bin vent exhaust and raw material receiving station.

(ii) Documentation of all response steps implemented for every event that visible emissions were noted to be “abnormal.

(b) To document compliance with Condition D.5.6 - Preventive Maintenance Plan (PMP), the Permittee shall maintain records of any additional inspections prescribed by the Preventive Maintenance Plan (PMP) and make the records available upon request to IDEM, OAQ, and the US EPA.

(c) All records shall be maintained in accordance with Condition C.22 - General Record Keeping Requirements of this permit.

SECTION D.6 FACILITY OPERATION CONDITIONS

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

A slag handling and processing area (ID# 14), operated by an independent contractor, with a nominal rated capacity of 250 tons per hour.

This processing area consists of slag pot dumping, deskulling, slag cooling, digging of slag pits by a front-end loader, loading of grizzly feeder by a front-end loader, crushing, screening, conveyor transfer points, loading of materials into piles, storage piles, load out of materials from piles, and vehicle movement around piles.

This processing area utilizes the following equipment: one (1) grizzly/feeder, three (3) conveyors, one (1) single deck screen, one (1) primary crusher, one (1) by-pass conveyor, one (1) screen, and seven (7) stackers.

Particulate emissions from the slag processing area are controlled by water suppression, as needed, and minimizing drop heights.

(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)]

D.6.1 Annual Slag Production Limitation [326 IAC 2-1.1-5] [326 IAC 2-2]

Pursuant to 326 IAC 2-1.1-5 and 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the Permittee shall not process more than 438,000 tons of slag per 12-consecutive month period, with compliance determined at the end of each month.

This requirement supersedes:
- - Condition D.7.1 of PSD Permit 183-12692-00030, issued on January 10, 2001, and
- - Condition D.7.1 of PSD Permit 183-10097-00030, issued on July 7, 1999.

D.6.2 Particulate Matter (PM) [326 IAC 6-3]

Pursuant to 326 IAC 6-3 (Particulate Emission Limitations for Process Operations), the combined filterable PM emissions from the crushing, screening, conveyor transfer points, continuous stacking operations shall not exceed 60.96 pounds per hour.

This limit is based on the nominal process weight rate of 250 tons per hour.

PM emissions will be considered in compliance with 326 IAC 6-3 in the absence of PM compliance tests provided that visible emissions do not exceed the visible emissions requirements specified for these operations in this permit.

The pounds per hour limitation was calculated using the following equation:

$E = 55.0P^{0.11}-40$ where E = rate of emission in pounds per hour; and
P = process weight rate in tons per hour.

The above equation shall be used for extrapolation of the data for process weight rates in excess of sixty thousand (60,000) pounds per hour.

This requirement supersedes:
- - Condition D.7.2 of PSD Permit 183-12692-00030, issued on January 10, 2001, and
- - Condition D.7.2 of PSD Permit 183-10097-00030, issued on July 7, 1999.

D.6.3 Visible Emission Limitations - Best Available Control Technology [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements) and PSD Permits 183-10097-00030 and 183-12692-00030, the fugitive dust emissions from the various slag handling and processing operations shall be controlled in accordance with the Fugitive Dust Control Plan (FDCP) (Section E.1) such that the following visible emission limitations are not exceeded:

Slag Handling/Processing Operation	Visible Emission Limitation (% opacity) (six (6) minute average)
Transferring of skull slag to slag pot	10 %
Pouring of liquid slag from EAF or LMS to slag pots	3% (on any building opening)
Dumping of liquid slag from slag pot to slag pit and cooling	3 %
Transferring of skull slag from slag pot to skull pit	5 %
Digging skull slag pits	5 %
Digging slag pits	3 %
Stockpiling of slag adjacent to the grizzly feeder	3 %
Wind erosion of stockpiles	3 %
Crushing	3 %
Screening	3 %
Conveyor transfer points	3 %
Continuous stacking of processed slag to stockpiles	3 %
Loadout of processed slag from stockpiles to haul trucks for shipment	3 %
Inplant hauling of slag pots (filled) and processed slag	3 %

D.6.4 Slag Dumping Fugitive Particulate Matter (PM/ PM_{10}) [326 IAC 2-2-3] [326 IAC 2-2]

Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements) and PSD Permits 183-10097-00030 and 183-12692-00030, the slag dumping pits shall be covered by a partially enclosed, roofed structure to reduce PM emissions during slag dumping. The roof shall extend over the entire slag pit area and past the dump stations. The sides of the structure shall extend sufficiently downward from the roof, taking into account:

(a) reduction of PM emissions during dumping and partial shielding of prevailing winds; and

(b) dissipation of heat and consideration of safety concerns within the structure.

D.6.5 Clean Unit [326 IAC 2-2.2]

(a) Pursuant to 326 IAC 2-2.2, the slag handling and processing operations are classified as Clean Units for PM/PM_{10}.

(b) The Clean Unit designation for these slag handling and processing operations are in

effect for ten (10) years from the issuance date of this permit.

(c) In order to maintain the clean unit designations for the slag handling and processing operations, the Permittee shall comply with the following:

(1) The slag handling and processing operations, designated as clean units, shall comply with the emissions limitations or work practice requirements in the following conditions as part of the BACT:

(A) D.6.1 Annual Slag Production Limitation,

(B) D.6.3 Visible Emission Limitations - BACT, and

(C) D.6.4 Slag Dumping Fugitive Particulate Matter.

In addition, the slag handling and processing operations shall comply with all applicable requirements per 326 IAC 2-7 contained in this permit.

(2) No physical change or change in the method of operation shall be undertaken at these operations that would allow them to operate in a manner inconsistent with the physical or operational characteristics of the operations.

(d) The slag handling and processing operations, designated as clean units, are subject to the following requirements:

(1) Any project at these emissions units for which actual construction begins after the effective date of the clean unit designations and before the expiration date shall be considered to have occurred while the emissions units were clean units.

(2) If a project at these emission units does not cause the need for a change in the emission limitations or work practice requirements in this permit for these units that were adopted in conjunction with BACT and the project would not alter any physical or operational characteristics that formed the basis for the BACT determination, the clean unit designations remain unchanged.

(3) If a project causes the need for a change in the emission limitations or work practice requirements in this permit for these units that were adopted in conjunction with BACT or the project would alter any physical or operational characteristics that formed the basis for the BACT determination, then the clean unit designations shall expire upon issuance of the necessary permit modifications, unless the units requalify as clean units. If the Permittee begins actual construction on the project without first applying to modify the emissions unit's permit, the clean unit designations shall expire immediately prior to the time when actual construction of this project begins.

(4) A project that causes emissions units to lose their clean unit designations shall be subject to the applicability requirements of 326 IAC 2-2-2(d)(1) through 326 IAC 2-2-2(d)(4) and 326 IAC 2-2-2(d)(6).

D.6.6 Preventive Maintenance Plan (PMP) [326 IAC 1-6-3] [326 IAC 2-7-5(13)]

Pursuant to 326 IAC 1-6-3 and PSD Permits 183-10097-00030 and 183-12692-00030, a Preventive Maintenance Plan (PMP), in accordance with Condition C.4 - Preventive Maintenance Plan (PMP), of this permit, is required for the slag handling and processing operations associated control devices.

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

D.6.7 Testing Requirements [326 IAC 2-2]

Pursuant to PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall perform a compliance test for opacity on the above-mentioned slag handling and processing operations, utilizing 40 CFR Part 60, Appendix A, Method 9, or other methods as approved by the Commissioner at least once every five (5) years from the date of the last valid compliance demonstration.

Testing shall be conducted in accordance with Section C.12 - Performance Testing.

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

None

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

D.6.8 Record Keeping Requirements [326 IAC 2-7-19]

Pursuant to PSD Permits 183-10097-00030 and 183-12692-00030:

(a) To document compliance with Condition D.6.1 - Annual Slag Production Limitation, the Permittee shall maintain records of the amount of slag processed.

(b) To document compliance with Condition D.6.6. - Preventive Maintenance Plan (PMP)6, the Permittee shall maintain records of any inspections prescribed by the Preventive Maintenance Plan (PMP) and make the records available upon request to IDEM, OAQ, and the US EPA.

(c) All records shall be maintained in accordance with Condition C.22 - General Record Keeping Requirements of this permit.

D.6.9 Reporting Requirements [326 IAC 2-1.1-11]

Pursuant to PSD Permits 183-10097-00030 and 183-12692-00030, and to document compliance with Condition D.6.1 - Annual Slag Production Limitation, the Permittee shall submit a quarterly summary of the amount of slag processed, using the reporting form (Slag Production Report) located at the end of this permit, or its equivalent, not later than thirty (30) days after the end of the quarter being reported and in accordance with Section C.23 - General Reporting Requirements of this permit.

The report submitted by the Permittee does require the certification by the responsible official" as defined by 326 IAC 2-7-1(34).

SECTION D.7 FACILITY OPERATION CONDITIONS

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

Transporting on paved roadways and parking lots, unpaved roadways, and unpaved areas around slag storage piles and steel scrap piles.

(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)]

D.7.1 Fugitive Dust Emission Limitations - Best Available Control Technology [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements) and PSD Permits 183-10097-00030 and 183-12692-00030, the fugitive dust emissions from transporting on paved roadways and parking lots, unpaved roadways, and unpaved areas around slag storage piles and steel scrap piles shall be controlled in accordance with the Fugitive Dust Control Plan (FDCP) (Section E.1) such that the following limitations are not exceeded:

Instantaneous opacity from paved roadways and parking lots shall not exceed ten percent (10%). The average instantaneous opacity shall be the average of twelve (12) instantaneous opacity readings, taken for four (4) vehicle passes, consisting of three (3) opacity readings for each vehicle pass.

The three (3) opacity readings for each vehicle pass shall be taken as follows:

(a) The first will be taken at the time of emission generation.

(b) The second will be taken five (5) seconds later.

(c) The third will be taken five (5) seconds later or ten (10) seconds after the first.

The three (3) readings shall be taken at the point of maximum opacity.

The observer shall stand at least fifteen (15) feet, but no more than one-fourth (1/4) mile, from the plume and at approximately right angles to the plume.

Each reading shall be taken approximately four (4) feet above the surface of the paved roadway.

D.7.2 Visible Emission Limitations - Best Available Control Technology [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements) and PSD Permits 183-10097-00030 and 183-12692-00030, the visible emissions from unpaved roadways and unpaved areas around slag storage piles and steel scrap piles shall not exceed an average instantaneous opacity of ten percent (10%).

The average instantaneous opacity shall be the average of twelve (12) instantaneous opacity readings, taken for four (4) vehicle passes, consisting of three (3) opacity readings for each vehicle pass.

The three (3) opacity readings for each vehicle pass shall be taken as follows:

(a) The first will be taken at the time of emission generation.

(b) The second will be taken five (5) seconds later.

(c) The third will be taken five (5) seconds later or ten (10) seconds after the first.

The three (3) readings shall be taken at the point of maximum opacity.

The observer shall stand at least fifteen (15) feet, but no more than one-fourth (1/4) mile, from the plume and at approximately right angles to the plume.

Each reading shall be taken approximately four (4) feet above the surface of the unpaved roadway.

D.7.3 Clean Unit [326 IAC 2-2.2]

(a) Pursuant to 326 IAC 2-2.2, the transporting on paved roadways and parking lots, unpaved roadways, and unpaved areas around slag storage piles and steel scrap piles are classified as Clean Units for PM/PM_{10}.

(b) The Clean Unit designations for these transporting on paved roadways and parking lots, unpaved roadways, and unpaved areas around slag storage piles and steel scrap piles are in effect from September 9, 2004 to October 22, 2012.

The Clean Unit designations were based on the approval of the Affidavit of Construction for these units as permitted to be constructed under PSD Permits 193-10097-00030, issued on July 7, 1999 and PSD Permit 183-12692-00030, issued on January 10, 2001.

(c) In order to maintain the clean unit designations for the transporting on paved roadways and parking lots, unpaved roadways, and unpaved areas around slag storage piles and steel scrap piles, the Permittee shall comply with the following:

(1) The transporting on paved roadways and parking lots, unpaved roadways, and unpaved areas around slag storage piles and steel scrap piles (designated as clean units) shall comply with the emissions limitations or work practice requirements in the following conditions as part of the BACT:

(A) D.7.1 Fugitive Dust Emission Limitations - Best Available Control Technology,

and

(B) D.7.2 Visible Emission Limitations - Best Available Control Technology.

In addition, the transporting on paved roadways and parking lots, unpaved roadways, and unpaved areas around slag storage piles and steel scrap piles shall comply with all applicable requirements per 326 IAC 2-7 contained in this permit.

(2) No physical change or change in the method of operation shall be undertaken at these emissions units that would allow them to operate in a manner inconsistent with the physical or operational characteristics of the emission units.

(d) The transporting on paved roadways and parking lots, unpaved roadways, and unpaved areas around slag storage piles and steel scrap piles (designated as clean units) are

subject to the following requirements:

(1) Any project at these emissions units for which actual construction begins after the effective date of the clean unit designations and before the expiration date shall be considered to have occurred while the emissions units were clean units.

(2) If a project at these emission units does not cause the need for a change in the emission limitations or work practice requirements in this permit for these units that were adopted in conjunction with BACT and the project would not alter any physical or operational characteristics that formed the basis for the BACT determination, the clean unit designations remain unchanged.

(3) If a project causes the need for a change in the emission limitations or work practice requirements in this permit for these units that were adopted in conjunction with BACT or the project would alter any physical or operational characteristics that formed the basis for the BACT determination, then the clean unit designations shall expire upon issuance of the necessary permit modifications, unless the units requalify as clean units. If the Permittee begins actual construction on the project without first applying to modify the emissions unit's permit, the clean unit designations shall expire immediately prior to the time when actual construction of this project begins.

(4) A project that causes emissions units to lose their clean unit designations shall be subject to the applicability requirements of 326 IAC 2-2-2(d)(1) through 326 IAC 2-2-2(d)(4) and 326 IAC 2-2-2(d)(6).

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

None

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

None

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

None

SECTION D.8 FACILITY OPERATION CONDITIONS

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

One (1) cooling tower (ID# 13), with a nominal water flow of 15,000 gallons per minute.

(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)]

D.8.1 Particulate Matter (PM/PM_{10}) - Best Available Control Technology [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements) and PSD Permits 183-10097-00030 and 183-12692-00030, the filterable PM/PM_{10} emissions from the cooling tower shall not exceed 0.008 pound per hour.

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

None

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

None

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

None

SECTION E.1 FUGITIVE DUST CONTROL PLAN (FDCP)

E.1.1 Implementation and Contact

(a) The following fugitive dust control plan (FDCP), when implemented, is designed to reduce uncontrolled fugitive dust, based on a PM_{10} mass emission basis, from:

(1) paved roadways and parking lots down to 9.7 grams per square meter,

(2) unpaved areas within the slag processing area, and

(3) the slag processing operations,

such that the silt loading limitation and visible emissions limitations specified in the permit are met.

(b) This FDCP shall be implemented on a year-round basis until such time as another plan is approved or ordered by the Indiana Department of Environmental Management (IDEM).

(c) If there is a change in the name, title, and telephone number of the person who is responsible for implementing the fugitive dust control plan (FDCP), the information will be supplied to the Office of Air Quality (OAQ) Compliance Section within ninety (90) of such change.

E.1.2 Paved Roadways and Parking Lots

The following dust control measures shall be performed such that the visible emission limitations in the permit are met. Visible emissions shall be determined in accordance with the procedures specified in the permit.

(a) Paved roads and parking lots shall be controlled by the use of a vehicular vacuum sweeper, wet sweeping, or water flushing and shall be performed every 14 days.

(b) Since an Industrial Augmentation factor of I=1 was used for the emissions inventory, vehicles shall be limited to traveling on paved surfaces only and not allowed to enter any paved surface except from public paved roads and tarred and chipped roads.

Vehicles shall also not be allowed to travel on the shoulder of paved road ways.

(c) Upon request of the Indiana Department of Environmental Management (IDEM), Steel Dynamics, Inc. (SDI) shall sample and provide to IDEM surface material silt content and surface dust loadings in accordance with C. Cowherd, Jr., et al., Iron and Steel Plant Open Dust Source Fugitive Emission Evaluation, EPA-600/2-79-103, U.S. Environmental Protection Agency, Cincinnati, OH, May 1979.

IDEM will have the right to specify road segments to be sampled.

(c) Steel Dynamics, Inc. (SDI) shall provide supplemental cleaning of paved road sections found to exceed the controlled silt surface loading of 9.7 grams per square meter.

(d) Cleaning of paved road segments and parking lots may be delayed by one day when:

(1) 0.1 or more inches of rain has accumulated during the 24-hour period prior to the scheduled cleaning.

(2) The road segment is closed or abandoned. Abandoned roads will be barricaded to prevent vehicle access.

(3) It is raining at the time of the scheduled cleaning.

(4) Ambient air temperature is below 32 ^{o}F.

E.1.3 Unpaved Areas within the Slag Processing Area and Scrap Yard

The following dust control measures shall be performed such that the visible emission limitations in the permit are met. Visible emissions shall be determined in accordance with the procedures specified in the permit.

(a) Unpaved areas traveled around slag storage piles and steel scrap piles shall be treated with an IDEM-approved dust suppressant in order to meet compliance with the associated visible emissions limitations.

(b) Fugitive dust emissions shall be reduced by at least 90 percent (90%) instantaneous control on a PM_{10} mass emission basis.

(c) Treating of unpaved areas may be delayed by one day when:

(1) 0.1 or more inches of rain has accumulated during the 24-hour period prior to the scheduled treatment.

(2) Unpaved areas are saturated with water such that chemical dust suppressants cannot be accepted by the surface.

(3) Unpaved areas are frozen or covered by ice, snow, or standing water.

(4) The area is closed or abandoned.

(5) It is raining at the time of the scheduled treatment.

(6) The ambient air temperature is below 32^{0}F.

E.1.4 Wind Erosion from Open Slag Piles

Open slag piles consist of slag in various stages of processing.

To maintain product quality and chemical stability, watering the stockpiles shall be the primary means of dust control.

Water must be limited so as to keep the moisture content of the product within standards.

Slag piles shall be sprayed with water, on an “as-needed” basis to eliminate wind erosion and not exceed the visible emission limitations in the permit. Water added to the product during processing provides added control. Visible emissions shall be determined in accordance with the procedures specified in the permit.

E.1.5 Slag Handling and Processing

(a) During transferring of the skull slag to the slag pot, the drop height shall be minimized and the transferring shall be done slowly such that the visible emission limitations in the permit are not exceeded.

(b) Pouring of liquid slag from the EAFs or LMS to the slag pot shall be conducted inside the melt shop and emissions shall be captured by the melt shop roof canopy and ducted to the EAF baghouse.

(c) Emissions during the dumping of liquid slag from the slag pot to the slag pit shall be controlled by the use of skull slag and by applying water, as needed, such that the visible emission limitations in the permit are not exceeded.

(d) Water suppression to control emissions during the transferring of the skull slag from the slag pot to the skull pit can be waived for safety reasons.

(e) Emissions during the digging of the slag and skull pit by front-end loaders shall be controlled by applying water, as needed**,** such that the visible emission limitations in the permit are not exceeded.

(f) Emissions from slag processing operations shall be controlled, as needed, through the application of water.

Spray bars shall be use to apply water on crushing and screening operations, and conveyor transfer points.

(g) The stacker to pile drop height shall be limited to less than 48 inches, and front end loader batch drop height into trucks shall be limited to less than 48 inches.

E.1.6 Vehicle Speed Control

(a) Speed limits on paved roads shall be posted to be 20 mph.

(b) Speed limits on unpaved areas shall be 10 mph.

(c) All traffic on paved and unpaved roads shall obey the posted speed limits.

(d) Compliance with the above mentioned speed limits shall be monitored by plant security guards.

(e) Upon violation, employees shall receive a written warning, followed by a one day suspension if a second violation occurs.

(f) Visitors to the plant shall be denied access if repeated violations occur.

E.1.7 Material Spill Control

Incidents of material spillage on plant property shall be investigated by the person responsible for implementing the plan.

That person shall arrange for prompt cleanup and shall contact the party responsible for the spill to insure that prompt corrective action is taken.

E.1.8 Monitoring and Recording Keeping

Daily records of the vacuum sweeping, wet sweeping, or water flushing and spill control activities, and dust suppressant application frequency and amount shall be kept.

The records shall also contain the amount of water sprayed:

(a) on the aggregate piles,

(b) at the slag quench station, and

(c) at the slag processing spray bars.

E.1.9 Compliance Schedule

This FDCP shall be fully implemented when construction and modification is completed.

Until that time, the plan shall be implemented within portions of the site where construction is considered complete.

Where construction is incomplete, appropriate control measures shall be implemented, but cannot be comprehensively addressed.

Records of these activities shall be kept.

SECTION E.2 SCRAP MANAGEMENT PLAN (SMP)

E.2.1 General Specifications

(a) Unless specifically allowed, all grades of scrap shall be essentially free of materials containing excessive amounts of volatile organic compounds and hazardous materials.

Scrap materials with excessive amounts of volatile organic compounds and hazardous materials are referred to as contaminated scrap.

(b) All scrap material shall meet the specifications in this Scrap Management Plan (SMP) and be acceptable to Steel Dynamics, Inc. (SDI) or its scrap-processing agent.

(c) Any material that deviates from the following specifications must be noted on the purchase order and agreed to prior to shipment.

(d) Rejection of scrap material because it does not conform to the following specifications is a judgment decision of the employees responsible for inspecting the scrap material.

(e) A portion or an entire scrap load shall be rejected depending on the contaminants, placement/location of the contaminated material or frequency of occurrence.

E.2.2 Scrap Specifications

(a) Hazardous Material
Scrap received with evidence of hazardous material, or hazardous material containers, shall be rejected.

(b) Lead
The presence of babbit, solder, balancing weights, or materials with excessive amounts of lead-based paint shall be removed, or the load shall be rejected.

(c) Non-Ferrous Material
Non-ferrous scrap may contain elevated levels of hazardous constituents such as chromium, nickel, and lead. Such scrap is generally nonmagnetic (e.g. electric motors, aluminum pots and pans, brass, and pewter) and shall be rejected. Only scrap that is picked up by the magnets from the scrap cranes is acceptable.

(d) Tanks And Cylinders

(1) Tanks, cylinders, or sealed units may be included in shipments if the ends are cut open and prepared in a manner to insure that they are not sealed and will not retain contaminating fluids.

(2) These shall include, but are not limited to, torque converters, transmissions, rear ends, hydraulic cylinders, gas tanks, closed pipe compressors, capacitors, shock absorbers, and gearboxes.

(3) Visual presence of any of these items shall be cause for the material to be removed from the scrap or the load shall be rejected. However, coated gas tanks shall be rejected regardless of its condition or even if cut open.

(e) Mercury Switches
All mercury switches that are susceptible to removal and that are found in scrap shall be removed and disposed of. SDI shall inform automotive scrap dealers that mercury switches shall be removed from scrap wherever possible.

(f) Top-Dressing
(1) Trucks and cars must not be top-dressed with clean scrap in order to hide contaminated scrap.

(2) If evidence of top-dressing is apparent during unloading process, the contaminated scrap shall be removed or the remaining partial shipments shall be rejected.

E.2.3 Scrap Inspection Procedure

At any point in the inspection process, SDI personnel or agents working on behalf of Steel Dynamics, Inc. (SDI) shall issue warnings and accept loads with minor deficiencies or shall reject loads, which contain contaminated scrap.

(a) Scrap Inspectors
The persons responsible for inspecting the loads for contaminated scrap are the SDI employees operating the railcar or truck scales, the scrap bay and unloading operators, and yard personnel (crane operators, sorters, supervisors, etc.), Environmental Department, the scrap broker, and other agents working on behalf of SDI.

(b) Entry
(1) The scale operator shall verify that the paperwork accompanying the load matches the load.

If not, then the correct paper work shall be obtained before acceptance of the load or the load shall be rejected.

(2) The scale operator shall verify that the paperwork does not indicate the load contains contaminated scrap.

(c) Scrap Inspection
(1) The scrap bay and unloading operators or yard personnel shall inspect the top of the load to insure it complies with the specifications.

(2) Yard personnel or scrap bay operators shall observe the load being dumped to make sure the load is consistent and contains no contaminated scrap.

(3) If the scrap bay and unloading operator suspect top-dressing of the load, they shall direct the load to be magged-off to inspect for load consistency.

(4) Yard operators shall inspect the scrap during loading from stockpiles into railcars slated for delivery the scrap bay.

(5) Scrap bay operators shall inspect the scrap during loading into the charge bucket.

(6) Contaminated scrap found in the stockpile or scrap bay shall be removed and discarded in accordance with applicable rules and regulations.

(d) Load Acceptance
Loads that meet the scrap specifications in this Program may be directed for unloading and melting.

(e) Rejected Loads

(1) Loads that do not meet the specifications within this Program shall be returned to the vendor or the contaminated scrap removed from the load.

(2) Contaminated scrap that is removed from the load shall be returned to the vendor or disposed in accordance with applicable rules and regulations.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
Compliance Branch
100 North Senate Avenue, Indianapolis, Indiana 46204

CERTIFICATION

Source Name:	Steel Dynamics, Inc. (SDI)
Source Address:	2601 County Road 700 East, Columbia City, Indiana 46725
Mailing Address:	2601 County Road 700 East, Columbia City, Indiana 46725

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:
Telephone:

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
Compliance Data Section
100 North Senate Avenue, Indianapolis, Indiana 46204

QUARTERLY DEVIATION AND COMPLIANCE MONITORING REPORT

Source Name: Steel Dynamics, Inc. (SDI)
Source Address: 2601 County Road 700 East, Columbia City, Indiana 46725
Mailing Address: 2601 County Road 700 East, Columbia City, Indiana 46725

Months: _____ to _____ Year: _____

This report shall be submitted quarterly based on a calendar year. Additional pages may be attached if necessary. Any deviation from the requirements, the date(s) of each deviation, the probable cause of the deviation, and the reasonable response steps taken must be reported. Deviations that are required to be reported by an applicable requirement shall be reported according to the schedule stated in the applicable requirement and do not need to be included in this report. If no deviations occurred, please specify in the box marked "No deviations occurred this reporting period.
☐ NO DEVIATIONS OCCURRED THIS REPORTING PERIOD.
☐ THE FOLLOWING DEVIATIONS OCCURRED THIS REPORTING PERIOD
Permit Requirement (specify permit condition #)
Date of Deviation:
Duration of Deviation:
Number of Deviations:
Probable Cause of Deviation:
Reasonable Response Steps Taken:

Form Completed By:	
Title/Position:	
Date:	Telephone:

A certification by the responsible official as defined by 326 IAC 2-7-1(34) is required for this report.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
Compliance Branch
100 North Senate Avenue, Indianapolis, Indiana 46204

EMERGENCY OCCURRENCE REPORT

Source Name:	Steel Dynamics, Inc. (SDI)
Source Address:	2601 County Road 700 East, Columbia City, Indiana 46725
Mailing Address:	2601 County Road 700 East, Columbia City, Indiana 46725

This is an emergency as defined in 326 IAC 2-7-1(12)

The Permittee must notify the Office of Air Quality (OAQ), within four (4) daytime business hours (1-800-451-6027 or 317-233-5674, ask for Compliance Section); and

The Permittee must submit notice in writing or by facsimile within two (2) working days (Facsimile Number: 317-233-5967), and follow the other requirements of 326 IAC 2-7-16.

Address: 100 North Senate Avenue, Indianapolis, Indiana 46204

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

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

STEEL PRODUCTION REPORT

Source Name: Steel Dynamics, Inc. (SDI)
Source Address: 2601 County Road 700 East, Columbia City, Indiana 46725
Mailing Address: 2601 County Road 700 East, Columbia City, Indiana 46725
Steel Production: 2,628,000 tons/year
[Section D.1]

Reporting Year:

Month	Steel Production		
	Column 1	Column 2	Column 1 + Column 2
	This month (tons/month)	Previous 11 Months	12-Month Total (tons/year)

Form Completed By:
Title/Position:
Date:
Telephone:

A certification by the responsible official as defined by 326 IAC 2-7-1(34) is required for this report.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
Compliance Data Section
100 North Senate Avenue, Indianapolis, Indiana 46204

NATURAL GAS AND PROPANE USAGE QUARTERLY REPORT

Source Name:	Steel Dynamics, Inc. (SDI)
Source Address:	2601 County Road 700 East, Columbia City, Indiana 46725
Mailing Address:	2601 County Road 700 East, Columbia City, Indiana 46725
Facility:	LVD Boiler (ID# 41) (41.08 MMBtu/hour)
Parameters:	natural gas and propane usages
Limits:	209 MMCF of natural gas per twelve consecutive month period and 222 kilogallons of propane per twelve consecutive month period [Section D.4]

Reporting Year:

Month	Fuel	Natural Gas and Propane Used		
		Column 1	Column 2	Column 1 + Column 2
		This Month	Previous 11 Months	12-Month Total
	Natural gas (MMCF)			
	Propane (kgal)			
	Natural gas (MMCF)			
	Propane (kgal)			
	Natural gas (MMCF)			
	Propane (kgal)			

Form Completed By:

Title/Position:

Date:

Telephone:

A certification by the responsible official as defined by 326 IAC 2-7-1(34) is required for this report.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
Compliance Branch
100 North Senate Avenue, Indianapolis, Indiana 46204

SLAG PRODUCTION REPORT

Source Name:	Steel Dynamics, Inc. (SDI)
Source Address:	2601 County Road 700 East, Columbia City, Indiana 46725
Mailing Address:	2601 County Road 700 East, Columbia City, Indiana 46725
Slag Production:	438,000 tons per twelve consecutive month period [Section D.6]

Reporting Year:

Month	Slag Production		
	Column 1	Column 2	Column 1 + Column 2
	This month (tons/month)	Previous 11 Months	12- Month Total (tons/year)

Form Completed By:
Title/Position:
Date:
Telephone:

A certification by the responsible official as defined by 326 IAC 2-7-1(34) is required for this report.

Indiana Department of Environmental Management
Office of Air Quality

Addendum to the Technical Support Document (TSD) for a Prevention of Significant Deterioration (PSD) and Part 70 Significant Source Modification (SSM)

Source Background and Description

Source Name:	Steel Dynamics, Inc. (SDI)
Source Location:	2601 County Road 700 East, Columbia City, IN 46725
Mailing Address:	2601 County Road 700 East, Columbia City, IN 46725
Responsible Official:	General Manager or designee pursuant to 326 IAC 2-7-1(34)
County:	Whitley
SIC Code:	3312 (Steel Mill)
NAICS Code:	331111
Source Categories:	1 of 28 Listed Source Categories Major PSD Source Minor source under Section 112 of the CAA Clean Units
Permit Number:	PSD/SSM 183-18426-00030
Permit Writer:	Iryn Calilung 317/233-5692

Public Notification

(a) Public Notice of PSD Permit 183-18426-00030
On February 23, 2005, the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ) had a notice published in the Post and Mail, stating that Steel Dynamics, Inc. (SDI) had applied for a PSD permit to increase the Lead, Mercury and Fluoride emission limits due to the exceedance of the existing limits; to be able to operate both of the existing electric arc furnaces simultaneously, which will increase the meltshop production capacity from 200 tons of steel per hour to 300 tons per hour.

(b) Public Notice of PSD Permit 183-19849-00030
On May 2, 2005, IDEM had a second notice published in the Post and Mail for another PSD application submitted by SDI for the expansion of the mill by constructing a second caster and reheat furnace.

(c) Public Hearing
A public hearing for both of the proposed permits was held on May 10, 2005 at Indian Springs Middle School, 1692 South State Road 9, Columbia City, Indiana 46725. The public hearing officer was Paul Dubenetzky. A transcript of the hearing was prepared by Accurate Reporting of Indiana, Carmel, IN.

(d) Combining The 2 Permits into One
IDEM decided that the 2 applications should be combined into one approval. PSD application 183- 19849-00030 was combined with PSD application 183-18426-00030.

(e) Public Comment Period
The public comment period for both the draft permits ended on June 1, 2005. The purpose of the 30-day public comment period is to allow anyone the opportunity to review and provide comments

regarding the draft permit and its supporting documents. Comments regarding this permit do not demonstrate that the draft permit failed to meet the requirements for a PSD permit. IDEM addressed those concerns, and if necessary, amended the draft permit. In many instances, the IDEM has amended the permit and has satisfied both State and Federal regulations.

Public Participation

The following submitted written and oral comments regarding the proposed permits (names are arranged alphabetically):

(1) Charles D. Acheson
(2) Robert Anderson
(3) Debra Bear
(4) Eve Bratton
(5) Nondus Carr
(6) Ethan Chatfield, US EPA, Region 5
(7) Thomas Davis Jr.
(8) John Gilles
(9) Barbara and Earl Keiser
(10) Charles Kille
(11) Leonard McKinney
(12) Bill Minnis
(13) Karen Minnis
(14) JF O'Hara
(15) Homer Ohlwine
(16) Paul Ostrander
(17) Steel Dynamics, Inc. (SDI)
(18) Joyce and Frank Sieh
(19) Dan and Sandy Trimmer
(20) Val Vorndran
(21) James Webster
(22) Jo. Zimmerman
(23) Philip Zimmerman

The comments are either re-stated or summarized in the following pages with the IDEM responses. The commentator is identified at the end of each comment. The comments have been compiled into similar subject matter.

The IDEM does not amend the Technical Support Document (TSD) and Appendices of the draft permit. They are maintained to document the original review. This addendum to the TSD documents the comments, responses, and revisions made from the time the permit was drafted until a final decision is made. Appendix A of this TSD Addendum documents the revisions made to the draft permit as a result of the comments received. Any changes to the draft permit are shown in ~~strikeout~~ or **bold** fonts to show the differences.

Applications and Type of Approval Issued

Comment 1: Two (2) Applications

(a) The application of the expansion (183-19849-00030) was received by IDEM on November 19, 2004, with additional information received on December 17, 2004, February 16, 2005; and February 25, 2005.

Why was PSD/SSM 183-18426-00030 and PSD/SSM 183-19849-00030 separate permits? Why weren't they originally combined? [Charles D. Acheson]

(b) While you were producing the first permit and the second one came out, did you consider that these applications coming so close together should have been submitted and foreseen as a single modification? [Charles Kille]

(c) What was IDEM's intention by not reviewing the 2 PSD permits together? [Sandy Trimmer]

(d) To obtain this approval took a great deal of work from SDI management. I have absolutely no problem with my air since work started. [JF O'Hara]

IDEM Response:

IDEM received 2 applications from SDI. The first application from SDI was to re-evaluate the limits for lead, mercury and fluoride under the PSD Permit program. Since SDI is already going to undergo major review, they also proposed to remove the restrictions on the EAFs that allow only one EAF to operate at one time and to increase the capacity of the meltshop production. IDEM's goal was to review this first application as soon as possible due to the SDI's noncompliance with existing limits.

SDI subsequently submitted the application to fully utilize the increased production capacity of the mill, it would be necessary to install a second caster and a second reheat furnace. This expansion was also considered a major modification.

Since both permits are of the same level of approval and review, drafting the permit separately would not circumvent the PSD review process or avoid any applicable requirements. Providing 2 separate permits to the public also extended the comment period of the first permit to coincide with the second permit.

IDEM decided to combine the 2 draft permits into one approval for the final permit decision; however, this did not affect any applicable requirements. The final permit will be identified as 183-18426-00030. The air quality analysis was also combined.

Comment 2: Part 70 Operating Permit

(a) This is not a Part 70 permit. Rather, it is an approval for a change at a Part 70 source done pursuant to IDEM's source modification approval authority under 326 IAC 2-7-10.5. Also, IDEM concurs this permit modification is not subject to Part 70 permit requirements as evident in the TSD "State Rule Applicability Determination" Item 8, which states "The Part 70 permit has not been issued and still under review by the OAQ". Therefore IDEM should remove references to Part 70 authority through this permit, TSD, and associated support documents. [SDI]

(b) SDI recommends that Section A.4 (Part 70 Applicability) be clarified to add the Part 70 applicability. [SDI]

(c) SDI recommends that Condition C.3 (Certification) be deleted because this is not a Part 70 permit. [SDI]

(d) Has SDI applied for a Part 70 Permit yet for this facility? When would we see the first public notice? [Charles Kille]

IDEM Response:

SDI is an existing Part 70 source. Regardless of the Part 70 Operating Permit not being issued, SDI is subject to the applicable requirements under the Part 70 Program. Stating the fact that SDI's Part 70 Operating Permit has not been issued yet does not indicate that IDEM concurs with SDI's non-applicability determination. The level of approval for this modification was determined in 326 IAC 2-7-10.5, which is under the Part 70 Program.

The Office of Air Quality (OAQ) received the SDI Part 70 permit application on April 10, 2003. The Part 70 permit has not yet been issued and is still under review by IDEM.

There are no changes to the draft permit due to these comments.

Comment 3: <u>Supersession of Existing Permit or Conditions</u>

(a) Condition C.2 of Permit 183-18658-00030 should be superseded as well since the conditions of the permit are included in this new permit. The added statement is necessary to assure all parties that no other permits have enforceable conditions.

"Any requirements or provisions from the prior permits that do not appear in this SSM approval are hereby superseded." [SDI]

(b) Since Condition C.2 (Prior Permits Superseded) voids the prior permits, then the existing permits referenced in the following conditions should be omitted. [SDI]

C.6	Opacity
C.8	Fugitive Particulate Matter Emissions Limitations
D.1.1	EAF Operation Limitation
D.1.2	EAF NO_x PSD BACT
D.1.14	EAF Visible Emission Limitations PSD BACT
D.1.15	NSPS Visible Emissions Limitations
D.1.16	LMS PSD BACT
D.1.17	Caster PSD BACT
D.1.18	PMP
D.1.22	CO and VOC CEMS Requirements
D.1.25	Baghouse Operating Condition
D.1.26	Baghouse Inspections
D.1.27	BLDS
D.1.28	Monitoring of Operations
D.1.29	DRI, Charge and Injection Carbon Sampling and Analysis
D.1.30	Monitoring for Total Building Enclosure
D.1.31	Record Keeping Requirements
D.1.32	Reporting Requirements
D.2.1	Ladle Dryers NO_x PSD BACT

D.3.1	Reheat Furnace NO_x PSD BACT
D.3.2	Reheat Furnace CO PSD BACT
D.3.4	Testing Requirements
D.3.5	Record Keeping Requirements
D.4.1	LVD Boiler PM/PM10 Limitations
D.4.2	LVD Boiler NO_x PSD BACT
D.4.3	LVD Boiler CO PSD BACT
D.4.4	VOC PSD BACT
D.4.5	LVD Boiler SO_2 PSD BACT
D.4.6	Operating Parameters
D.4.7	PM/PM10 Limitations
D.4.11	PMP
D.4.13	Record Keeping Requirements
D.5.1	Storage Silos PM/PM10 PSD BACT
D.5.2	Storage Silos Visible Emission Limitation PSD BACT
D.5.5	EAF Dust Handling System NSPS Visible Emission Limitations
D.5.6	PMP
D.5.7	Bin Vent Operation
D.5.8	Visible Emissions Notations
D.5.9	Bin Vent Filter Inspections
D.5.10	Broken or Failed Bin Vent Filter Detection
D.5.11	Record Keeping Requirements
D.6.1	Annual Slag Production
D.6.2	Particulate Matter
D.6.3	Slag Handling and Processing Visible Emission Limitations PSD BACT
D.6.4	Slag Dumping Fugitive Particulate Matter
D.6.7	Testing Requirements
D.6.8	Record Keeping Requirements
D.7.1	Fugitive Dust Emissions PSD BACT
D.7.2	Unpaved Roadways Visible Emission PSD BACT
D.8.1	Cooling Tower PM/PM10 PSD BACT

IDEM Response:

The above mentioned conditions which referenced existing permits have not been revised as requested by SDI. To correctly and properly supersede existing permits, existing conditions have to be either incorporated as originally stated (which the permit number has to be referenced), revised or deleted. Referring to permit numbers of existing permits also makes it easier to distinguish which applicable requirements existed prior to this modification and derived from existing permits and which applicable requirements were specified under this approval.

Condition C.2 (Prior Permits Superseded) has been revised to add an existing permit that was overlooked (see Condition C.2 of Appendix A of this TSD Addendum for the change).

Comment 4: <u>Effective Date of the Permit</u>

When do the elevated emission limits take affect? These are substantial emissions, and should take affect only after the new equipment is installed. If SDI is allowed to emit at the elevated rate before this is accomplished,

(a) we have to assume that SDI did not install BACT in the construction of the plant and now that cannot, or will not meet the limits of the EAB rule, and

(b) SDI will no longer have the most stringent air permit in the state. In fact, it will be one of the dirtiest. SD is located on the Allen/Whitley County Line Road, but their address is Whitley County. Allen County is non-attainment. Allen County just lost the construction of a large new facility, because of their non-attainment status.

Please limit SDI emissions, until the appropriate time that they successfully install the new Reheat Furnace and Continuous Caster. [Dan and Sandy Trimmer]

IDEM Response:

A PSD permit is in effect upon its issuance. Existing limits and applicable requirements apply until the construction of new units or modifications of existing units occur. For example: upon initial start up of the second caster, the new and revised limits apply and SDI has to comply with these limits and other applicable requirements specified in the permit.

The PSD BACT limits for lead, mercury and fluoride apply upon the issuance of this permit because these limits supersede the existing limits, even without the implementation of the expansion.

There are no changes to the draft permit due to these comments.

Comment 5: <u>Plant Expansion Schedule</u>

(a) With your original permit, we had discussions about reasonable foreseeable future and there were comments to that effect about trying to establish maximum capacity for the permit. These modifications seem to come hot on of the heels of just getting this plant up and running, qualified, customers in place, efficiencies up. What is the rule of thumb or a standard that you might have? [Charles Kille]

(b) It certainly does not surprise me that SDI is already applying for a modification on their permit. This very issue along with the water pollutant output permit was of great concern before this plant built. Many surrounding neighbors repeatedly gave concerns that SDI would need to modify these permits after they were up and running. They were asked to sit and told that that was not true. So here we are with the modification of their air permit, just after they tried to re-modify their water pollutant out permit a couple years ago. [Val Vorndran]

IDEM Response:

The original permit issued to SDI was under the PSD program. The proposed permit under this expansion was also reviewed pursuant to the requirements of the PSD program. Since these permits were reviewed under the PSD air permitting process, the proposed modifications to the mill do not violate the PSD rules. The original permit was issued on July 7, 1999 and revised on January 10, 2001. To submit a modification either intended to revise existing limits or to expand the plant after a few years (2004 in SDI's case) is an acceptable industry time frame for existing plants. There are no state or federal rules that restrict how often companies can expand their existing operations or make modifications to their existing plants, as long as they can comply with applicable rules and regulations and obtain the proper permits to construct and operate. The air quality analysis includes the existing as well as the proposed facilities.

There are no changes to the draft permit due to these comments.

Public Notification, Public Hearing Request and Comment Period Extension

Comment 1: Public Hearing, Public Comment Period and Newspaper

The following requested a public hearing to address the significant air permitting issues and for an extension of the public comment period. They also suggested that the public notices for SDI located in Whitley County/Allen County Line Road be published in the Fort Wayne newspaper (The News Sentinel and The Journal Gazette), in addition to the Post and Mail, Columbia City. Commentators indicated that the practice of using a small limited distribution newspaper for public notice must not be tolerated especially when there are viable alternatives, so that more people can be given a chance to comment.

(a)	Dan and Sandy Trimmer	(b)	Paul Ostrander
(c)	Barbara and Earl Keiser	(d)	Thomas Davis Jr.
(e)	Charles Acheson	(f)	Leonard McKinney
(g)	Jo and Philip Zimmermann	(h)	Debra Bear
(i)	Nondus Carr	(j)	Paul Ostrander
(k)	Charles Kille		

IDEM Response:

The notice for the first PSD Permit (183-18426-00030) was originally published in the Post and Mail on January 21, 2005. The comment period for this permit ended on March 25, 2005. The notice for the second PSD Permit (183-19849-00030) was published in the Post and Mail on May 2, 2005. This notice also included the notification for a public hearing scheduled on May 10, 2005. It also extended the comment period of the first permit to coincide with the comment period of the second draft permit. The public hearing is for the 2 permits, which the first permit was provided to the public for comment at an earlier time. Since the bulk of the changes and significant review occur in the first permit, the public hearing was scheduled within the comment period of the second permit, such that IDEM may have enough time to address issues and concerns prior to the end of the comment period.

As previously indicated, these 2 draft permits have been combined into one approval under PSD Permit No. 183-18426-00030.

IDEM has the obligation to publish the notice in the newspaper of the County where the plant is located. Special instructions have been added to the IDEM's procedures that in addition to the Post and Mail, Fort Wayne newspapers shall be used for any future permitting actions for SDI, located in Whitley County. Other forms of public notifications such as notification of individuals by mail, electronic accessibility of the draft permit in the IDEM website and hardcopy available in the public library, were made by IDEM.

Any interested person may request paper copies of the draft permit at no cost. Telephone numbers and electronic mail addresses of the IDEM's contacts are indicated in the public notice. Hardcopies of the draft permit and supporting documents are also available in the library.

There are no changes to the draft permit due to these comments.

Comment 2: IDEM Address and Mailing List

(a) We are concerned that those who send questions and concerns may send it to the wrong zip code. On page 30 of 30 of the Technical support document, the IDEM contact address is "to Iryn Calilung at the Indiana Department Environmental Management, Office of Air Quality, 100 North Senate Avenue, P. O. Box 6015, Indianapolis, Indiana 46206-6015…".

However, on the cover letter, the IDEM contact is ; Iryn Calilung, IDEM, Office of Air Quality, 100 North Senate Avenue, Indianapolis, Indiana 46204.

The zip codes are not the same. These comments may get to your office eventually, but may be a few days after the comment period ends. The instructions to the public for their participation must be clear and that would seem to include providing a proper address for comments. When the public is properly notified of the public comment period and the public hearing, IDEM will have an opportunity to correct the mailing instructions. [Dan and Sandy Trimmer] [Thomas Davis Jr.]

(b) I stopped getting the mail because I ended up with stacks and reams of paper and it seemed like a real waster. So I want to encourage you to continue to find an efficient way where I can get either e-mail notifications or I can pick and choose. I would just not have the State spending time copying and posting reams of paper because it is too much. [Charles Kille]

IDEM Response:

IDEM is currently transitioning to eliminate the use of post office boxes in our mailing addresses. Due to this recent change, there were still 2 different addresses mentioned in the notices. In any case, comments submitted using either one of the addresses will be received by IDEM. For the record, the new IDEM address is 100 North Senate Avenue, Indianapolis, IN 46204.

The permitting staff is also in the process of updating the air permit interested party list. This is a compilation of the people notified by IDEM for any preliminary or final permitting actions. Interested parties or people on the existing list will be notified to provide updated information such as addresses. IDEM will also request whether people on the list wish to be maintained on the list. Options are also being evaluated to determine if such notifications can be fulfilled electronically without violating state or federal regulations.

There are no changes to the draft permit due to these comments.

Units Descriptions and Capacities

Comment 1: Table of Contents
The description of the unit should be provided for each Section D title of the Table of Contents. [SDI]

IDEM Response:
IDEM agrees (see the Table of Contents of Appendix A of this TSD Addendum for the changes).

Comment 2: Nominal Capacities VS Maximum Capacities

(a) In the proposed permit, the listed stationary sources are characterized through the use of 'nominal' operation rates, which are misrepresented as potential to emit or PTE.

IDEM may accept or authorize production limitations on how much steel is to be produced as a production limitation that is factored into the maximum PTE, this does not alter the definition of PTE as it pertains to the maximum potential to emit. Each case where nominal values are used within this permit must be reevaluated based on the accepted definition of PTE as cited above. [Dan and Sandy Trimmer] [Charles Acheson]

(b) What are the true capacities, production capacities, of the EAFs? My argument basically goes along the lines we have a stack test that shows it is at least 226 tons per hour. We have 2 numbers in the 2 draft permits for the capacity of the casters, 200 and 300 tons per hour. I am interested in what are the actual physical characteristic limits? What actually limits, other than an arbitrarily, produce more than 200 or 300 tons per year or whatever the number has to be? Is there something in the electrical system that stops them from running so many EAFs? What physical capacity limitations are we looking at for the established facility? Is there a manufacture's specification? Is the capacity in terms of volume capacity or is it limit? [Charles Kille]

(c) SDI should be allowed to produce all the steel they want as long as no extra pollutants are allowed. [Lawrence Alfeld]

IDEM Response:
The maximum hourly rate is the instantaneous rate that can be processed. Unlike some emission units, electric arc furnaces do not have a fixed nameplate design. Capacities for these units are estimated based on the technical dimensions and design of the furnaces, but such approximate capacities are not accurate as nameplate design capacity.

The furnaces may have higher capacities than 300 tons of steel per hour, but the permit specifies an enforceable maximum production level for the furnaces. The theoretical maximum capacity or nameplate design of the units is not relevant if such enforceable limitations have been specified. The BACT analysis, air quality impact analysis and other steps involved in the review process were all based on the enforceable maximum capacity. Since this is an enforceable maximum limitation and considered as operational design restriction, potential to emit is based on this limitation. Physical design of the furnace is not the only factor to be considered in determining the potential to emit.

Determination of PTE, as defined in 326 IAC 2-1.1-1(16), also considers the enforceable operational design as the maximum capacity.

With this proposed permit, the restriction to operate only one EAF at a time has been eliminated. The requirement to monitor the power usage by the EAFs has been replaced with the requirements to monitor the actual steel production. The requirement to monitor the steel production makes the limit enforceable in a practical manner.

There are no changes to the draft permit due to these comments.

Comment 3: Condition Number Referenced
When citing Sections, SDI asks that the section or condition number be included. This will provide clarity and ease in finding the proper section or condition that is referenced. [SDI]

IDEM Response:
IDEM agrees and made the changes throughout the permit as applicable (see cover page, C.17, C.18, C.20, D.1.18, D.1.23, D.1.24, D.1.27, D.1.28, D.3.8, D.4.12, D.5.6, D.5.11, D.6.6, D.6.8, and D.6.9 of Appendix A of this TSD Addendum for the changes).

Comment 4: Responsible Official
The responsible official in Section A.1 (General Information) and supporting documents should be revised to provide flexibility as indicated in 326 IAC 2-7-1(34). [SDI]

IDEM Response:
The general information regarding who is the responsible official of the source has been revised (see Section A.1 in Appendix A of this TSD Addendum). This provides flexibility to the Permittee as long as the responsible official is authorized under 326 IAC 2-7-1(34).

Comment 5: Emission Units Description
(a) Section A.2 is identified as the Emission Unit and Pollution Control Equipment Summary. The compliance monitoring methodologies are incomplete for the EAFs and are not included for other emission units. They should be excluded from this section. SDI recommended changes in the description of the emission units. [SDI]

(b) The description changes in Section A.2 should be made in Sections D.1 through D.7. [SDI]

IDEM Response:
IDEM agrees to provide each Section D a title (see the Table of Contents of Appendix A of this TSD Addendum for the changes).

Section A.2 (Emission Unit and Pollution Control Equipment Summary) and description of the emission units in Section Ds of the proposed permit in Appendix A have been revised by providing clarity (see Section A.2 and Section D description boxes of the emission units in Appendix A of this TSD Addendum for the changes).

IDEM did not remove the nominal ratings and compliance monitoring descriptions of the emission units (such as continuous emission monitors).

Comment 6: Existing Stackers

(a) The current air permit (183-12692-00030), Section A.2(l) and D.7 allow for seven stackers. SDI did not request any change in the operations of the slag processor. [SDI]

(b) In the existing permit under D.7, there is 1 stacker (ID# ST-1) and 2 stackers (ID# ST-2 and ST-3) that are not included in the current draft permit. Have these 3 units been removed from the facility? If not, please include these 3 stackers and their emissions, and redraft this permit for proper review. [Dan and Sandy Trimmer]

IDEM Response:

IDEM agrees that the permit should list the existing seven (7) stackers. These units have not been removed from the facility (see A.2 and D.6 description box of Appendix A of this TSD Addendum for the changes).

Comment 7: Non-Road Engines

The non-road engines should be exempted from permitting under 40 CFR 89.2. They are not even included in the TSD and other support documents. [SDI]

IDEM Response:

IDEM agrees with the change (see A.2, D.8 description box, and D.8.2 of Appendix A of this TSD Addendum for the changes).

Comment 8: Ladle Vacuum Degasser

Section A.2(j) in the proposed permit says, One (1) ladle vacuum degasser with a nominal capacity of 300 tons per hour of steel. However, in the source modification #183-15170-00030, it states in section D.1 as having One (1) ladle vacuum degasser with a nominal maximum capacity of 200 tons per hour. Has the degasser been modified or replaced? Again, the true number and production capacities and characteristics of the emissions units in this facility must be determined and properly considered within this permit and they must be available for the public review and comment period. This permit is not complete. Please make the proper determinations and redraft this permit for a proper review. [Dan and Sandy Trimmer]

IDEM Response:

The degasser has not been physically modified. As previously indicated, emission units involved in steel making are designed with an approximate production rate in mind. These emission units are capable of operating at higher production rates without necessarily making significant physical changes. To prevent the company from operating beyond what is permitted; enforceable limitations were specified in the permit. These limits were also specified such that they are enforceable in practical manner.

There are no changes to the draft permit due to this comment.

Comment 9: Direct Shell Evacuation Control System

Condition D.1(a) states "…99 percent of the emissions escaping the DSE system…". Is this the same as the DEC system as is mentioned in an above paragraph D.1(a), "…and utilize a direct-shell evacuation control (DEC) system…"? Please be consistent and rewrite these portions such that they can be reviewed and understood. [Dan and Sandy Trimmer]

IDEM Response:

IDEM agrees that consistency should be made in naming the same control devices (see A.2, D.1 description box, D.1.7, D.1.8, and D.1.9 of Appendix A of this TSD Addendum for the changes).

Comment 10: Consistent With The Rule Language

The following conditions should be revised to be consistent with the rule language or are necessary to clarify permit applicability: [SDI]

B.4	Significant Source Modification
C.4(c)	PMP
C.10	Operation of Equipment
C.12	Performance Testing
C.13	Compliance Requirements
C.14	Compliance Monitoring
C.19	Emergency Provisions
C.20	Actions Related to Noncompliance Demonstrated by a Stack Test
C.21	Emission Statement
C.22	General Record Keeping Requirements
C.23	General Reporting Requirements
C.24	Post Construction Monitoring
D.1.28(b), (d), (e), and (f) (now D.1.25)	Monitoring of Operations
D.1.28(c)(ii) and (iii) (now D.1.25)	Reporting Requirements

IDEM Response:

IDEM evaluated the recommended changes and have made them as necessary .

(a) Condition B.4 (Significant Source Modification) was revised to clarify that the Permittee shall attach the Operation Permit Validation Letter received from the OAQ to this permit.

(b) The following conditions were not changed because the recommended changes were not accommodated as they are not consistent with the rule:

C.4(c) (PMP)
IDEM did not change the word " exceedance" to "violation" as suggested by SDI.

C.10 (Operation of Equipment)
IDEM did not change the word "used" to "necessary "as suggested by SDI.

C.14 Compliance Monitoring
IDEM did not delete the word "necessary" in the last sentence of Condition C.14. IDEM did not add " as required in Section D" in the last sentence of Condition C.14 because IDEM can not specify all the necessary equipment to assure continuous compliance.

D.1.25(a)(ii) and (iii)
IDEM did not the delete the word "install".

(c) The following conditions were changed as recommended (see Appendix A of this TSD Addendum for the changes):

C.12 Performance Testing
Condition C.12(a) was revised by adding the word “applicable”.

C.13 Compliance Requirements
Condition C.13(b) was revised by adding the word “applicable”.

C.19 Emergency Provisions
Condition C.19(e) was revised to clarify that IDEM, OAQ may require that the PMP be revised for the specific emission unit only that experienced the emergency.

C.20 Actions Related to Noncompliance Demonstrated by a Stack Test
Condition C.20(a) was revised by adding the word “appropriate”.

C.22 General Record Keeping Requirements
Condition C.22(b) was revised by changing the word “within” with “not later than”.

C.23 General Reporting Requirements
Condition C.23(d) was revised by changing the word “within” with “not later than”.

D.1.25 Monitoring of Operations
Condition D.1.25(a) and D.1.25(f) were revised to clarify that the furnace static pressure check when the DEC is in use.

D.1.28 Reporting Requirements
Condition D.1.28(b) was revised by changing the word “within” with “not later than”.

Comment 11: <u>New Caster</u>
Will the new caster feed a new rolling mill or the same mill? Does the rolling mill fit in the same meltshop? It’s all within one department? Was the building built large enough to hold the new caster? How much more space do they have in the meltshop? Are we going to be looking at another EAF next year or maybe 2 more to run the new caster? [Charles Kille]

IDEM Response:
Steel will be rolled at the existing rolling mill that is configured for the type of steel product that is being run at the time. The rolling mill is separate from the melt shop. Because there is not sufficient space in the existing buildings, the modifications to be authorized in this proposed permit will require some new building construction. The melt shop is a separate department from the rolling mill, but the two are somewhat linked due to the steel production process. Given existing space constraints, new building construction will be required for the new caster. Both the current and the new caster will be supplied by either one or both of the EAFs that are currently installed.

There are no changes to the draft permit due to this comment.

Legal Basis

Comment 1: Legal Basis

The following conditions should be deleted because they do not have legal basis, authority is lacking, and impossible to certify in an annual compliance certification. [SDI]

(a)	C.4(b)	PMP
(b)	C.16	Instrument Specifications
(c)	C.17	CRP
(d)	C.18	Deviations from Permit Requirements and Conditions
(e)	D.1.1(b)	EAF Operation Limitation
(f)	D.1.23(d)(iii) (now D.1.23(c))	Visible Emission Observations and COM
(g)	D.1.23(e) (now D.1.23(f))	Visible Emission Observations and COM

IDEM Response:

There are no changes to the above mentioned conditions because applicable rule cites that provide the legal basis and authority have already been specified.

The Part 70 permit program provides the authority to specify and require compliance monitoring, reporting and recordkeeping to make sure the Permittee complies with applicable requirements on a continuous basis.

(a) Condition C.4(b) is not deleted because this condition requires SDI to implement the PMPs to ensure that failure to implement the PMPs does not cause or contribute to an exceedance of any limitation specified in this permit. The following rules: 326 IAC 2-7-5(1),(3) and (13); 326 IAC 2-7-6(1) and (6); and 326 IAC 1-6-3 provide the authority for IDEM to require the implementation and maintenance of PMPs.

(b) Condition C.16 is not deleted because it provides consistency for sources in selecting instruments used for monitoring required operating parameters. The authority to require such instrumentations is specified in 326 IAC 2-1.1-11; 326 IAC 2-7-5(3); and 326 IAC 2-7-6(1).

(c) Condition C.17 is not deleted because the central and main goal of the Part 70 program is each Permittee should be able to show their ability to verify compliance with applicable standards and requirements on a continuous basis.

For the past years, IDEM has worked with interested parties such as the
- - Clean Air Act Advisory Council's Permit Committee,
- - Indiana Manufacturing Association,
- - Indiana Chamber of Commerce and
- - individual applicants, such as Nucor Steel

regarding the different plans required to verify continuous compliance.
The plans are fully supported by rules promulgated by the Air Pollution Control Board. These rules may be broad or vague, however, the requirements to show compliance in a continuous basis is clear.

Unless continuous emissions monitor and continuous opacity monitors are used, the plans are the mechanism each Permittee will use to verify continuous compliance with its permit and the applicable rules. These plans will form the basis for each Permittee's Annual Compliance Certification.

The rules 326 IAC 2-7-5 and 326 IAC 2-7-6 do not have or use the exact term CRP, however, 326 IAC 2-7-6(9) provides the authority for the Commissioner to specify provisions in the Part 70 permit as she may require with respect to compliance.

The CRP's reasonable response steps and schedule requirements are examples of documenting procedures developed from good business practices and the prevention of environmental problems. Permittees already have maintenance schedules and trouble shooting guides that specify the steps to take when the equipment is not functioning correctly. The steps may involve some initial checking of the system to locate the exact cause, and other steps to place the system back into proper working order. Using the trouble shooting guide and the Permittee's own experience with the equipment, the steps are taken in order and as scheduled until the problem is fixed. The CRP has general means and guidance such that SDI knows that they have the obligation to show compliance continuously.

(d) Condition C.18 is not deleted because IDEM needs to know any deviations that occurred in the plant. This rule 326 IAC 2-7-5(3)(C)(ii) provides the authority for this requirement.

(e) Condition D.1.1(b) is not deleted because an annual steel production has to be specified. The PSD provision 326 IAC 2-2 provides the authority for IDEM to specify production limitations as part of the PSD BACT limits.

(f) Condition D.1.23(e) is not deleted because SDI is responsible to take reasonable response steps if abnormal observations are observed. The authority for this requirement is specified in 326 IAC 2-1.1-11 and 326 IAC 2-7-6.

(g) Condition D.1.23(f) is not deleted because SDI must operate the COM, pursuant to 326 IAC 2-2 and 326 IAC 3-5.

Comment 2: <u>Non Applicable Existing Requirements</u>
Condition D.1.33 (now D.1.29) (Non Applicable Existing Requirements) should be revised to incorporate overlooked conditions. [SDI]

IDEM Response:
IDEM agrees (see Condition C.1.29 of Appendix A of this TSD Addendum for the changes).

BACT Analysis and Limits

Comment 1: NO_x BACT Analysis - - Appendix A of the TSD

(a) Please explain why CF& I Steel LP - Rocky Mountain Steel Mill, CO, was excluded from the analysis. [US EPA Region 5]

(b) There does not appear to be a justification as to why the Timken Faircrest, OH limit was excluded. Please explain. [US EPA Region 5]

IDEM Response:

(a) Initially, IDEM did not consider CF& I Colorado, because the PSD BACT information was entered in the RBLC on January 20, 2005, which was after the time IDEM initially searched the RBLC for this particular PSD BACT review.

- - The NO_x BACT limit (0.15 pound per ton) specified in the RBLC for CF& I Colorado, can not be verified because the actual permit issued to the mill posted in the Colorado Department of Public Health and Environment web site did not indicate a NO_x PSD BACT limit for the electric arc furnace.

  (see http://www.cdphe.state.co.us/ap/Titlev.html and http://www.cdphe.state.co.us/ap/downop/pb097trd.pdf for the permit and supporting document)

  Due to these inconsistencies and since compliance with the NOx BACT limit has not been verified, the NO_x limit (0.15 pounds per ton) will not be considered as BACT for SDI.

- - The following information was based on the current operating permit for CF& I Colorado, the total NO_x emissions for the electric arc furnace are 319 tons per year at 156 tons of steel per hour.

  $$NO_x \text{ lb/ton} = \frac{(319 \text{ tons/year})}{(156 \text{ tons/hour})*(1 \text{ ton}/2000 \text{ lbs})*(8760 \text{ hours/year})} = 0.468 \text{ lbs/ton}$$

  Based on this calculation, the NO_x limit (0.468 pounds per ton) will not be considered as BACT for SDI because it is less stringent.

(b) Timken OH, was not considered as PSD BACT for SDI because the limits specified in the permit and RBLC are inconsistent. The permit issued to Timken Ohio is posted in the Ohio EPA Division of Air Pollution Control web site.

(See http://www.epa.state.oh.us/dapc/titlev/permits/tvpermit.html and http://www.epa.state.oh.us/dapc/titlev/permits/1576000613f.pdf for the Timken Ohio operating permit).

Timken Ohio	
RBLC Information	Permit Information
0.2 pounds per ton	0.2 pounds per ton at 130 tons of steel per hour
26 pounds per hour (This was calculated using the production limit of 130 tons per hour. It is significantly less than the limit specified in the permit.)	43.8 pounds per hour 131.4 tons per year

Also, Timken Ohio was not required to verify compliance with the NO_x limit (0.2 pounds per ton). Timken was only required to comply with the NO_x limit (43.8 pounds per hour).

Due to inconsistencies and since compliance with the NO_x BACT limit has not been verified, the NO_x limit (0.2 lbs/ton) will not be considered as BACT for SDI.

There are no changes to the draft permit due to these comments.

Comment 2: <u>Test or CEMS Data</u>

(a) If the SDI facility was tested and emissions found to be 0.17 lbs/ton for NO_x, 0.12 lbs/ton for SO_2, 0.00068 gr/dscf for PM, and 0.0000817 lbs/ton for lead why are the BACT emission limits for these pollutants being set at more than twice these tested limits (0.35, 0.25, 0.0018, and 0.00048 respectively)?

BACT is defined in 52.21 as "an emission limitation based on the maximum degree of reduction...which the Administrator on a case-by-case basis...determines is achievable for such a source..."

If emissions have been proven to meet a lower limit, the BACT limit should be adjusted to reflect the maximum level of reduction. [US EPA Region 5]

Also, since CEMs for CO, VOCs, and SO_2 are currently installed on the baghouse stack outlet, couldn't data from these monitors also be used to appropriately adjust BACT limitations? [US EPA Region 5]

(b) It seems that we are moving the production based limits higher. We are opening up the range. We are allowing more pollution per ton of steel here. I look at the comparison plants that you have included in the draft permits and I see existing plants of similar capacity and types that have tighter limits. Have these plants with tighter limit have been tested and have they passed their stack tests? [Charles Kille]

IDEM Response:

IDEM's analysis is consistent with the top down BACT methodology laid out in the US EPA New Source Review (NSR) Workshop Manual. This BACT guidance allows a margin when setting up numerical BACT limits for compliance purposes. A complete top-down BACT for mercury was conducted, as documented in Appendix A of the technical support document. BACT is based on the best achievable controls, in practice for similar

operations. A one time compliance test can be relied upon in establishing numerical PSD BACT limit, however, some margin of error has been taken into account.

There is no SO_2 continuous emission monitor currently in use in this plant.

The VOC CEMS data can not be relied upon in establishing the VOC BACT limit due to pending certification of the CEMS data.

SDI compiled the CO continuous emission monitor readings for the past year (2004). There are approximately 2,920 points used (8760 hours/3-hour average). The table below shows the relationship of the actual CO CEM readings and the CO limits (400 pounds per hour).

Approximately 10% of the data points indicated CO emissions between 300 pounds per hour to 400 pounds per hour. Majority of the readings indicated readings between 100 to 300 pounds per hour. Based on this data, SDI attains the present limit. However, the CO limit can not be lowered any further, already using the top option add-on control, because it will result in an unacceptable percentage of non-compliance.

CO CEMS					
Readings	< 100 lbs/hour	100 to 200 lbs/hour	200 to 300 lbs/hour	300 to 400 lbs/hour	> 400 lbs/hour
% of the data	4%	45%	40%	10%	1%

There are no changes to the draft permit due to these comments.

Comment 3: <u>Units Correction</u>
Pages 37-38, Nos.: (12)(a), (13)(a), and (14) of Appendix A of the TSD:
There appears to be a typo in the units. [US EPA Region 5]

IDEM Response:
IDEM agrees that the units used in the formula are incorrect. The calculated final emissions rates are correct.

There are no changes to the draft permit due to this comment.

Comment 4: <u>Pounds Per Ton Limits</u>
The pounds/ton of steel produced emission limit was not in the original permit and is not appropriate for batch type production. In addition, the US EPA Whitley permit 2000 remand agreed with this decision. It should be deleted. [SDI]

D.1.6	SO_2 PSD BACT	D.1.9	VOC PSD BACT
D.1.10	Lead PSD BACT	D.1.11	Mercury PSD BACT
D.1.12	Fluoride PSD BACT		

IDEM Response:
IDEM re-evaluated the PSD BACT limits for the EAFs and determined that the limits specified as pounds per ton for the EAFs are necessary for VOC, Lead, Mercury and Fluoride (see Conditions D.1.9, D.1.10, D.1.11 and D.1.12 of Appendix A of this TSD Addendum for the changes).

The pound per ton limit for SO_2 has been deleted because SDI does not manufacture any resulfurized steel, there is no add-on control device for SO_2 emissions, and the requirement to maintain the sulfur content of the DRI, charge carbon and injection carbon has been required as part of the PSD BACT limits. SO_2 stack testing every 2 1/2 years has also been added (see Condition D.1.6 of Appendix A of this TSD Addendum for the change).

Comment 5: Definition of VOC

SDI appealed sister permits regarding the ambiguous interpretations of VOC in prior permits. The added word 'regulated" in Condition D.1.9(b) (VOC PSD BACT) reflects clear understanding that only regulated VOC's are considered for compliance purposes. [SDI]

IDEM Response:

VOC is defined in 326 IAC 1-2-90. To provide clarity, this rule cite has been added in Condition D.1.9(b) (see Condition D.1.9 of Appendix A of this TSD Addendum for the change). The VOC definition covers its meaning and the approved methods to use to verify compliance,

Comment 6: PTE and BACT

(a) Why can't the emission be less? [Neils Hansem]

(b) In totaling the PM, PM10, SO_2, NO_x, VOC, CO, Lead, mercury and fluorides, the PTE is 4,443.86 tons per year. That is approximately 370.42 tons per month 12.35 tons per day. By emitting these toxins in such amount, SDI should be accountable to use BACT and have their inspections and violations available to residents. [Debra Bear and Nondus Carr]

(c) The TSD states" Whitley County has been designated as attainment area in 40 CFR 81.312. Therefore, the OAQ does not have the authority to require LAER." Until Whitley County has an air quality monitor, it is questionable that they are truly attainment area. The prevailing winds take the pollutants from Whitley County SDI across the road to Allen County. This should be taken into consideration by IDEM when making decisions on LAER vs. BACT. [Dan and Sandy Trimmer]

(d) IDEM needs to consider that SDI has been very profitable, and can afford the cost of quality air. The more profit that is made, the more upgrades in pollution control equipment should be expected and demanded by IDEM, not the opposite. [Dan and Sandy Trimmer]

(e) New growth is requested by SDI with IDEM. My feeling is very much in favor to go ahead. I'm certain any air problem will be carefully contained with the necessary equipment. The SDI President and his team can be counted on to get it done. [JF O'Hara]

IDEM Response:

Different regulated pollutants potential to emit are not aggregated because of the differences of their impacts to the environment, toxicity, and applicable requirements. IDEM conducted the proper PSD analysis and established the limits and standards per the federal PSD guidance. IDEM has considered technical feasibility and economic impact in establishing PSD BACT limits.

The SDI plant is located in Whitley County, which is classified as attainment for all criteria pollutants. IDEM has the authority to require major sources located in any area designated as attainment or unclassifiable that would exceed the significant impacts levels, specified in 326 IAC 2-3-2(f), at any locality, for any pollutant that is designated as nonattainment, to meet the LAER requirements. Allen County is nonattainment for the 8-hour ozone standards, however there is no significant impact level specified for ozone in 326 IAC 2-3-2(f).

Reports documenting the inspections of the IDEM air inspector are available to the public upon request. The public may request public information either personally or in writing. The IDEM public files can be viewed from Monday to Friday, from 8:30 AM to 4:00 PM, in the IGCN, 12th Floor or by contacting the Office of Air Quality, Permit Branch for a public records request.

There are no changes to the draft permit due to these comments.

Lead, Mercury and Fluoride

Comment 1: Lead PTE

(a) The total Lead PTE on page 9 of the TSD is listed, Table 9 as 1.96 tons/year. However, the total PTE on page 7 of the same TSD, Table 5, is 1.93 tons/year. Which maximum PTE is correct? [Charles Acheson]

(b) 500% more lead is to be emitted by SDI if a new emission permit is approved. 2.6 tons per year is the new emission request of this company. How high does EPA allow one company to emit Lead? SDI company officials have in the past claimed that BACT is too expensive. Yet a recent article in a local newspaper reported that Keith Busse is worth 59 million dollars including a 9.2 million bonus, Richard Teets a measly 46 million. The same article claimed that many physicians were basking in their profits from this company. I hope these same health care providers are concerned about the emission level of lead, mercury, fluorides, CO, sulfur dioxide, and NO_x and the subsequent health risk to the area's population. Children in Whitley and western Allen County are being exposed to an industrial source of lead from the SDI plant. Even a small source of lead can cause significant damage to the neurological system in a child. It is difficult to believe that this company built on the backs of Whitley County taxpayers can not find money to protect these same citizens from these emissions. Because of the serious consequences to young children exposed to lead, such as learning disabilities, hyperactive behavior, seizures and even death, I urge IDEM to protect the citizens of Indiana as your official mandate dictates. [Eve Bratton]

(c) The information we have is to the effect that this would cause release of 5 times the amount of lead for which they are now licensed. The dangers attaching to lead are well established. [Joyce and Frank Sieh]

IDEM Response:

Table 9 (Total PTE of the Proposed Modification) showed the total lead emissions from the entire modification (modified existing units and new units) (1.96 tons per year), while Table 5 (PTE of the EAFs, LMS and CC) showed the potential to emit from these 3 main

emission units only (1.93 tons per year). The comment that the Lead PTE of the entire source is 2.6 tons per year is incorrect.

In modeling for the hazardous air pollutants and lead, the highest concentrations are located on the fence line of SDI. The total lead concentration is 0.20 ug/m3 at the fence line for a 3-month average. At the schools, the highest concentration is 0.01 ug/m3. The National Ambient Air Quality Standard (NAAQS) for lead is 1.5 ug/m3. The Clean Air Act established this standard to be protective of public health, including the health of "sensitive" populations such as asthmatics, children and elderly.

Even when all sources emitting lead within a 50-kilometer range of SDI were added to the modeling and the highest monitor reading in the state was added, the lead result is 0.79 ug/m3; just over half of what would be considered harmful to public health.

IDEM conducted the PSD BACT analysis for lead in accordance with the steps and procedures specified in the federal guideline. Based on this PSD BACT analysis, SDI was determined to be using the top option for lead control. IDEM does not have the authority to require add on control technologies that were not proven to efficiently and economically minimize lead emissions.

There are no changes to the draft permit due to these comments.

Comment 2: <u>Lead Content of Baghouse Dust</u>

(a) SDI is asking in the proposed permit for 50% increase in their production of steel. Why do they need to increase the amount of lead the EAF's Baghouse dust 10 times? Why is there a large increase of lead, or has it been there from the beginning?

(0.5% x10 = 5.0%) when the current permit of 0.5% x 0.50% = 0.25 + 0.50 = 0.75% of dust in the EAF's dust baghouse.

Has IDEM changed the rule of 0.5% to 5% of lead in the EAF's baghouse dust, and if they have, what was it based on? [Charles Acheson]

(b) If these draft permits superceded all previous permits, why does it not include where the baghouse dust is disposed of? Please include where this toxic dust is disposed of. [Dan and Sandy Trimmer]

(c) The purpose for lead analysis in the original permit was to verify that lead BACT of 0.6 tons per year was met. The following conditions are now moot points since lead emissions will be greater than 0.6 tons per year. These provisions should be deleted. [SDI]

D.1.10(c)	EAFs Baghouse Lead Content
D.1.21(d)	Dust Lead Content Testing Requirement
D.1.30 (now D.1.26)	Monitoring for Total Building Enclosure

IDEM Response:

The increase in lead content of the dust collected by the EAF's baghouse was based on the test results conducted by SDI on February, 2003. This lead content has been based on the actual amount collected by the baghouse since the initial operations of the plant. The original estimated % lead content was based on limited data; therefore, SDI was required to perform compliance tests. IDEM evaluated BACT for lead as part of this

review and determined that SDI has already installed the add-on control device that satisfies PSD BACT.

SDI has an existing permit (USEPA RCRA No. INR000019364) for the disposal of lead as a constituent in the EAF's dust. The dust is transported to Envirosafe Services of Ohio, Inc. (ESOI), Oregon, OH, where it is treated to render it nonhazardous. Although nonhazardous at this point, SDI still has the material disposed at ESOI; a US EPA highly regulated Class C hazardous waste landfill. This existing RCRA permit is a separate requirement and has not been superseded by this air permit.

IDEM agrees with SDI's recommendation to delete the requirements limiting the lead content of the EAF's dust. However, IDEM did not delete the requirement for monitoring the building's total enclosure because the requirement to maintain total building enclosure is necessary to assure good capture necessary to satisfy BACT. The requirement to monitor for total building enclosure makes the capture efficiency requirements enforceable as a practical matter (see Conditions D.1.10, D.1.21(d) and D.1.26 of this Appendix A of this TSD Addendum for the changes).

Comment 3: <u>Lead and Mercury Impact on the Community</u>

(a) Can we get any documentation on the effect of lead on the schools for our record? On these schools, can we get reports and go on record as exactly what is landing there. [Thomas Davis Jr.]

(b) Are you going to install an air module to investigate the schools with lead impact? This area prior to SDI moving out to here was all agricultural and one of the main agricultural industries is dairy cows. The lead, mercury and fluoride do not just impact the children that live in this community, but through out the region in which this milk product is consumed. Lead is not a commodity tested in milk. What kind of safeguard with the dairy production in this area? [Eva Bratton]

(c) A press release says that the opportunity for expansion exists because "we already have a melt capacity for more tons than we produce". While that may be true, it seems very likely that the proposed expansion would go over that present melt capacity. We are concerned primarily with the increased in emission of lead and mercury and what, if any, steps would be taken by SDI to keep such emissions to a minimum. [Leonard McKinney]

(d) After leaving the public hearing, I felt very uncomfortable with the term "acceptable levels". Who decided that lead and mercury were okay at certain level of contamination? Was lead and mercury ever good for one to consume? How can you poison someone at acceptable levels? I just don't get it. Is it because SDI has the power and money to get this accomplished? Please let me know how you came to use this term. [Val Vorndran]

(e) We are concerned about the increase in emissions that are proposed, especially Lead and Mercury. We would like to know how much more pollution we will be forced to take in our area. [Barbara and Earl Keiser]

(f) I am very concerned about the lead and mercury emissions that will be proposed with this permit. Who will be monitoring the emissions and how often? Will the emissions reports be made available to the public. [Thomas Davis Jr.]

(g) Increasing levels of lead and other toxic materials into the air will cause serious health risks to citizens in the area especially children. It is also an ominous threat to dairy farmers, and other food producing farms located in Whitley County. This concerns me deeply. Heavy metal poisoning is a serious health issue. So hold SDI to the original request of 0.4 level of emissions standard that was requested when the plant opened. It is important for my community to grow, however, we want our children to grow up healthy too. [John Gilles]

(h) It would seem appropriate to me that if we are going to add more lead pollutants to the air, that we at least know where we stand now? [Homer Ohlwine]

IDEM Response:

IDEM has conducted the appropriate analysis of the impacts of the proposed facility on human health. The above-mentioned comments have been addressed in the Appendix B - Revised Air Quality Analysis, of this addendum to the TSD.

SDI is responsible for monitoring the lead and mercury emissions generated by their mill's operations. SDI will be required to conduct compliance tests for lead and mercury, which are direct measurements of the amount of lead and mercury emitted from the stack , on an annual basis.

Emissions reports submitted by SDI are public information. The public may request public information either personally or in writing. The IDEM public files can be viewed from Monday to Friday, from 8:30 AM to 4:00 PM, in the IGCN, 12th Floor. Written request should be mailed to Indiana Department of Environmental Management, Technical Support and Modeling Section, Office of Air Quality, 100 North Senate Avenue, Indianapolis, Indiana 46204.

There are no changes to the draft permit due to these comments.

Comment 4: Mercury

(a) In the current permit, allowed Mercury was 175.2 lbs per year at 200 tons per hour.

At 300 tons per hour it would be 262.8 pounds per year. The draft permit proposes 1369.19 pounds per year, or a 425% increase. These allowable limits are unacceptable.

In Table 22, on page 41 of 48 Appendix A, it is shown that the dirtiest mill in Indiana is the proposed SDI modification. Why is the newest facility allowed to be the dirtiest, when there is control technology available to capture emissions? Why is IDEM allowing such a substantial increase in this toxic emission? Nucor Steel (Table 21) has a capacity of 502 tons per hour, and yet their limit is substantially less. What are their control technologies? [Dan and Sandy Trimmer]

(b) I just wanted to bring up the mercury, because mercury is as damaging if not more damaging than lead. So I hope both these permits take into account not only lead, but mercury too. [James Webster]

IDEM Response:

The increase in mercury emissions was based on the tests conducted by SDI in February 2003. The original limit was specified such that SDI was a not classified as major source for mercury, however, the test showed that mercury emissions exceeded the PSD significant threshold.

It can not be concluded that SDI is the dirtiest mill by simply looking at the Table 22 of the Appendix A of the TSD. As previously explained, SDI must be compared to a similar facility. Most of the mills listed in the table are not comparable to SDI's operations because of different products produced and meltshop designs.

SDI and Nucor use the same add on control in minimizing mercury emissions from their electric arc furnaces. Nucor's limit is substantially less because it was voluntarily taken by Nucor such that PSD major review does not apply for mercury. Compliance with the limit can be attained not only by the use of the add-on control device, but also by limiting either the production rate or hours of operation. Nucor has a production limit to keep their mercury emissions under the PSD significant level. With this restriction, SDI and Nucor mercury limits can not be compared for BACT review. IDEM conducted the mercury PSD BACT analysis correctly and in accordance with the federal guideline. Due to differences in scrap used and characteristics of the gas stream, and the additional significant costs of the disposal injected carbon, add on control is not technically and economically feasible to control mercury emissions from the EAFs.

There are no changes to the draft permit due to these comments.

Comment 5: <u>Fluoride</u>

(a) In the current permit, allowed Fluoride was 5956.8 pounds per year at 200 tons per hour. At 300 tons per hour, it would be 8935.2 pounds per year. The draft permit proposes 18317.16 pounds per year, or 106% increase. This is unacceptable. Why is IDEM allowing this newest permit to be among the dirtiest? [Dan and Sandy Trimmer]

(b) The EAF Fluoride on pages 43 of 48, Appendix A, Table 25 that compares the existing permit to the draft permit, lists the existing fluoride limits as 0.68 pounds per hour or 0.0034 pounds per ton. On page 44 of 48, "in February 2003, SDI Whitley, IN performed fluoride testing. The test results were 11.29 pounds per hour or 216.9 tons per hour of steel. Based on this information, SDI did not comply with the existing fluoride limit. Below, on Table 26 is the proposed fluorides BACT limits for the EAFs. It shows SDI Whitley, IN (proposed as fluoride limit 0.00697 pounds per ton). In the formula for fluorides it shows:

Fluorides = (0.0697 lbs/ton)*(300 tons/hour) = 2.091 lbs/hour. This is an error.

To achieve 2.091 lbs per hour, the formula should be 0.00697 pounds per ton. Please correct this error and re-issue the draft permit. [Charles Acheson]

(c) SDI is asking in the proposed permit for a 50% increase in steel production. The existing permit limits fluoride to 0.0034 pounds per ton.

0.68 lbs/hour x 0.50% (increased production = 0.34 lbs/hour
0.68 lbs/hour + 0.34 lbs/hour = 1.02 lbs/hour The proposed permit is 2.091 lbs/hour.

2.091 divided by 1.02 = 2.05x.
Why is IDEM allowing fluoride limits to increase by more than 2 times? [Charles Acheson]

(d) Fluoride test failed significantly (see page 44 of 48). What BACT control technology is being proposed or has been installed to control fluoride emissions? If SDI has not corrected the problem that led to the failure for fluoride, they will not even be able to

obtain the limits in the proposed draft permit . It appears that IDEM is allowing increase emission without having to use BACT. [Charles Acheson]

(e) Fluoride emissions are not derived from scrap, and thus can not be reduced through a scrap management plan program. Condition D.1.12(a) should be deleted. [SDI]

IDEM Response:

The following formula corrects the typographical error. The draft permit is not resubmitted for public review because the final answer was correct, and the correction did not change the level of approval, the result of the PSD BACT analysis or the applicable requirements.

Fluorides = (0.00697 lbs/ton)*(300 tons/hour) = 2.091 lbs/hour.

Since fluoride emissions are not reduced by the implementation of the scrap management plan, Condition D.1.12(a) has been deleted. The requirement was replaced with the requirement to use a granular type of Fluorspar to minimize fluoride emissions. SDI made this change to their process in order to pass their most recent stack test for fluoride (see Condition D.1.12 of Appendix A of this TSD Addendum for the change).

PM and PM10

Comment 1: <u>EAF PM/PM10 PSD BACT - - Condition D.1.5(c)</u>
Is the BACT limitation for PM10 (condensible and filterable) or PM? Please clarify because this limit appears to be denoted as PM10 only on page 31 of the BACT Analysis. [US EPA Region 5]

IDEM Response:

Condition D.1.5 correctly identifies the PSD BACT limit for the total PM and PM10 emissions from the meltshop operations. This limit is more stringent than the limit specified in the supporting document because it encompasses the total particulate emissions. The BACT analysis document was not updated accordingly when the permit was drafted with the correct limitation.

There are no changes to the draft permit due to this comment.

Comment 2: <u>PM/PM10 PTE</u>
On Page 2 of 31 of the TSD of Draft PSD Permit 183-19849-00030, Table 1, states that the potential to emit PM/PM10 of the new continuous caster is 0.007 tons per year. However, when the formula is calculated, the answer is 61.32 tons/year.

PTE = (Maximum capacity 200 tons/hour)*(EF lbs/ton)*(8760 hours/year)
*(1 ton/2000 lbs) = tons/year

This difference is significant and needs to be explained. If your answer is not correct, this would change Table 4 and the Total PTE of the proposed modification. IDEM needs to correct this error and the draft be resubmitted for review. [Charles D. Acheson]

IDEM Response:

The following table corrects the potential to emit of the new continuous caster. The draft permit is not resubmitted for second review because this correction does not change the level of the approval, the final determination of the PSD BACT, or the applicable

requirements for the continuous caster. In addition, the air quality analysis was conducted using the correct potential to emit.

Second Continuous Caster (200 tons/hour)		
Pollutant	Emission Factor (EF) (lbs/ton)	PTE (tons/year)
PM and PM_{10}	0.07	61.32*
PTE = (Maximum capacity 200 tons/hour)*(EF lbs/ton)*(8,760 hours/year) *(1 ton/2000 lbs) = tons/year * This is the PTE of the continuous caster without control. Approximately 98% of these emissions are collected by the EAFs Baghouse.		

Comment 3: PM and PM_{10} Distinctions
PM10 is the regulated criteria pollutant at issue here. There is no authority to break apart the regulated pollutant into separate factions with independently enforceable limits. [SDI]

IDEM Response:
According to 326 IAC 2-2-1(i), BACT means emissions limitation based on the maximum degree of reduction for each regulated NSR pollutant that would be emitted from the proposed major stationary source. PM and PM10 are both regulated NSR pollutants. IDEM distinguishes between the Filterable PM and Filterable/Condensible PM10, therefore separate limits have to be specified.

There are no changes to the draft permit due to this comment.

Continuous Emission Monitor (CEM) and Continuous Opacity Monitor (COM)

Comment 1: NO_x CEM
Since the NO_x PTE of the EAFs is listed as 459.9 tons per year on page 11 of the TSD, has IDEM considered the possibility of requiring a NO_x CEM? [US EPA Region 5]

IDEM Response:
IDEM agrees that CEMS are the best compliance tools, however, outside of the Part 70 permitting program and 40 CFR Part 75 (Compliance Assurance Monitoring), there are a limited number of State and Federal rules which require a CEM. In lieu of a NO_x emission monitor, the permit was established with the compliance monitoring and reporting that would sufficiently enforce and document the NO_x PSD BACT limits.

This permit also requires NO_x stack testing every 2 1/2 years, which is a direct measurement of the amount of NO_x being emitted from the stack. Also, there are no add-on control devices that were required for the EAFs that SDI can operate to reduce the NOx emissions.

There are no changes to the draft permit due to this comment.

Comment 2: SO_2 CEM
SDI objects to the installation of a SO_2 CEM and recommends SO_2 testing provisions. An SO_2 CEM is not warranted for this mill, which does not make any resulfurized steel. Also,

SO_2 is not controlled through a control device. Therefore, there is no verification for a control device for which a SO_2 CEM is applicable. [SDI]

IDEM Response:

IDEM has re-evaluated the SO_2 CEM monitoring requirement and agrees with SDI to delete the requirements. However, the requirement to maintain the sulfur content of the DRI, charge carbon and injection carbon has been required as part of the PSD BACT limits. SO_2 stack testing every 2 1/2 years has also been added (see Conditions D.1.6 and D.1.21 of Appendix A of this TSD addendum for the changes).

Condition D.1.24 of the draft permit has been deleted.

Comment 3: <u>CO and VOC CEMS SOP</u>

The requirement in Condition D.1.22(b) (CO and VOC CEMS) to submit a written standard operating procedure after monitor installation has been done and therefore should be removed. [SDI]

IDEM Response:

IDEM agrees that the initial standard operating procedure has been submitted, however, a revised SOP has to be submitted whenever a new monitor has been installed or the SOP has been revised. Condition D.1.22(b) has been revised to reflect this change (see Condition D.1.22(b) of Appendix A of this TSD addendum for the changes).

Comment 4: <u>VOC CEM</u>

(a) SDI strongly objects to the operation of a CEM that monitors unregulated VOC's and recommends VOC testing provision. [SDI]

(b) The VOC CEM in Condition D.1.22 (CO and VOC CEMS) should be removed given the difficulties in certifying, measurement of non-regulated hydrocarbons, and existing stack testing showing that VOC emissions are small. [SDI]

IDEM Response:

The use of a VOC CEM to monitor the VOC emissions from the meltshop stack is warranted because the amount of VOC emissions are highly variable based on the level of contaminants on the scrap and there are no other sufficient and reliable ways to monitor the VOC emissions.

The rule cite for the definition of VOC has been added to avoid confusion on what VOC emissions must be monitored. SDI and IDEM will continue to work together to resolve any issues regarding certification of the existing VOC CEM used in the plant.

There are no changes to the draft permit due to these comments.

Comment 5: <u>Back Up CEM</u>

SDI strongly opposes to the installation of a back up CEM as there is no justifiable reason to require such an expense and labor intensive requirement for back up purposes. SDI offers the alternative consistent with the provision in SDI-Bar Products permit appeal. [SDI]

IDEM Response:

The requirement to install back up CEM has been removed. In lieu of using a back up CEM, inspections of the equipment that are important to the performance of the DEC,

canopy hood and total capture system, such as pressure sensors, dampers, and damper switches have been added (see Condition D.1.22(e) of Appendix A of this TSD Addendum for the changes).

Comment 6: COM

(a) SDI agrees that surrogate monitoring is needed for extended period of COM downtime. However, with a 3% opacity limit, this is invisible to the naked eye. SDI does not believe that surrogate monitoring needs to be complicated with criteria that makes it appear SDI has an opacity limit greater than 3%. SDI recommends that Condition D.1.23(d) (Visible Emission Observations and COM) be revised by removing the requirement to conduct visible emission readings using Method 9 when the COM is down for more than 24 hours. SDI recommended that the baghouse leak detection system is sufficient to show compliance when the COM is down. [SDI]

(b) The following conditions are not necessary since a COM is required and already installed. SDI proposes revisions that allow a bag leak detection system. Finally, Subpart AAa contains monitoring conditions related to PM. [SDI]
D.1.25 (Baghouse Operating Conditions)
D.1.26 (Baghouse Inspections)

IDEM Response:

Condition D.1.23(d) has been revised by removing the requirement to conduct visible emission notations if the COM is down for 1 hour or more. However, IDEM retained the requirement for SDI to conduct visible emission readings using Method 9 if the COM is down for 24 hours or more.

IDEM agrees to delete Conditions D.1.25 and D.1.26 of the draft permit to avoid unnecessary or duplicative compliance monitoring since they already have a baghouse leak detection system and COM to show compliance (see Appendix A of this TSD Addendum for the changes).

Comment 7: CEMS Certified Data

CEMS that have not been reviewed and certified by IDEM are not considered acceptable for data reporting. Condition D.1.32 (b) and (c) (now D.1.28) (Reporting Requirements) needs to clarify this. [SDI]

IDEM Response:

Condition D.1.28 was not revised because IDEM and SDI will continue to work together in reviewing and certifying the VOC CEM data, which is part of the routine procedure between the Permittee and the permitting agency in evaluating the CEM data.

There are no changes to the draft permit due to this comment.

Scrap Management Plan (SMP)

Comment 1: Scrap Specifications

(a) SDI's Scrap Management Plan (SMP) is inadequate. The SMP provides that the scrap material shall meet the specifications in the SMP but allows SDI to agree to receive material that deviates from the specifications. That makes no sense. Where are the consequences and the accountability under the SMP? [Jo Zimmermann]

(b) Please explain the following paragraph of the SMP. [Jo Zimmermann]

At any point in the inspection process, SDI personnel or agents working on behalf of Steel Dynamics, Inc. (SDI) have to issue warnings and accept loads with minor deficiencies or to reject loads which contain contaminated scrap.

(c) SDI can not guarantee that 100% of the following material will be rejected. Therefore a provision specified in the SMP should be included that allows materials such that the allowed emission limit is not exceeded. [SDI]

IDEM Response:

The SMP indicated in the proposed permit is adequate. The permit has been written in such a way that limits and compliance methods have been specified and enforceable in a practical manner.

Due to the different kinds of scrap and customer specifications, SDI has the option to reject an entire load or partial load of scrap depending on the specifications of the scrap. SDI will use their expertise in analyzing the content of the scrap to assure that the melting of the scrap will not cause exceedance of the emission limits.

It is in SDI's advantage to inspect and accept only loads of scrap that are as visually non contaminated, as humanly possible. It has to be accepted that there might be loads now and then that might have unwanted materials, however, in all scrap loads accepted by SDI, SDI still has to comply with their PSD BACT limits at all times. Condition E.2.3 (Scrap Inspection Procedure) of the proposed permit specifies the steps that SDI has to conduct from the time the scrap enters the facility (see Condition E.2.3 of Appendix A of this TSD Addendum for the procedure).

If it is determined that SDI is not in compliance with their permit, then IDEM will take appropriate enforcement action Any enforcement action taken is determined based on the violation that occurred. IDEM considers many factors when determining what action is appropriate, including but not limited to the duration of the violation, the environmental impacts resulting from the violation, and the actions taken by the source to correct the violations prior to being required to do so by IDEM.

There are no changes to the draft permit due to these comments.

Comment 2: Emissions Reduced By SMP

There do not appear to be any conditions that describe a requirement to minimize SO_2, Hg, lead and fluorides in accordance with a scrap management plan (SMP). Please explain. [US EPA Region 5]

D.1.6	SO_2 PSD BACT	D.1.10	Lead PSD BACT
D.1.11	Mercury PSD BACT	D.1.12	Fluorides PSD BACT

IDEM Response:

Condition D.1.6 has been revised to indicate that SO_2 emissions shall be minimized in accordance with the SMP (see Condition D.1.6 of Appendix A of this TSD Addendum for the change).

Conditions D.1.10 and D.1.11 were not revised because they already indicate that Lead and Mercury emissions from the EAFs should be minimized in accordance with the SMP.

Condition D.1.12 was revised because reductions of the fluoride emissions are not related to the implementation of the SMP. Rather, fluoride emissions are reduced by using the granular type of Fluorspar.

Comment 3: SMP As Part Of The Permit

Including the SMP as part of the permit, rather than as a separate document to be submitted to the agency upon request restricts SDI's ability to secure scrap and make spot decisions. It also will require a lengthy permit modification for changes to the plan that has little or no effect on regulated emissions. The SMP should not be an attachment to the permit. [SDI]

IDEM Response:

Implementing and maintaining the SMP is part of the BACT requirement under 326 IAC 2-2 for SDI, therefore, the requirements of the plan must be included in the permit. To accommodate the dynamic nature of the SMP, it was incorporated into the permit as Section E.2. IDEM re-evaluated the content of the SMP and made the necessary changes (see Section E.2 of Appendix A of this TSD Addendum for the changes).

Comment 4: Scrap Materials Causing Air Emissions

(a) The following constituents specified in the SMP are not regulated by IDEM and should be omitted. [SDI]

- - Copper
- - Non Ferrous Metal
- - Radiation
- - Tin

(b) US EPA may soon issue regulations addressing mercury switches in scrap. The changes that SDI recommends will accommodate the rules once they are effective. In addition, there is movement for the Indiana legislature to enact rules governing mercury switches in scrap. The recommended changes also address that possibility. [SDI]

(c) Radioactive material is not an IDEM regulated air pollutant. Thus the provision under Scrap Inspection Procedure Nos. 2 and 4 of the SMP should be removed. [SDI]

IDEM Response:

IDEM agrees that the SMP should only deal with materials in the scrap that contribute to air emissions of regulated pollutants. Requirements to monitor materials in the scrap that are not regulated under the PSD or air permitting programs have been removed (see Conditions E.2.1 to E.2.3 of Appendix A of this TSD Addendum for the changes).

IDEM retained the requirement that all mercury switches present in the scrap that are suitable for removal shall be removed and disposed. This requirement is warranted because it is one of the compliance tools for SDI to verify compliance with the mercury PSD BACT limit (see Condition E.2.2 of Appendix A of this TSD addendum for the requirement).

Fugitive Dust Control Plan (FDCP)

Comment 1: Mud and Dirt onto County Line Road

(a) There is a lot of dirt that is being tracked onto the County Line Road (880E) and US 30 from the SDI truck entrance/exit gates. A suggestion would be for SDI to construct a vehicle wheel wash. A wheel wash is 2-concrete troughs with water flowing in the troughs, and the water would go into a settling pond, and can be recirculated. All vehicles would drive through this wheel wash. SDI should comply with Condition C.7 (Fugitive Dust Emissions) [Charles Acheson]

(b) While we live in Aboite Township in Allen County, and are some five to six miles away from the SDI plant, both my wife and I have been well aware of an increase of fine dust in our vicinity. I can not say that this comes from the SDI plant. However, it is obviously suspicious. [Joyce and Frank Sieh]

(c) As far as the mud that is going into County Line Road. I drove a truck for 33 years. I take a lot of pride in what I do and the record speaks for itself. I am troubled, especially on a safety issue. You need to go out there and drive through the mud and the crud and everything else. The county line need to be cleaned up and so does 700 East. There is residue all over the place. [Thomas Davis Jr.]

IDEM Response:

On June 15, 2005, the IDEM inspector assigned for SDI (Mr. Richard Sekula) made an unannounced inspection of the plant to specifically investigate these concerns. During the time of the inspections, tracking of mud and dirt onto County Line Road was not evident to the inspector.

The main internal roads within the plant are paved as are the roads connecting the plant to the County Line Road. Other outside roads not owned by SDI that connect the plant to the County Line Road are unpaved.

SDI maintains and operates a vacuum sweeper to keep the plant's internal roads clean which minimizes airborne fugitive and roadway dust. SDI also maintains monitors for ambient air and fugitive dust emissions. SDI's review of the ambient air monitoring data does not indicate any fugitive dust issues at the plant property line.

At this time, there is no indication that SDI is the sole reason for any mud and dust on County Line Road or fugitive dust issues in Aboite Township. Further investigation can

be carried out if the public provides additional information as to the time, date, weather conditions and road activities when the observations were made.

There are no changes to the draft permit due to these comments.

Comment 2: Content of the FDCP

(a) The FDCP should be a living document that needs to be changed without a permit modification. [SDI]

C.8	Fugitive Particulate Emission Limitations
D.7.1	Fugitive Dust Emission Limitations - PSD BACT
Attachment A	Fugitive Dust Control Plan (FDCP)

(b) Since there is no way to certify compliance with the percent reductions specified in the FDCP (a)(2) and (3), the provisions should be deleted. [SDI]

(c) The Implementation and Contact specified in (c) of the FDCP has been supplied under the original permit. Nonetheless, there is no legal basis for the information. [SDI]

(d) In the Paved Roadways and Parking Lots portion of the FDCP, provision (b) implies that vehicles cannot travel on paved roads. Also, the ambiguity of the provisions shows that the provision should be eliminated. [SDI]

(e) The table on the Wind Erosion from Slag Piles portion of the FDCP is irrelevant with compliance of fugitive dust emissions at the property line and should be deleted. [SDI]

(f) Vehicle speed is not a factor in the AP-42 emission determination. Therefore, posting and enforcement of speed limits are unwarranted. The Vehicle Speed Control portion of the FDCP should be deleted. [SDI]

IDEM Response:

Implementing and maintaining the FDCP is part of the BACT requirement under 326 IAC 2-2 for this source, therefore, the requirements of the plan must be included in the permit. This is in addition to the 326 IAC 6-4 requirements. To accommodate the dynamic nature of the FDCP, it was incorporated into the permit as Section E.1. IDEM re-evaluated the content of the FDCP and made the following changes:

- - The percentages by how much emissions have to be reduced have been removed because specific limits have already been specified in Section D.7 of the proposed permit.
- - SDI is required to inform IDEM if there are changes in the name, title and position responsible of implementing the FDCP.
- - The rate of the dust suppressant has been deleted because it is restrictive and it does not provide flexibility for SDI to comply.
- - The moisture and silt content of the slag piles have been deleted because they are not necessary.
- - The water application method (spray bars) has been specified in the plan.
- - The requirements to post visible signs of the speed limit within the plant and to comply with the speed limits were not deleted.

(See Section E.1 of Appendix A of this TSD Addendum for the changes).

Testing Requirements

Comment 1: HAPs Testing

(a) Page 28 of 30 of the TSD of the draft permit (3), "Since these emissions were not detected, compliance tests will not be required under this modification." These HAPs have a greater chance of occurring with the increased volume of steel produced per hour. Compliance testing must include these pollutants. [Dan and Sandy Trimmer]

(b) In the current permit CP-183-10097-00030, D.1.15(d), "…The information shall include, as a minimum, results for hexane, toluene, benzene, formaldehyde, fluorides, naphthalene, arsenic compounds, beryllium compounds, cadmium compounds, chromium compounds, lead compounds, manganese compounds, mercury compounds, nickel compounds, and selenium compounds…". Page 28 of 30 of the TSD of PSD/SSM (2), the pollutants tested did not include; mercury compounds, arsenic compounds, cadmium compounds, chromium compounds, nickel compounds, and selenium compounds. The current permit D.1.15(d) states, "…These tests shall be performed to gather information on HAP emissions from the EAF stack and to demonstrate compliance with condition D.1.11 of this permit".

Why weren't these pollutants tested? [Dan and Sandy Trimmer]

(c) Page 28 of 30 of the TSD of the proposed permit (4), "The EAFs test results of the Manganese emission rate is 90 % of the allowable limit. Based on this, no compliance testing for manganese will be required for this modification." This statement does not provide substantive support for the conclusion reached. It lacks vital information needed for proper evaluation by failing to state the actual limits and units for this pollutant to which the 90 % relates. Is it 90 % of a total amount of the pollutant? If so, the increase in the production rate of steel by 50% would proportionally raise the total number of tons/hour of Manganese pollution emitted, exceeding the limit. These justifications must be explicit to provide the context for a proper evaluation. Restate the support of removing the testing for Manganese with explicit reference to the permit limits and conditions including units of measure to remove the current ambiguity of this statement and show how the increase in production affects the levels of emissions. [Dan and Sandy Trimmer]

(d) Page 3 of 48, Appendix A of the draft permit (6), Proposed PSD Modification states, "Revise the emission rates for Lead, Mercury, and Fluorides based on the performance stack tests conducted by SDI in February 2003. Based on the stack test results, SDI exceeded the PSD Significant thresholds for Mercury, Lead, and Fluoride. Thus, PSD major review is required for these pollutants, regardless of the other above mentioned proposals." "The initial emissions limits of Lead, Mercury, and Fluorides were specified such that the limited potential to emit of these criteria pollutants were less than the PSD significant levels." Also page 35 of 48, (3)(a) states, "The lead emission limit specified for SDI, Whitley, IN was established in an Environmental Appeals Board (EAB) remand. As a resolution of the remand, the lead emissions from the meltshop were restricted to 0.114 lbs/hour and that the lead content of the dust in the meltshop baghouse shall not exceed 0.5% by weight." And on page 2 of 30 of the TSD, it says "In addition to the permit revision due to non compliance for Mercury, Lead and Fluoride, SDI proposed to modify their existing operation." It is not acceptable to simply adjust a permit limit after the fact, to one that exceeds a PSD significance threshold for the original configuration when the original permit review conducted by IDEM had allowed the source to be constructed

without due consideration of its true PTE. SDI must install equipment that maintains the integrity of the original permit. [Dan and Sandy Trimmer]

IDEM Response:

There are several factors that IDEM considered in any decision to require compliance testing. Among these factors that would be considered are the production and emissions levels at the plant, the compliance history of the plant, the margin between the measured concentrations during the test and the allowable limits.

The table below summarizes the stack test results of the HAPs that had been tested. Even with the increase in production, these HAPS will not exceed the major source of HAPs threshold based on these test results.

HAPs		
Pollutant	Existing Permit Limits (lbs/hour)	Stack Test Rate (lbs/hour)
Lead Compounds	0.114	0.0168
Manganese	1.14	0.101
Zinc	- -	0.20
Beryllium	5.75×10^{-5}	Emissions were below the detectable level.
Hexane	- -	
Benzene	- -	
Toluene	- -	
Napthalene	- -	
Formaldehyde	- -	
Arsenic	- -	
Cadmium	- -	
Chromium	- -	
Nickel	- -	
Selenium	- -	
Antimony	- -	
Barium	- -	
Cobalt	- -	
Copper	- -	
Phosphorus	- -	
Silver	- -	
Thallium	- -	
Total	Any Single HAP = less than 10 tons per year Total HAPs = less than 25 tons per year	Any Single HAP = less than 10 tons per year Total HAPs = less than 25 tons per year

IDEM decided to keep the Manganese testing requirement (see Condition D.1.21 of Appendix A of this TSD Addendum for the changes).

Comment 2: Out of Compliance Test Results

(a) There have been 3 consecutive tests showing that SDI has failed their stack tests. February 18-20, 2003, SDI was "Out of Compliance (at 108% maximum permitted capacity for Mercury testing, and 103% maximum permitted capacity for Fluoride testing"). There was a retest conducted on January 20, 2004, stating that SDI was in compliance running at 82% or 164 tons per hour. However, at maximum production rate of 200 tons per hour, the Fluoride emission rates would exceed the permitted limit. The Fluoride limit would be reached at 191.5 tons per hour. It states " The source should be reviewed to determine if the furnace capacity could be de-rated", Also, August 12, 2003, SDI was out of compliance (at 77% maximum permitted capacity for mercury and fluoride testing). What corrective actions has SDI taken to be in compliance? What emissions controls are being considered to bring them back into compliance? [Charles Acheson]

(b) SDI has a history of failing their stack test and has received fines from EPA, February, 2001 for emitting 17 times the allowable amount of discharge containing lead, cadmium, mercury and particulate matter at their Butler plant. SDI has a permit to emit 0.59 tons per year, although in an earlier permit, SDI emissions were calculated to be 4.03 tons per year. This reduction was written into the previous permit without any changes being made to assure that lead emissions actually could be reduced by 84%. [Eve Bratton]

(c) SDI conducted compliance stack testing in February 2003, at which time SDI exceeded the PSD Significant threshold for mercury, lead and fluoride, and we can only assume that the non compliance continues. Whys is SDI not being punished for its non-compliance with its existing permit? [Jo And Philip Zimmermann]

(d) Can we get the stack testing, corrective actions and communications prior to the final permit coming out? [Charles Kille]

(e) Page 32 of Appendix A. No. 2: It appears from Table 15 that SDI is out of compliance with their current PM10 BACT limit. Are the results in this table correct or is this a typographical error? [US EPA Region 5]

IDEM Response:

In the original permit, potential to emit was based on theoretical calculations because no actual test data could be relied upon. IDEM required SDI to conduct tests to verify these emission rates. The test results indicated emissions higher than what were estimated in the original permit. IDEM did not grant SDI new limits based solely on the higher emission rates. IDEM still conducted a complete BACT analysis and concluded that existing controls are the best add on controls that are technically and economically feasible.

SDI initiated using the granular type of Fluorspar to minimize their fluoride emissions, and this enabled them to pass their most recent stack test for fluoride. SDI also started to remove mercury switches from their scrap that are susceptible for removal. These corrective actions to pass their fluoride and mercury tests were added in this permit as part of their PSD BACT requirements.

SDI has been referred to the IDEM's Office of Enforcement and Compliance for the non-compliance tests and the case is still pending.

Based on the tests conducted by SDI on February 18-20, 2003, SDI was in compliance with the particulate limits:

PM Stack Test Results - - EAF		
Pollutant	Test Result (gr/dscf)	PSD BACT Limit (gr/dscf)
Filterable PM/PM_{10}	0.00068	0.0018
Total PM/PM_{10}	0.00089	0.0052

There are no changes in the draft permit due to these comments.

Comment 3: Mercury Test
Page 42 of Appendix A, No. 6: Please provide more information on the "actual tests conducted by SDI" for mercury. What were the results from these tests? How was the 0.000521 lbs/ton limit derived? [US EPA Region 5]

IDEM Response:
The Mercury testing was conducted on February 18-20, 2003. Mercury emissions were 0.072 pounds per hour at a production rate of 205.7 tons per hour (this is equivalent to 0.00035 pounds per ton).

Due to non-compliance based on the first test, a mercury re-test was conducted on August 12, 2003. Mercury emissions were 0.034 pounds per hour at a production rate of 153.7 tons per hour (equivalent to 2.21×10^{-4} pounds per ton). This test result still shows non compliance with the mercury limits, thus SDI applied for a permit modification to revise the mercury limits. IDEM evaluated whether additional controls could be used to further reduce mercury emissions but none were feasible. The proposed mercury PSD BACT was based on these test results, incorporating safety margin for continuous compliance.

There are no changes in the draft permit due to this comment.

Comment 4: Test Methods
Conditions D.1.21(a) through (f), D.3.4, and D.4.12: As discussed in previous comments to IDEM, testing methods to demonstrate compliance with a NSPS and/or BACT limit should be specified in the permit so that citizens may have a chance to review and comment. [US EPA Region 5]

IDEM Response:
IDEM agrees with the recommendations and revised the conditions by listing the test methods specific for the pollutant to be tested (see Conditions D.1.21(a) through (f), D.3.4 and D.4.12 of Appendix A of this TSD Addendum for the changes). Stack testing is required to be conducted according to EPA approved methodologies. IDEM has staff that are experts in these methodologies. IDEM staff are responsible for reviewing SDI's testing protocols, observing the actual stack tests, and reviewing the results of the stack tests. If IDEM staff do not agree that the testing has been conducted properly, IDEM will require SDI to conduct another test.

Comment 5: LVD Boiler Testing Requirement
(a) Based on the date of permit 183-15170-00030, it appears that the LVD Boiler should have been tested at least once and therefore able to demonstrate compliance. Should the re-opening clauses of these conditions be removed? [US EPA Region 5]
D.4.2 LVD Boiler NO_x PSD BACT
D.4.3 LVD Boiler CO PSD BACT

(b) The following conditions should reflect that the testing has already been accomplished. No additional testing should be required until a Part 70 permit is submitted for public comment and becomes effective. [SDI]

D.4.2	LVD Boiler NO_x PSD BACT
D.4.3	LVD Boiler CO PSD BACT
D.4.12 (now D.4.10)	LVD Boiler Testing Requirements

IDEM Response:

Conditions 4.2 and D.4.3 have been revised by deleting the permit re-opening language which provided SDI the option to re-evaluate the LVD Boiler NOx and CO limits depending on the stack tests results (see Conditions D.4.2 and D.4.3 Appendix A of this TSD Addendum for the changes).

IDEM did not agree to SDI's recommendation to remove the NOx and CO stack testing requirement of the LVD Boiler. IDEM revised Condition D.4.10 by specifying the frequency of the NOx and CO testing (see Condition D.4.10 of Appendix A of this TSD Addendum for the changes).

The LVD Boiler was tested on November 3, 2004. Test results were preliminary reviewed and determined that the LVD Boiler complies with the limits.

LVD Boiler		
Pollutant	Existing Limit (pounds/MMBtu)	Test Result (pounds/MMBtu)
NOx	0.04	0.039
CO	0.084	0.002

Mr. Dan Harper of the IDEM, OAQ may be contacted at 317/234-3615 for the status the tests reports. He can also be reached at Dharper@idem.in.gov.

Comment 6: <u>Testing Frequency</u>

SDI objects to the annual compliance testing requirements for NO_x, Lead and Mercury, in Conditions D.1.21(a), (c) and (e) (Testing Requirements). Annual testing is too onerous and is arbitrarily given to the facility's stack tests. [SDI]

IDEM Response:

IDEM re-evaluated the stack testing requirement, and determined that annual testing for Lead and Mercury is not onerous and arbitrary. These pollutants are of main concern and since there are no continuous emission monitors required for these pollutants, testing in a more frequent manner is warranted.

The NO_x annual testing has been changed to every 2.5 years (see Condition D.1.21(a) of Appendix A of this TSD Addendum for the change). The permit requires numerous requirements for compliance-related monitoring to ensure compliance on a day to day basis.

Comment 7: Testing Schedule

The testing time line is not a federal requirement for pollutants other than PM10. Thus the 180-day deadline in Condition D.1.21 (EAF Testing Requirement) should be increased to allow better opportunity to normalize production. [SDI]

IDEM Response:

Since SDI is an existing source and has existing compliance monitoring that continues to be implemented during the modification phase, the testing schedules specified in the draft permit were extended to allow testing up to 365 days after the modification (see Condition D.1.21 of Appendix A of this TSD Addendum for the changes).

Even though a specific time frame for testing schedule is specified in the permit, IDEM has the authority to request for a test earlier than the scheduled time if IDEM sees that there is sufficient reason to warrant a test.

Comment 8: Opacity Test

(a) Condition D.6.7 (Opacity NSPS Testing Requirement for Slag Handling and Processing) should be removed because there are no testing provisions applicable to this condition. [SDI]

(b) On May 16, 2003, there was an opacity test for fugitive PM for SDI. The conveyor transfer point, north wind erosion stockpile, west wind erosion stockpile, east wind erosion stockpile, dumping of liquid slag and haul road operations, had no opacity observed, with very little observed from the other points tested. This test should include the weather data from the day of testing, and 2 days prior, to make this test more realistic and informative. [Charles Acheson]

IDEM Response:

An opacity limit has been specified for the slag handling and processing. Compliance is verified by conducting an opacity test once every five years. An opacity test is conducted on points of the process that have been determined to have significant emissions. Emission points with minimal emissions are not required to be tested. However, compliance monitoring such as visible emission notations is required to assure compliance on a continuous basis.

There are no changes to the draft permit due to these comments.

Comment 9: Personnel

Who actually takes the tests to monitor that SDI is in compliance? Do you guys go out there unannounced and do a surprise test or do you let them take their own test? [Val Vorndran]

IDEM Response:

SDI hires contractors to perform the test, rather than conducting the test themselves. They submit test protocols to IDEM prior to performing the test. Stack testing is required to be conducted according to EPA approved methodologies. IDEM staff are responsible for reviewing SDI's testing protocols, observing the actual stack tests, and reviewing the results of the stack tests. IDEM oversees and monitors the methods while the tests are being conducted. If IDEM staff do not agree that the testing has been conducted properly, IDEM will require SDI to conduct another test. Tests are scheduled because the process is extensive and involves various steps. Some tests last a few days.

There are no changes to the draft permit due to this comment.

Comment 10: Caster Testing

Testing for the caster alone can not be achieved. The limits include the EAF, which has testing requirements already listed. Thus no testing should be required since any exceedance could subject SDI to double jeopardy for violating this permit as well as the EAF permit. [SDI]

IDEM Response:

Since the 2 draft permits have been combined into one, the testing requirement has also been combined (See Condition D.1.21 of Appendix A of this TSD Addendum for the changes).

Compliance Monitoring

Comment 1: Minimum Bags On Site

Current Permit CP-183-10097-00030 states in D.1.20(b) that "The Permittee shall keep a minimum of 100 bags on site to assure timely response to bag failures". The proposed permit has omitted this very important requirement. To ensure that minimal pollutants are emitted, this requirement must be included. An alternative would be to halt production altogether when there are broken or leaking bags and there are no spares, and this would have to be an explicit permit condition. [Dan and Sandy Trimmer]

IDEM Response:

The requirement that the Permittee maintains a minimum of 100 bags to assure timely response has not been incorporated to this proposed permit because SDI is required to operate a continuous bag leak detection systems (BLDS) for the EAFs Baghouse. This system is more effective and reliable than the requirement to keep bags in the vicinity of the plant. It is in SDI's advantage to conduct corrective actions within a reasonable time frame, and if this has to be fulfilled by keeping certain numbers of bags on hand, then SDI has this option. IDEM does not have to specify one option as long as SDI complies with the PSD BACT limits.

There are no changes to the draft permit due to this comment.

Comment 2: Pressure Gauge Instrument Specifications

C.16 (Instrument Specifications) in the proposed permit "requires the measurement of a temperature".... In the current permit (CP-183-10097-00030), C.9 is "Pressure Gauge Specification". Pressure Gauge Specifications are not included in the draft permit. Temperature and pressure are depended on each other but they are not interchangeable. Why was the Pressure Gauge Specifications eliminated from the draft permit? [Dan and Sandy Trimmer]

IDEM Response:

IDEM agrees and has corrected the condition (see Condition C.16 of Appendix A of this TSD Addendum for the change).

Comment 3: EAF Baghouse Operation

(a) Should the statement in Condition D.1.20 read "the baghouse shall be in operation and control emissions at all times when the EAFs, LMS and /or CC are in operation"? [US EPA Region 5]

(b) Conditions D.1.20 (EAF Baghouse Operation) and D.1.25(a) (Baghouse Operating Condition): Are these two conditions repeated because they are from different rules? Please explain. [US EPA Region 5]

IDEM Response:

IDEM agrees (See Condition D.1.20 of Appendix A of this TSD Addendum for the change).

Condition D.1.25 has been deleted because it is redundant (see draft Condition D.1.25 of Appendix A of this TSD Addendum for the change).

Comment 4: EAF's Baghouse Capacity

With a 50% increase in capacity, has SDI provided IDEM with calculations demonstrating that the existing EAF's baghouse is adequately sized to handle the increase flow and particulate loading from this expansion? [US EPA Region 5]

IDEM Response:

SDI plans to expand of the existing baghouse to handle the increased flow and particulate loading of the proposed expansion.

There are no changes to the draft permit due to this comment.

Comment 5: Propane Gas As Backup Fuel

Inclusion for propane as an alternative operating scenario is imperative to emergency plant operations. [SDI]

IDEM Response:

IDEM agrees to add the use of propane as back up fuel (see Conditions D.2.5, D.2.7, D.3.4, and D.3.8 of Appendix A of this TSD Addendum for the changes).

Comment 6: Capture Efficiency

(a) Capture efficiency is not necessarily tied to opacity and should not be made into an enforceable condition. [SDI]

D.1.14	EAF Visible Emission Limitation PSD BACT
D.1.16	LMS PSD BACT
D.1.17	Caster PSD BACT

(b) Please explain why the capture efficiency for the continuous caster (e.g. 99%) stated in the BACT analysis is not in the second proposed permit. [US EPA Region 5]

(c) My question is the issue of total enclosure that all of the air in the meltshop would be exhausted through the baghouse. There's a statement in the recent permit that there will be no roof monitors and the capture efficiency as being 99%. I am going to hand you a picture I took this morning. I am confused by openings in the side of the baghouse. I see louvers. I see openings and above the openings I see dirt that is on the high side of the openings as if it was hot gases and some hot smoke exiting the building. Do we really know if 99% is captured here when I see puffing out the side or evidence of puffing. I hope this seems like a reasonable concern, because if we are not having 99% capture efficiency then most of the

calculations we have in the permit are not based on anything that substantial or real or valid. [Charles Kille]

IDEM Response:

The picture taken by Mr. Kille shows the vents on the east wall of the building, which is mostly storage area. Processes from the West to East of the building are scrap bay, melt shop, a partition, caster, and storage. Based on this, the vent is not from the melt shop because the meltshop is located by the west half of the building. The meltshop and other openings were limited to 3% opacity. On rare occasions, fugitive emissions might still be emitted, however, SDI still has to comply with the 3% opacity standard.

The requirement to achieve 99% capture efficiency for the LMS and Casters have been eliminated because they are duplicative requirements. A stringent opacity limit has already been specified at 3% to ensure good capture efficiency. Also compliance methods have been sufficiently specified such that the LMS and Casters are properly exhausting to the EAF's Baghouse (see Conditions D.1.16 and D.1.17 of Appendix of this TSD Addendum for the changes).

Condition D.1.14 was not revised because the condition was clear in specifying how fugitive emissions generated during furnace operations should be captured.

There are no changes to the draft permit due to these comments.

Comment 7: <u>Stack Exhaust Subject to 3% Opacity</u>

Clarify Condition D.1.15(a) (NSPS Visible Emission Limitation) that the EAF Baghouse exhaust is restricted to 3% opacity and not the DEC or any other control device. [SDI]

IDEM Response:

IDEM agrees and clarification has been (see Condition D.1.15(a) of Appendix A of this TSD Addendum for the change).

Comment 8: <u>BLDS and COM</u>

The option to use bag leak detection system (BLDS) in accordance with the new federal guidelines should be allowed. [SDI]

D.1.23	Visible Emission Observations and COM
D.1.27(a)(v)	BLDS

IDEM Response:

IDEM acknowledges that the NSPS 40 CFR Part 60 Subpart AAa provides an option for sources to either install and operate a COM or a BLDS for compliance, however, IDEM retained the requirement for SDI to continue the use a continuous opacity monitor to comply with the opacity PSD BACT limit for the meltshop stack in conjunction with the BLDS because a continuous opacity monitor is an excellent compliance tool to show compliance with the PM and PM_{10} limits on a continuous basis. The use of the BLDS is one of the compliance monitoring methods specified for SDI to show compliance with the PSD particulate limit, in addition to the particulate testing conducted once every five years.

Condition D.1.23 has been revised to delete the requirement for a trained employee to observe visible emission notations because Method 9 visible emission readings are

already required if a COM is not online within 24 hours (see Condition D.1.23 of Appendix A of this TSD Addendum for the changes).

Comment 9: COM SOP

The requirement specified in Condition D.1.23(a)(ii) (Visible Emission Observations and COM) has already been accomplished and therefore should be deleted. [SDI]

IDEM Response:

IDEM agrees that the initial standard operating procedure has been submitted however, a revised SOP must be submitted whenever a new monitor has been installed or the SOP has been revised. Condition D.1.23(a)(ii) has been revised to reflect this change (see Condition D.1.23 of Appendix A of this TSD addendum for the changes).

Comment 10: PMP

(a) Condition D.1.27(a)(vi) to (ix) (now D.1.24) (BLDS) should be part of the PMP for the control device and not part of the permit. [SDI]

(b) The following conditions should be deleted because the sources are inconsequential sources to require PMP and there is no justification to require a plan. [SDI]

D.5.6	Storage Silos PMP
D.6.6	Slag Handling and Processing PMP

(c) A PMP is not possible for the second caster. There are no pieces that can be altered to affect the emissions. [SDI]

IDEM Response:

The BLDS is a necessary compliance monitoring requirement, not a preventive maintenance requirement.

Condition D.5.6 has been revised to indicate that preventive maintenance plan is required for the silo's control device only (see Condition D.5.6 of Appendix A of this TSD Addendum for the changes).

Condition D.6.6 was not revised because it already limited the applicability of the PMP for the control devices only.

Since a PMP is not applicable to the casters, Condition D.1.18 was clarified to indicate that the PMP requirement is applicable to the EAFs, LMS, and their associated controls only (see Condition D.1.18 Appendix A of this TSD Addendum for the change).

Comment 11: Meaning of "Immediately"

It is impossible to comply when using the word "immediately" in the following conditions. Also, the baghouses are multi compartment, therefore there is no reason to require the shutdown if the compartment can be isolated. [SDI]

C.19(b)(vi)	Emergency Provisions
D.1.27(b) (now D.1.24)	BLDS
D.5.10	Broken or Failed Bin Vent Filter Detection

IDEM Response:

Condition C.19(b)(vi) was not revised because the condition reflects the actual words of the rule 326 IAC 2-7-16(b)(6).

Conditions D.1.24(b) and D.5.10 were revised by changing the word "immediately" to "as soon as possible". Also, IDEM deleted the provisions for multi compartment baghouses because they do apply for this operation (see Conditions D.1.24(b) and D.5.10 of Appendix A of this TSD Addendum for the change).

Comment 12: Compliance Methods Applicable to Small Emission Units

The following conditions should be deleted because the sources involved are small. [SDI]

D.5.8	Storage Silos Visible Emission Notations
D.5.9	Storage Silos Bin Vent Filter Inspections
D.5.10	Broken or Failed bin Vent Filter Detection

IDEM Response:

These emission units may not be the main and significant operations of the plant but they have applicable PSD BACT limits for particulate emissions. These BACT limits must be enforceable as a practical matter. As a result, the permit must include some methods for monitoring to assure continuous compliance. Since these units are not expected to emit large amounts of emissions, no stack testing is required. Also, the frequency of the required visible emissions observations is only once weekly, as opposed to once per shift or continuous monitoring for units that emit much larger amounts of emissions.

There are no changes to the draft permit due to these comments.

Comment 13: Vendor Certifications

The requirements s to submit vendor certifications for the new second Ladle Dryer, second Reheat Furnace, new Tundish Nozzle Preheater and new Tundish Nozzle Preheater should be deleted because there are no vendor guarantees and none that are pursuant to PSD requirements. [SDI]

IDEM Response:

PSD BACT limits were specified for the dryer, reheat furnace, and preheaters. These limits must be enforceable as a practical matter. No performance tests were required to verify compliance with the limits. Minimal compliance monitoring is required on a routine basis, therefore to verify compliance with the PSD BACT limitation and standards, a one time submission of the specifications or manufacturer's guarantee was required to verify compliance.

There are no changes to the draft permit due to this comment.

Comment 14: Locomotives

All provisions in Condition D.8.2 (Locomotives NO_x Air Quality Impact) relating to locomotives should be deleted. Locomotives are mobile sources and are not regulated under IDEM rules. IDEM seems to agree with this provision in that the TSD states that vehicle emissions under 326 IAC 13 are not applicable. In addition, there is no procedure to verify compliance and the emissions are not considered in annual reporting requirements. The emissions from the units are not even included in the TSD or support documents. [SDI]

IDEM Response:

IDEM agrees because emissions from locomotives fall under the Title 2 of the Clean Air Act (CAA). Condition D.8.2 of the draft permit has been deleted (see Condition D.8.2 of Appendix A of this TSD Addendum for the change).

Comment 15: Pictures

(a) I would like to know just what was done about the pictures of the plant that were presented during the public hearing. If this is how SDI is going to run when no one is watching, they obviously are not going to be emitting at acceptable levels. Please help us. [Val Vorndran]

(b) The picture that Charles Kille presented, I would just ask that you act on it immediately. [Val Vorndran]

(c) I would highly recommend you drive by and take a look for yourself. The picture does not show the real story. I have personally driven by that plant and watched them spray and clean that up, so I know what the problem is. [Thomas Davis Jr.]

IDEM Response:

The picture taken by Mr. Kille shows the vents on the east wall of the building. Processes located from the West to the East areas of the building are the scrap bay area, meltshop, a partition, caster, and a storage area. Based on this, the vents showed in the picture are not from the meltshop portion of the building because the meltshop is located by the west half of the building. The vents are the openings for the storage area.

The meltshop and other openings were limited to 3% opacity. On rare occasions, fugitive emissions might still be emitted, however, SDI still has to comply with the 3% opacity standard. SDI power washes the building once a year and this eliminates any discoloration on building openings.

There are no changes to the draft permit due to these comments.

Comment 16: Compliance Demonstration for Preheater, Dryers, and Reheat Furnaces

There is no method to demonstrate compliance with the CO, VOC, SO_2, and PM/PM10 limits specified in Sections D.2 (Preheaters and Dryers) and D.3 (Reheat Furnace).

It is suggested that a fuel monitoring requirement at least be added so that compliance with these BACT limits can be demonstrated.

Furthermore, the word "None" under the title Compliance Monitoring Requirements should be removed from the permit. [US EPA Region 5]

IDEM Response:

Compliance is sufficiently demonstrated by using pipeline natural gas as fuel because the CO, VOC, SO_2, and PM/PM10 emissions are due to the combustion of this fuel. Since there is no natural gas usage limit lower than the maximum allowed gas used based on the maximum capacities of the preheaters, dryers, and reheat units, it is not necessary to monitor, keep records and report the actual gas usage.

There are no changes to the draft permit due to this comment.

Comment 17: Permit Writer Expertise

When the permit writer worked on the permit, was the site visited or was the permit written from the designs and things submitted to the staff? How many air permits of this magnitude has the permit writer done? [Debra Bear]

IDEM Response:

The permit writer has not visited this specific SDI plant, however, the permit writer has toured similar mini mill plants. The permit writer also works closely with the IDEM inspector assigned to the plant, who has been to the site several times. Applications are reviewed using the information, specification and designs submitted by the applicant. The applicant must certify that the information contained in the application is correct, valid and accurate.

The permit writer has previously been assigned significant permits for SDI, Pittsboro, IN and Nucor Steel, Crawfordsville IN, which are similar operations as in SDI Whitley County plant. The permit writer has also been assigned various permits of this magnitude for different types of operations.

There are no changes to the draft permit due to this comment.

Comment 18: Plant Inspections

Does the inspector conduct random inspections? Are there specific amount of times that you do an inspection? Is it once a year, 2 times a year? [Thomas Davis Jr.]

IDEM Response:

IDEM staff will inspect the plant on a routine basis and conduct other types of surveillance to ensure compliance with the permit limits.

IDEM is committed to inspect SDI at least once a year.

Inspections are unannounced and can last up to three (3) days for large plants such as SDI's. These inspections include a check of all monitoring systems and a review of records of compliance data required by the permit. The IDEM inspector can also review the documents required to be on site such as the CRPs and the PMPs. Visible emissions evaluations, using Method 9, to determine compliance with opacity limits, are also performed during an inspection, or as an offsite surveillance activity.

In addition to inspecting the plant operations, records are reviewed for past operation. Visible emissions can also be determined during routine surveillance activities that are shorter in duration than a full inspection and may not require entrance into the plant.

There are no changes to the draft permit due to this comment.

Record Keeping and Reporting

Comment 1: Submission to US EPA

All references to approval or submittal to US EPA should be eliminated since IDEM has full authority to administer and enforce applicable EPA requirements. If USEPA issues an information request to SDI under its CAA authority, then SDI will respond to that, but such authority does not need to be reflected as a permit condition. [SDI]

C.13(b)	Compliance Requirements
D.3.5	Reheat Furnace Record Keeping Requirements
D.4.13	LVD Boiler Record Keeping Requirements
D.5.11	Storage Silos Record Keeping Requirements
D.6.8	Slag Production Record Keeping Requirements

IDEM Response:

Condition B.11 (Enforceability) indicates that all terms and conditions in the permit are enforceable by IDEM, US EPA and by citizens in accordance of the Clean Air Act (CAA). Based on this, the US EPA may request additional information or reports regardless of whether it is specified in this source's permit. IDEM determined that specifying the US EPA, where applicable, provides clarity.

There are no changes to the draft permit due to these comments.

Comment 2: Reporting Frequency

IDEM has no authority to require reporting more frequent than on a semi annual basis. [SDI]

C.18(a)	Deviations from Permit Requirements and Conditions
C.19	Emergency Provision
C.23	General Reporting Requirements
C.24	Post Construction Ambient Monitoring
D.1.23	Visible Emission Observations and Continuous Opacity Monitoring (COM)
D.1.32	Steel Production Reporting Requirements
D.4.14	LVD Boiler Fuel Reporting Requirements
D.6.9	Slag Production Reporting Requirements

IDEM Response:

The requirement to report on a quarterly basis does not contradict 326 IAC 2-7-5(3)(C)(i) because this rule provides IDEM's authority to require submittal of reports at least every 6 months. IDEM has determined that actual emergencies, and deviations from the permit's applicable requirements; actual production rates and exceedances are information that SDI should report more often than semi-annually. This provides the department and its staff (especially the inspector assigned to the source) updated information to verify as soon as possible the compliance status of the source.

There are no changes to the draft permit due to these comments.

Comment 3: Record Keeping

The following conditions need to specify the permit condition for which it is applicable. [SDI]

D.1.31 (now D.1.27)	EAFs Record Keeping Requirements
D.3.5 (now D.3.8)	Reheat Furnace Record Keeping Requirements
D.4.13 (now D.4.11)	LVD Boiler Record Keeping Requirements
D.5.11	Storage Silos Record Keeping Requirements
D.6.8	Slag Production Record Keeping Requirements

IDEM Response:

IDEM agrees with the recommendation (see Conditions D.1.27, D.3.8, D.4.11, D.5.11 and D.6.8 of Appendix A of this TSD Addendum for the changes.

Comment 4: Existing Requirements

The following conditions should be revised to remove conditions that were not part of the original permit and for which the permit modification application was not sought. [SDI]

D.5.11	Storage Silos Record Keeping Requirements
D.6.9	Slag Production Reporting Requirements

IDEM Response:

The recordkeeping and reporting requirements specified in Conditions 5.11 and D.6.9 were requirements taken from existing permits. The permit numbers of these permits have been referenced to show that they are being incorporated. The slag processing portion of the plant was covered with this permit modification because the annual slag production limit is being relaxed from 262,800 tons/year to 438,000 tons/year.

There are no changes to the draft permit due to these comments.

Comment 5: Report Forms

The mailing address of IDEM should be on each reporting form. This will assure that the forms reach the proper department. [SDI]

IDEM Response:

IDEM agrees with the recommendation and has included the IDEM's new mailing address on each form (see the Quarterly Deviation and Compliance Monitoring Report, Emergency Occurrence Report, Steel Production Report, Natural Gas and Propane Usage Quarterly Report, and Slag Production Report of Appendix A of this TSD Addendum for the changes).

Comment 6: Inspection and Violations

(a) To track down inspection reports and violations, a person has to travel to the office in Indianapolis and sort through boxes of reports in several offices hoping to run across what they seek. These reports should be posted in line on a timely fashion. If permit fees need to be raised to accomplish this, so be it. SDI has quarterly earnings printed in the Fort Wayne newspapers, along with salaries of employees, stock holder's dividends and profits. A mill as financially successful as SDI surely can pay their own way in monitoring and reporting information as required with the permits they hold. [Debra Bear and Nondus Carr]

(b) I would like to request copies of the SDI violations. Do you have an e-mail address that we could access the Office of Enforcement? When do you have a violation? What is the procedure? Are there fines? Do you give them a chance to make it right? [Thomas Davis Jr.]

(c) I would like to know if SDI has any current violations as of this writing. I would also like to request a copy of the current violations since they began productions in Whitley County. Have you taken any action? [Thomas Davis Jr.]

IDEM Response:

The public may request public information either personally or in writing. The IDEM public files can be viewed from Monday to Friday, from 8:30 AM to 4:00 PM, in the IGCN, 12th Floor or by contacting the Office of Air Quality, Permit Branch for a public records request.

The following is a summary of the compliance history of SDI, which provides the basis for violations that SDI is cited:

(a) June 15, 2005 Plant Inspection
Records showed exceedances of the lead content of the EAF Baghouse dust.

An enforcement referral has been forwarded to the IDEM's Office of Enforcement and Compliance for further action and the case is still pending.

(b) May 12, 2004 Plant Inspection
Records showed exceedances of the lead limit of EAF baghouse dust
Records showed exceedances of the sulfur content of charge carbon
No records of the sulfur content of DRI or injection carbon
No records of BLDS alarms and corrective actions
No information about furnace static pressure and fan amperage on the semi-annual report

An enforcement referral has been forwarded to the IDEM's Office of Enforcement and Compliance for further action and the case is still pending.

(c) February 17, 2004 Plant Inspection
Additional information/review is required to evaluate overall compliance. Most records were not thoroughly checked by the inspector.

A full inspection was conducted in May 2004.

(d) July 2, 2003 Plant Surveillance
No violations were observed even though the scrap and west road did not have sufficient dust control because of lack of traffic through the areas.

(e) April 15, 2003 Plant Inspection
Records showed exceedances of the Lead limit in the EAF dust
No records of the pressure drop at the EAF Baghouse
Possible violation of the BLDS set up
No records of monthly operational status inspections
No records of quarterly bin vent inspections
Possible failure to conduct opacity tests
Failure to have records of water usage at slag processing.

An enforcement referral has been forwarded to the IDEM's Office of Enforcement and Compliance for further action and the case is still pending.

(f) October 1, 2002 Plant Inspection
No affidavit of construction was postmarked or hand delivered to IDEM prior to the start of operation.

No further action was initiated by IDEM.

(g) February, 2001
The US EPA issued a notice of violation to SDI for this plant based on the US EPA inspection findings. The inspections were made in September, 2000 and February, 2001. SDI was cited for commencing construction prior to the issuance of the permit. Activities that were cited are excavation of fresh water lagoon, retention ponds, ditches, area for basement, and rail road tracks foundation. US EPA claims that these are permanent in nature and integral to the overall project and such activities are not allowed to be constructed prior to the issuance of a permit. This violation has been resolved.

Indiana State law authorizes a fine up to $25,000 per day per violation. The amount of the fine depends on the magnitude of the violation, the potential harm to human health and the environment, the economic benefit gained by the violator by not complying, and the violator's efforts to achieve compliance.

The provisions for enforcing the Indiana Administrative Code (IAC) are found in the Indiana Code at IC 13-14-1-12, IC 13-14-2-7 and IC 13-30-3. Since the action for enforcement depends on the type of violation, it would be impossible to specifically list what action would be taken for a given violation.

The IDEM's mission is to respond to violations in clear, consistent and speedy enforcement actions that accomplish these three (3) major goals:

(a) achieve compliance,

(b) deter future violations, and

(c) result in an improved environment.

If there is a reason to believe that SDI is not complying with their permit or IDEM receives complaints from citizen, IDEM will investigate and take appropriate actions. IDEM may also perform surveillance of the plant.

The status of pending enforcement actions for the SDI, Whitley County plant can be found in the IDEM website: http://www.in.gov/serv/idem_oe_order.

There are no changes to the draft permit due to these comments.

Post Construction Monitoring

Comment 1: Post Construction Monitoring Duration

The original permit required only 24 months of ambient monitoring. Therefore, there is no reason to require ambient monitoring for more than what was required in the original permit. This is supported by the fact that recorded ambient monitoring reading are well below the NAAQS and the 50% increase in production capacity is not expected to change ambient monitoring readings, as demonstrated by IDEM modeling. [SDI]

IDEM Response:

SDI currently maintains and operates 2 ambient monitoring sites for monitoring PM10 and meteorological data. These monitors have been in operation since October 2001. These ambient monitoring sites provide useful information regarding the impact of SDI on local air quality. The ambient monitoring sites provide a "real world check" and verification on the theoretical computer modeling that demonstrated that SDI will not cause or contribute to a violation of any NAAQS or PSD maximum allowable increase. The duration of the post construction monitoring period was changed to 36 months because of the expected increase in emissions after the proposed expansion. A longer post construction monitoring period provides sufficient information to support the removal of the monitors in the future.

Comment 2: Petition Request Closure

SDI recommends the following statement be added in Condition C.24(a) (Post Construction Ambient Monitoring) to provide closure to the petition request. [SDI]

> The petition is automatically granted if IDEM, OAQ does not respond to the petition by the end of the 45-day period.

IDEM Response:

IDEM did not incorporate the recommended language because there are several factors that would be considered in any decision to reduce the level of monitoring. Among the factors that would be considered are:

(a) the production and emissions levels at the plant,

(b) the compliance history of the plant,

(c) the margin between the measured concentrations and the applicable National Ambient Air Quality Standards (these are the health-based air quality standards adopted by the U.S. EPA and applicable across the country),

(d) a comparison of upwind versus downwind concentrations, and

(e) a comparison of the ambient monitoring data with the predictions of the air quality modeling study.

Comment 3: Ozone and PM Ambient Monitoring

Condition C.24(d) (now C.24(c)) (Post Construction Ambient Monitoring) should be revised by deleting the last sentence (shown below) of the condition because this is merely an extension of the present monitoring network and the ambient monitoring network is already established, and the plan submitted. [SDI]

Additionally, a monitoring QA plan must be submitted and approved by IDEM, OAQ, prior to commencement of the monitoring.

IDEM Response:

Condition C.24(c) was not deleted as requested by SDI. It was revised to clarify that a monitoring Quality Assurance (QA) Plan must be submitted to IDEM if there any changes to the existing QA plan (see Condition C.24 of Appendix of this TSD Addendum for the changes).

Comment 4: Ozone and PM2.5

Condition C.24(c) (Post Construction Monitoring) is no longer necessary because this case is resolved and PM2.5 and ozone re-designations have been made. [SDI]

IDEM Response:

IDEM agrees to delete Condition C.24(c); however, the requirement to monitor ozone has been maintained (see Condition C.24 of Appendix of this TSD Addendum for the changes).

Air Quality Analysis and Impact

Comment 1: 2002 Version VS 1999 Version

Why did IDEM use a 1999 version of the ISC3 model, rather than the 2002 version (02035)? Was the permit modeling performed in 1999? [US EPA Region 5]

IDEM Response:

IDEM used the 2002 version of ISC. The 1999 was a misprint in the original Air Quality Analysis.

There are no changes to the draft permit due to this comment.

Comment 2: PM10 NAAQS and PSD Increment

Why did IDEM use the 24 hour high, second high concentration for comparing with the PM10 NAAQS and PSD increments, instead of the high, sixth high over the 5 years? [US EPA Region 5]

IDEM Response:

IDEM considered the highest 2nd high as more protective of human health, the highest 6th high PM10 24-hour reading was used in NAAQS modeling and no violations occurred. The highest 2nd high did not cause violations either.

There are no changes to the draft permit due to this comment.

Comment 3: Class I Area Impact

IDEM is supposed to address the local (within the impact area) visibility as well as any Class I area impact. The fact that there is no Class I area nearby does not exempt them from addressing local visibility effects. [US EPA Region 5]

IDEM Response:

IDEM does not expect any visibility impacts and this source is over 300 kilometers away from any Class 1 area. IDEM does not see the need for local visibility impact assessments. A visibility analysis (Level 1) must be done if the proposed source is within 100 kilometers (62 miles) of a Class I area. The very southern portions of Spencer, Perry, and Harrison Counties fall within 100 kilometers of Mammoth Cave, Kentucky, which is a Class I area. (Mammoth Cave's UTM coordinates for the point that is closest to Indiana is Northing 4124.526, Easting 566.448, zone 16.) A source more than 100 kilometers from a Class I area may also be included for analysis if that source is of such a size that the State or Federal Land Manager is concerned about potential emission impacts on a Class I area. SDI is located in an area that is more than 100 kilometers from any Class 1 area.

There are no changes to the draft permit due to this comment.

Comment 4: <u>HAPs Impact on the Community</u>

(a) Coessee Elementary is 2 miles west of the SDI plant. Arcola Elementary is 2.5 miles east. There is also a part in the Donatellos Village, which is about 2 miles south of this plant. Someone should monitor the pollution in these areas. Do you take into consideration the location of these schools when you issue this new modification? [Val Vorndran]

(b) SDI is within 2 miles of 2 elementary schools and is surrounded by produce and dairy farms. Some of the highest yielding dairy cows in the world reside within a mile of the plant. Heavy metals from the steel plant will not disperse over a 20 mile area as IDEM states in the PSD for SDI but much fall within a 5 mile area. The lead, cadmium, and other heavy metals will be near the surface of the land and not tilled into the soil to a depth of 6-8 inches as IDEM states, many farmers use no till farming. One can not assume that by washing garden products, the contaminants will be removed. Many plants absorb the metals into their cell structures. Once the vegetables and grains are ingested by humans or farm animals, the toxins are not excreted but absorbed into the blood, fat, bones and milk. [Eve Bratton]

(c) Coesee School is 2 miles west of the facility. Arcola School is as the crow flies, 2 1/2 miles from there. St. Patrick Catholic School is 2 miles from there. I get very disturbed when I hear all the noise and smell. [Thomas Davis Jr.]

(d) Have you actually went to Arcola School or Coesee School or any other locations and monitored for Lead or mercury in the air? It would seem to me that this is the final criteria and are we polluting or not? [Homer Ohlwine]

(e) I do not care how much money this steel mill generates for this area. Is it worth jeopardizing the health of its surrounding neighbors? Most of whom were here first. Amy I also remind you that this plant is within a couple of miles of Arcola Elementary School. I stand firmly opposed to this permit modification. [Val Vorndran]

(f) This letter is in response to the proposal by SDI to raise hazardous emission levels at the Whitley County plant. These emissions which include higher levels

of lead and other toxic chemicals contribute a serious threat to residents in a wide radius of the plant itself. Located within a 2-mile radius of the plants are schools, dairy farms, and produce producing farm land. [John Gilles]

(g) The soil and vegetation analysis did not include impacts from lead and mercury, why were these caps excluded from the analysis? [Sandy Trimmer]

IDEM Response:

The air quality analysis was revised to address these comments(see Appendix B - - Revised Air Quality Analysis - - of this TSD Addendum for the revised air quality analysis).

In modeling for the hazardous air pollutants and lead, the highest concentrations are located on the fence line of SDI. The total lead concentration is 0.20 ug/m3 at the fence line for a 3-month average. At the schools, the highest concentration is 0.01 ug/m3. The National Ambient Air Quality Standard (NAAQS) for lead is 1.5 ug/m3. The Clean Air Act established this standard to be protective of public health, including the health of "sensitive" populations such as asthmatics, children and elderly.

Even when all sources emitting lead within a 50-kilometer range of SDI were added to the modeling and the highest monitor reading in the state was added, the lead result is 0.79 ug/m3; just over half of what would be considered harmful to public health.

The comments regarding Cadmium, Chromium and Managanese have been addressed in Appendix B - revised Air Quality Analysis, of this addendum to the TSD.

The air quality analysis conducted for this source is consistent with Indiana's rules and federal requirements for review of proposed sources.

There are no changes to the draft permit due to these comments.

Comment 5: <u>County Boundary</u>

(a) When you do the air quality evaluation, is it by County or by air corridor? Has there been any change to the refinement of how the impacts are evaluated? Do you go beyond the attainment status of the County and look at air corridors? [Charles Kille]

(b) Within the past several weeks I heard on the news that Allen County was having some issues with its air quality. The SDI facility is located at the Whitley/Allen County line. I believe that the southwesterly prevailing winds will allow the SDI emissions to travel into Allen County and contribute to the air quality issues there. [Jo Zimmermann]

(c) It was made common knowledge at one of the initial permit hearings that Allen County is already over the limit for air pollution levels. I think that an elementary student could figure out a steel mill on the County Line is not going to be able to control its pollutant output from going over the County Line.

IDEM Response:

Air Quality Modeling is initially conducted on a 20 kilometer grid that extends in all directions from SDI's fence line. If any pollutants exceed the significant impact levels, a NAAQS and PSD analysis is performed. In the case of SDI, PM_{10}, and NO_x exceeded the significant impact levels. The NO_x radius of impact was 4.9 kilometers and PM_{10} had a radius of impact of 1.8 kilometers for 24-hour readings and 1.2 kilometers for annual. The radius of impact is the distance where the estimated concentration is below the significant impact level.

A screening of all sources within a 50 kilometer radius of SDI was conducted to determine if any other sources are above the significant impact level for the radius of impact.

SDI and the other sources must not be above the NAAQS when a background concentration is added.

SDI and the other sources must not consume more than 80% of the PSD increment.

For these permits, SDI will not violate the NAAQS or consume the PSD increment.

IDEM does not have the authority to specify requirements beyond the existing status of the County. The air quality analysis conducted for this source is consistent with Indiana's rules and federal requirements for review of proposed sources. The analysis also used the correct potential to emit estimates. Therefore, IDEM properly evaluated the predicted impacts of the proposed source against the ozone standard that was in effect and found that it would not cause or contribute to an exceedance of that standard.

Allen County achieved attainment with the 8-hour ozone NAAQS in 2005. IDEM is developing a petition for the US EPA to formally redesignate Allen County as attainment.

There are no changes to the draft permit due to these comments.

Comment 6: Page 17 of 30 TSD of the Draft permit, State Rules Applicability Determination, (h) states, "…stack heights, thus a dispersion modeling has been performed to analyze air quality impact. Detailed analysis of this is in Appendix C—Air Quality Analysis—of this document." There is no Appendix C in this document. [Dan and Sandy Trimmer]

IDEM Response:

This is a typographical error. The Air quality Analysis was presented in Appendix B of the original TSD.

There are no changes to the draft permit due to this comment.

Actual Emissions

Comment 1: Page 10 of 30 of the TSD of PSD/SSM 183-18426-00030 under Table 10, it says "At this stage of the permit review, there are no 2003 actual emissions data available in the OAQ Emission Inventory database". ". This statement is vague and does not provide any indication of relevant date reference or support for the conclusion of no data available. When was this determination actually made and why is the source delinquent in its reporting? What corrective actions have been taken? 326 IAC 3-6-4 (b) states "All test reports must be received by IDEM, OAQ not later than 45 days after the completion of the testing". Also, 326 IAC 2-7-5 and 326 IAC 2-7-6 says, "A retest to demonstrate compliance shall be performed within 120 days of receipt of the original test results…". In 326 IAC 2-1.1-11 it says "The commissioner may require stack testing, monitoring, or reporting at any time". According to Indiana Code, there are several ways to determine actual emissions data. Production began in October, 2002 and this started the accountability clock for stack testing and the collection and reporting of emission data. There is a requirement for there to be data. It is perfectly reasonable to expect 2003 inventory data to have been available by mid 2004 to IDEM draft review. Delinquency of data does not provide for practical enforceability. Timeliness is a concern. IDEM has not completed its work on this permit and it is therefore flawed and not ready for public review. Please withdraw this incomplete and improperly noticed permit and properly include relevant data as a basis for the permit contents and conditions before resubmitting for public review and comment. [Dan and Sandy Trimmer]

Comment 2: How can there be a TSD if there is no 2003 actual emission data available? Since there is no actual emission data available in the OAQ Emission inventory data base for the years 2003 and 2004, how can a new permit be issued? [Charles Acheson]

Comment 3: The proposed draft permit gives actual emissions for 2002, why are there no actual emissions data for 2003 and forward? [Jo Zimmermann]

IDEM Response:

As indicated in the original supporting document, the actual emissions were based on the IDEM Emission Inventory database. SDI has submitted their actual emissions for 2003, however, IDEM has not yet verified and input the data into the IDEM Emission Inventory database. There is a reasonable lag time between the end of the calendar reporting period and the time the emissions have to be reported because information has to be gathered by SDI. There is also time allotted for IDEM to verify the actual emissions before they are documented in the database. The 2003 actual emissions were not relied upon for this permit review. Indicating the actual emissions in the supporting document is for informational purpose only. The review process is not flawed because reliable actual emissions prior to 2003 were available and used in the review, and therefore the proposed permit will not be re-public noticed.

Recent query of the IDEM Emission Inventory database shows the 2003 actual emissions as follows:

2003 Actual Emissions	SO_2	NO_x	VOC	CO	PM_{10}	Lead
Total (tons/year)	75	229	45	630	32	0.68

There are no changes to the draft permit due to these comments.

Clean Unit

Comment 1: Meltshop Clean Unit

Clean Unit of draft permit states that the EAFs, LMS and CC are classified as Clean Units for 8 pollutants, including Lead, Mercury, and Fluorides. However, 326 IAC 2-2.2-1(6)(g) states,

> To maintain the clean unit designation, the owner or operator must conform to all the restrictions listed in this subsection. This subsection applies independently to each pollutant for which the emissions unit has the clean unit designation."

Therefore, these pollutants should not be included in the clean unit designation specified in Condition D.1.19 (Clean Unit) of the proposed permit. [Dan and Sandy Trimmer]

Comment 2: 326 IAC 2-2.2 VS 326 IAC 2-2.6

Revise Condition D.1.19 (Clean Unit) such that it is consistent with the intent of the Clean Unit program under 326 IAC 2-2.6. [SDI]

Comment 3: Clean Unit Time Period

There is no basis for differentiating the Clean Unit status for the existing preheaters and dryers and the new ladle dryer. There is no testing or independent verification of the lower limits IDEM proposed. [SDI]

D.2.2 Clean Unit for Existing Preheaters and Dryers
D.2.4 Clean Unit for the New ladle Dryer

IDEM Response:

The existing EAFs, LMS and CC are classified as Clean Units for these pollutants: NO_x, PM/PM_{10}, SO_2, CO, VOC, Lead, Mercury, and Fluorides because the following criteria have been satisfied for each pollutant:

(a) These pollutants have been reviewed under the PSD program (326 IAC 2-2), and
(b) reductions in emissions have been achieved by using add-on control or implementing work practices, and
(c) and SDI made investments to install the control technology, research the application of pollution prevention technique to the emission unit, or apply pollution prevention to the EAFs, LMS and CC.

It is correct that the SIC Code 3312 for steel mills is one of the industrial categories indicated in 326 IAC 2-2.6. However this rule (326 IAC 2-2.6) does not apply to SDI because this specific rule applies to sources that experienced at least 10% decline in production during the calendar year 2001 and 2002. SDI does not meet this criterion.

According to the Clean Unit provisions, the classification will be in effect for 10 years from the initial start up of new emission units, while for existing units not being physically modified, the classification was in effect from their initial start up. Based on this, there is a need to distinguish the time period classification between the existing dryers and preheaters and new preheaters and dryers. The 10 year period for the existing dryers and preheaters has already started, while the 10-year period for the new preheaters and dryers has not started yet because initial start up of these units has not yet occurred.

There are no changes to the draft permit due to these comments.

Slag Production

Comment 1: The production of steel is increasing by 50%, however, the slag production is increasing 67%. What is the cause for this additional increase in tonnage of slag production? [Charles Acheson]

Comment 2: Condition 6.1 (Annual Slag Production Limitation) should be revised to remove conditions that were not part of the original permit and for which the permit modification application was not sought. [SDI]

IDEM Response:

The increase in slag production is not in proportion to the increase in EAFs production because SDI intends to produce more rails and rail uses more slag. Without actual full scale experience in rails production, a production margin was added to the slag production limitation.

The slag processing part of the plant is part of this modification because the slag production is increasing from 262,800 tons/year to 438,000 tons/year.

There are no changes to the draft permit due to these comments.

Preheaters and Dryers

Comment 1: Where do the tundish nozzle preheater, tundish preheater and tundish dryer exhaust to? [Sandy Trimmer]

Comment 2: The emission limit set in Condition D.2.1 Ladle Dryer NO_x PSD BACT Limit the permit of the proposed permit (0.10 lbs/MMBtu) does not appear to match the limit stated in the BACT analysis (0.05 lbs/MMBtu). Please explain. [US EPA Region 5]

Comment 3: Condition D.2.3 (Ladle Preheater PSD BACT Limits) should be deleted because there is no testing or independent verification of the lower limits IDEM proposes.

Also, the TSD "State Rule Applicability" states that there is no specific SO_2 limitations that apply to natural gas units. [SDI]

Comment 4: The proposed NO_x limit of 0.05 lbs/MMBtu for the Tundish Nozzle Preheater (ID# 3m) and Tundish Preheat (ID# 3n) has no legal basis because to SDI's knowledge, no similar open air burner has been compliance tested or guaranteed by a vendor at that emission level. These units will use pipeline natural gas, CO, VOC, SO_2, PM and PM_{10} are outside the control and regulation of SDI, can not be certified, and should be eliminated.

Further, the lbs/MMBtu limits make no sense where there is no add on control device. There is no way to test for compliance with these limits. [SDI]

IDEM Response:

Emissions from the preheater and dryers exhaust inside the meltshop building, and they are collected by the overhead roof exhaust system and ducted to the common EAFs Baghouse (Stack 1).

All emission units (significant and insignificant activities) are part of the of the proposed, and NOx PSD BACT limits have to specified for the Tundish Nozzle Preheater (ID# 3m) and Tundish Preheat (ID# 3n).

Condition D.2.1 incorporates the existing NO_x PSD BACT limits for the existing preheaters and dryers which are not being physically modified. The NO_x PSD BACT limits for these existing units are 0.10 pounds per MMBtu.

The new preheaters and dryers have more stringent NO_x PSD BACT limit (0.05 pounds per MMBtu).

The SO_2 PSD BACT limit was based on the sulfur content of pipeline natural gas as fuel. SDI can certify compliance with the SO_2 PSD BACT limit by using natural gas as fuel.

The SO_2 PSD BACT limit was specified under 326 IAC 2-2. The TSD explains that under the state rule 326 IAC 7 that there is no SO_2 limit specified for units that use natural gas as fuel. These 2 rules (326 IAC 2-2 and 326 IAC 7) are independent from each other.

It is incorrect that there are no approved compliance test methods, if testing is required, to determine CO, VOC, SO_2, PM and PM_{10} emission rates from the new preheaters and dryers. However, IDEM did not require any compliance tests in this permit because the potential to emit is minimal and mainly due to fuel combustion. As indicated, SDI can certify compliance as long as natural gas is used as fuel.

Reheat Furnace

Comment 1: Existing Reheat Furnace

This permit modification is not for the reheat furnace. Thus conditions and restrictions in Section D.3 (Reheat Furnace) should not be placed on this unit that were not in the original permit. However, SDI accepts the Clean unit provisions as they relate to new regulatory conditions that were not applicable at the time of the issuance of the first permit. [SDI]

IDEM Response:

There were no new additional applicable requirements specified for the reheat furnace (ID# 2), except the Clean Unit provisions in Condition D.3.3. This can be confirmed by looking at each condition for the Reheat Furnace (ID# 2) which all reference existing permits.

There are no changes to the draft permit due to this comment.

Comment 2: Reheat Furnace NO_x Control and NO_x PSD BACT Limits

(a) A number of reheat furnaces in the RBLC were equipped with ultra-low NO_x burners. Why were ultra low-NO_x burners not chosen as BACT? [US EPA Region 5]

(b) Please explain why the 2003 Nucor Steel - Nebraska and the North America Stainless - Kentucky permits were excluded from the Reheat Furnace BACT analysis. With NO_x BACT limits of 0.064 lb/MMBtu and 0.075 lb/MMBtu, respectively, they appear to be the lowest limits in the RBLC. [US EPA Region 5]

IDEM Response:

Ultra low NO_x burner is a term of art applied to burners that are capable of meeting a NO_x limit of 9 ppm at 3% oxygen or less. Ultra low NO_x burner technology can only be used at its rated effectiveness in areas where combusted gas can be re-circulated to prevent additional burner contact with ambient air.

The reheat furnace in Nucor Steel, NE is equipped with low NO_x burners and flue gas re-circulating system (FGR), which was classified as innovative control technology for this specific emission unit. Since this technology is considered innovative, the NO_x limit will not be considered as PSD BACT for SDI.

Nucor Steel, NE has another reheat furnace with just the low NO_x burners and the NO_x limit is 0.096 pounds per MMBTU. Without the innovative technology, the NO_x limit is less stringent than the proposed NO_x PSD BACT limit for SDI (0.096 pounds per MMBtu versus 0.08 pounds per MMBtu).

On June 16, 2005, the Kentucky Division of Air Quality (Tom Davis 502/573-3382) was contacted regarding the NO_x PSD BACT limit specified for the Reheat Furnace in North American Stainless, KY. The Reheat Furnace is an existing furnace, which did not go through PSD review when the original permit was issued in 1997. Due to a modification (increase capacity), the reheat furnace is one of the units that has to undergo PSD BACT review. The NO_x PSD BACT limit (0.075 pounds per MMBtu) was based on actual stack test data conducted by North American Stainless, KY. In addition, the proposed NO_x PSD BACT limit for SDI's new reheat furnace is 0.08 pounds per million Btu, which is

comparable to the actual test data (NO_x = 0.075 pounds per MMBtu) of the reheat furnace in North American Stainless, KY.

There are no changes to the draft permit due to these comments.

Comment 3: Reheat Furnace SO_2 PSD BACT Limit
The draft permit for the reheat furnace did not specify a pound per hour limit for SO_2. [Sandy Trimmer]

IDEM Response:
Condition D.3.4(f) specified the SO_2 PSD BACT limit for the reheat furnace, both in terms of pound per MMBtu and pounds per hour.

There are no changes to the draft permit due to this comment.

Comment 4: Reheat Furnace Stack Data for PSD BACT

(a) Please explain why stack test data from the other reheat furnace at the SDI facility was not utilized in the analysis. [US EPA Region 5]

(b) CO PSD BACT Limit The Charter Steel, WI CO limit of 0.011 lb/MMBtu was eliminated based on the inverse relationship of CO and NO_x. Has stack testing from the existing reheat furnace demonstrated that 0.011 lb/MMBtu is not achievable? Please compare. [US EPA Region 5]

IDEM Response:

(a) The existing Reheat Furnace (ID# 2) was tested for NO_x and CO in February, 2003. Test results verified compliance with the CO and NO_x PSD BACT limits specified in the PSD Permits 183-10097-00030 and 183-12692-00030.

The NO_x test result was not used because the NO_x PSD BACT limit for the second reheat furnace was more stringent (0.100 pounds per MMBtu versus 0.08 pounds per MMBtu).

The CO stack test result was not used because IDEM considered several factors in reviewing and making any decision in establishing the emission limits and standards. Among the factors that IDEM considered, but not limited to, were: validity of the stack test results, comparison of these results with the limits specified in the permit, and compliance history of the plant. Generally, the revised BACT limits were established with margin of safety taken into consideration for compliance purposes.

Reheat Furnace		
Pollutant	Test Result (lb/MMBtu)	PSD BACT Limit (lb/MMBtu)
NOx	0.100	0.11
CO	0.003	0.03

(b) The CO BACT limit (0.011 pounds per MMBtu) specified in the RBLC for Charter Steel Wisconsin can not be verified because the actual permit issued to the mill indicates a CO PSD BACT limit of 0.084 pounds per MMBtu. This was confirmed by Charter Steel when both SDI and IDEM, at different occasions, contacted Charter Steel to verify the CO BACT limit for their reheat furnace.
Based on this new information, the CO PSD BACT limit for the Reheat Furnace of SDI is the most stringent CP PSD BACT limit that can be found in the RBLC Clearinghouse.

Reheat Furnace CO BACT of Similar Sources	
Source Name	CO Limit (lb/MMBtu)
SDI, Whitley, IN (existing)	0.030
SDI, Whitley, IN (*proposed*)	**0.030**
MacQuanex, AR	0.035
Republic Technologies, OH	0.039
Beta Steel, IN	0.040
Arkansas Steel, AR	0.063
Chaparral Steel, VA	0.075
Nucor-Yamato, AR	0.0824
Charter Steel, WI	0.084
Nucor Steel, NC	0.084
SDI, Hendricks, IN	0.084
Nucor Steel, SC	0.187
Ameristeel, FL	0.350
Nucor Steel, SC	1.970

There are no changes to the draft permit due to these comments.

Comment 5: Natural Gas Fuel as PSD BACT

Because the reheat furnace will use pipeline natural gas, the VOC, SO_2, Lead, Mercury, PM and PM_{10} PSD BACT limits specified for the second reheat furnace are outside the control and regulation of SDI, can not be certified, and should be eliminated. Further, the pounds per MMBtu limits make no sense where there is no add on control device. [SDI]

IDEM Response:

The VOC, SO_2, Mercury, PM and PM10 PSD BACT limits for the new reheat furnace were not eliminated. The reheat furnace is a vital emission unit for the proper operation of the plant and the proposed modification has been determined to undergo major review for the above mentioned pollutants, therefore PSD BACT limits have to be specified. As long as SDI uses pipeline natural gas as fuel for the reheat furnace, SDI is considered to be in compliance with these PSD BACT limits unless other credible evidence exists to the contrary. Compliance is certified by indicating that pipeline natural gas has been used throughout the operation of the reheat furnace. The PSD BACT limits for the reheat furnace specified in terms of pounds per MMBtu were also not eliminated because, this unit (lbs/MMBtu) is the standard measured unit used for an emission unit that uses natural gas as fuel and which emissions are mainly from combustion of fuel. In addition, this form of emission rate that can be easily verified in terms of compliance test, just in case a compliance test must be performed in the future.

There are no changes to the draft permit due to this comment.

Comment 6: Reheat Furnace Stack 41

(a) Do you have the location of the Stack 41? What kind of pollution control is included? [Sandy Trimmer]

(b) Stack 41 has no pollution controls, even though there will be lead and mercury emitted from the reheat furnace. IDEM should consider CEM to be placed on the stack, to be able to monitor the emissions. [Dan and Sandy Trimmer]

IDEM Response:

The new Reheat Furnace (Stack 41) requires a new building construction. The Reheat Furnace is equipped with low NO_x burners to reduce NO_x emissions.

IDEM agrees that CEMS are the best compliance tools, however, outside of the Part 70 permitting program and 40 CFR Part 75 (Compliance Assurance Monitoring), there are a limited number of State and Federal rules which require a CEMS. Requiring a CEMS is based on the specific pollutant, if there is a control device, the PTE before and after control, attainment status of the source location and compliance history. IDEM found no application of mercury CEMS technology for steel mills. In lieu of monitors, the permit was established with the compliance monitoring and reporting that would sufficiently enforce and document the lead and mercury PSD BACT limits. The permit also requires lead and mercury annual stack testing. These tests are a direct measurement of the amount of lead and mercury being emitted from Stack 41.

There are no changes to the draft permit due to these comments.

Vacuum Degasser

Comment 1: Where is the list of the pollutants, potential to emit, and the limits for the ladle vacuum degasser (LVD) and LVD Boiler? [Dan and Sandy Trimmer]

Comment 2: The NESHAP provision 40 CFR Part 63, Subpart DDDDD is not applicable to the LVD Boiler. Construction began October 28, 2002. A letter was mailed to IDEM dated November 5, 2002. Therefore the references to NESHAP provisions in the following conditions should be deleted. [SDI]

D.4.9 NSPS and NESHAP General Provisions
D.4.10 NESHAP Subpart DDDDD
D.4.13 NESHAP Record Keeping Requirements
D.4.14 NESHAP Reporting Requirements

IDEM Response:

The PSD Permit 183-15170-00030 for the vacuum degasser and boiler was issued on May 31, 2002. Since these units have been permitted and no physical modification is being proposed for them, no re-evaluation of the pollutants and applicable requirements is necessary. Existing applicable requirements were incorporated as is in this permit.

As indicated in the technical supporting document of the PSD Permit 183-15170-00030 the potential to emit of the vacuum degasser and boiler are:

Pollutant	Potential to Emit from Natural Gas usage (tons/year)	Potential to Emit from Propane Usage (tons/year)	Worst Case Potential To Emit (tons/year)
PM	1.39	1.2	1.39
PM-10	1.39	1.2	1.39
SO_2	0.11	0.01	0.11
VOC	0.48	1.0	1.0
CO	15.38	6.2	15.38
NO_x	7.32	37.0	37.0

IDEM agrees that the 40 CFR Part 63, Subpart DDDDD does not apply to the LVD Boiler, thus Conditions D.4.8 and D.4.9 of the draft permit have been deleted (see Conditions D.4.8 and D.4.9 of Appendix A of this TSD Addendum for the changes).

General Comments - - Opposition to the Issuance of the Permit

Comment 1: As Whitley County residents who live in near proximity to the SDI facility, my wife and I are concerned about their proposed expansion, and the necessarily increase amounts of pollution would be released into the air. [Leonard McKinney]

Comment 2: I do not think you could possibly pass this permit without filling in the holes and inconsistencies that were in the original permit. [Val Vorndran]

Comment 3: Once again, we are being asked to bend the rules for big business. As a concerned citizen, I am pleading with IDEM not to allow SDI to emit more pollution that their current permit allows. These rules were put in place to protect people and the environment. As a stock holder in SDI, I am asking this request be denied.

Your recent public notice stated that the "comments that are most likely to affect final permit decisions are those based on the rules and laws governing this permit process (326 IAC 2), air quality issues and technical issues".

We have in the past had experts address these issues and had hoped that we had been assured of the best pollution standards allowed by these said rules. Now, we are being asked to turn a blind eye so that SDI can make more money. I have nothing against SDI as a business, but the air we breathe can not be compromised any further. IDEM has set standard and hopefully, the people in charge will abide by these standards. [Nondus Carr]

Comment 4: I am not an expert. I am just a "potentially affected resident" who has lived by industry for 21 years and have "black lungs". I have never smoked a cigarette in my life but have inhaled air polluted by industry. Please do not allow other people to go through what myself and many people from my former neighborhood have gone through. [Nondus Carr]

Comment 5: I am concerned about the amount of toxins SDI generates at its mill's locations. If a mill is going to foist these poisons into a community and harvest a large profit, why not pay their way? [Debra Bear and Nondus Carr]

Comment 6: A steel mill is a large polluter, June 4, 2004 Journal Gazette published the findings of The Commission for Environmental Cooperation naming SDI Butler, IN the 4th largest polluter in North America. Not North Indiana, or Northern US, but North America. I anxiously await the list for this year, to see where SDI Whitley County ranks. You have an awesome job to try and control this giant, but it must be done. Do not be intimated, do your best to protect the air and water we use here in Allen and Whitley counties. [Debra Bear and Nondus Carr]

Comment 7: I am a resident of Allen County, near Whitley County Line. I am strongly opposed to SDI's new request for a new emissions permit. [Robert Anderson]

Comment 8: Part of SDI's promise to our community was to maintain high standards of environmental responsibility. In my opinion, SDI asking to raise levels of toxic emissions is a violation of that promise they made to our community as well as to the health and well-being of our country. As much as we need the financial gain SDI brings to the community, I do not want it at the expense of the health of people within my community, especially children,

What is sad is the fact that the technology exists to have both economic well-being and a safe environment. [John Gilles]

Comment 9: My wife and I wish to voice opposition to issuing a permission to SDI in Whitley County so that they may approximately double their emissions of pollutants. We hope that the needs of ordinary citizens of Indiana, like ourselves, will be taken into consideration in this matter, and that the requested permission will be denied. [Joyce and Frank Sieh]

Comment 10: I am opposing the issuance of the permit. [Brian Fehlhaber]

Comment 11: I am against allowing to issue the permit. [Mike Brown]

Comment 12: I oppose the increase in emissions. This is not good for the County. [John Gillis]

Comment 13: I oppose the expansion because SDI is not meeting their current limits. [Tom Delaney]

Comment 14: I am against allowing for more pollution. This office should do what they have to do to stop this. They should not pass the buck. [Anonymous Caller]

Comment 15: If SDI is allowed to double their capacity through this permit, then they should be held to stricter standards in their permit. The permit should not be the same as it is currently. The company should add a row or group of conifer trees around the property. These trees should help in reducing the pollution that crosses the property line. [Anonymous Caller]

Comment 16: I am against allowing for more pollution. This office should do what they have to do to stop this. They should not pass the buck. [Anonymous Caller]

IDEM Response:

IDEM seriously considers comments from the public and interested parties and as a result IDEM has made changes to the draft permit in response to valid points that had been raised. IDEM does not have a legal basis to deny the permit. The permit was written to assure that SDI will comply with all state and federal applicable requirements.

The Clean Air Act (CAA) established requirements and a process for air permitting agencies to improve air quality and preserve healthy air. That process involves regional assessments, planning and reduction strategies as well as strict and rigorous air permitting requirements for all significant sources of emissions. The CAA does not prohibit the construction of new sources or modification of existing sources in order to preserve the standards of air quality. In fact, one of the premises of the CAA is that, over time, new industries and technologies will become less polluting. The permitting requirements help accomplish this goal, by requiring new sources and modifications to existing sources to use the most up to date pollution control technologies. If a source shows in its permit application that it will meet the strict requirements, it will be issued a permit. That permit will ensure that the source's emissions will be restricted as required by law to protect air quality.

Determining the risk to public health from a particular facility is extremely difficult. IDEM has conducted an appropriate analysis of the impacts of the proposed plant on human health and concludes that this plant will not threaten the health of citizens living or working in the vicinity of the plant.

Federal and State air permitting programs have been established to ensure that new or existing plants will emit air pollutants at a rate that protects the environment and the citizens.

The appropriate compliance monitoring and testing have been specified in the permit and these are sufficient to assure compliance with state and federal regulations. Significant emission units and their add-on controls, as applicable, are monitored once per day and continuous opacity monitor and continuous emission monitors for CO and VOC have been specified for the EAFs. IDEM has also specified stack tests to be performed by the Permittee on a routine basis. Monitoring and testing requirements are evaluated based on the specific pollutant, if there is a control device, the potential to emit (PTE) before and after control, and attainment status of the source location.

For some pollutants, such as lead, US EPA has established ambient levels that are protective of human health. Anticipated emissions can be modeled and resulting ambient levels compared to the federal standard. If levels are not expected to increase above US EPA's ambient standard, it is appropriate to conclude that the proposed facility will not pose an increased threat to public health. In this case, ambient levels are predicted to be significantly below the health standard even with SDI's emissions.

With respect to the health impacts of air toxics, pollutants for which US EPA has not established acceptable ambient levels, the health risk is even much more difficult to assess. The evaluations conducted by IDEM are much more detailed than required by US EPA or performed by other states in similar situations. US EPA does not require that any air quality modeling be conducted for new sources of HAP to determine their possible impact on public health but rather relies on the implementation of maximum achievable control technology (MACT) for those sources determined to be major sources of HAP. This is true because there is no universally accepted method to evaluate the potential risk to public health and the environmental harm resulting from exposure to emissions of air toxics from a particular source. The difficulty of basing a regulatory strategy on risk assessment is exemplified by the lack of emission regulations for HAP prior to the 1990 Clean Air Act Amendments. It should also be noted that existing air quality models for HAP are limited in their ability to accurately forecast concentrations of pollutants, commonly measured in the parts-per-billion or parts-per-trillion ranges.

There are no changes to the draft permit due to these comments.

Recommendation and Conclusion

Based on the facts, conditions and evaluations made, the OAQ staff recommends to the IDEM's Commissioner that the **PSD/SSM 183-18426-00030** be approved.

IDEM Contact

Questions regarding this proposed permit can be directed to Iryn Calilung at the Indiana Department Environmental Management, Office of Air Quality, 100 North Senate Avenue, Indianapolis, Indiana 46204 or by telephone at (317) 233-5692 or toll free at 1-800-451-6027 extension 3-5692.

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/guides.

Indiana Department of Environmental Management
Office of Air Quality

Appendix A - - Proposed Permit Changes - -
of the Addendum to the Technical Support Document (TSD)
Prevention of Significant Deterioration (PSD) and
Part 70 Significant Source Modification (SSM)

Source Background and Description

Source Name:	Steel Dynamics, Inc. (SDI)
Source Location:	2601 County Road 700 East, Columbia City, IN 46725
Mailing Address:	2601 County Road 700 East, Columbia City, IN 46725
Responsible Official:	General Manager or designee (pursuant to 326 IAC 2-7-1(34))
County:	Whitley
SIC Code:	3312 (Steel Mill)
NAICS Code:	331111
Source Categories:	1 of 28 Listed Source Categories Major PSD Source Minor source under Section 112 of the CAA Clean Units
Permit Number:	PSD/SSM 183-18426-00030
Permit Writer:	Iryn Calilung 317/233-5692

Revisions Made to the Draft Permit

This Appendix A to the TSD Addendum documents the revisions made from the time the permits was drafted until a final decision is made. Draft permit 183-19849-00030 was combined with this permit.

Changes made to the draft permits are shown in ~~strikeout~~ or **bold** fonts to show the differences.

Prevention of Significant Deterioration
Part 70 Significant Source Modification

OFFICE OF AIR QUALITY

Steel Dynamics, Inc. (SDI)
2601 County Road 700 East
Columbia City, Indiana 46725

(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.

This permit is also issued under the provisions of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)).

Except as otherwise stated in this permit, **the** ~~The~~ Permittee must comply with all conditions of this permit. Noncompliance with any provisions of this permit is grounds for enforcement action; permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. **Except as otherwise stated in this permit**, noncompliance with any provision of this permit, except any provision specifically designated as not federally enforceable, constitutes a violation of the Clean Air Act. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. An emergency does constitute an affirmative defense in an enforcement action provided the Permittee complies with the applicable requirements set forth in Section **C.19** -Emergency Provisions.

PSD/SSM No.: 183-18426-00030	
Issued by: ~~**DRAFT**~~ Paul Dubenetzky, ~~Branch Chief~~ **Assistant Commissioner** Office of Air Quality	Issuance Date: ~~**DRAFT**~~

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Certification
Quarterly Deviation and Compliance Monitoring Report
Emergency Occurrence Report
Steel Production Report
Natural Gas and Propane Usage Quarterly Report
Slag Production Report

~~**Attachment A - - Fugitive Dust Control Plan (FDCP)**~~
~~**Attachment B - - Scrap Management Plan (SMP)**~~

Affidavit of Construction/Modification

SECTION A SOURCE SUMMARY

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

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

The Permittee owns and operates a steel beam mini mill.

Responsible Official:	General Manager **or designee (pursuant to 326 IAC 2-7-1(34))**
Source Address:	2601 County Road 700 East, Columbia City, Indiana 46725
Mailing Address:	2601 County Road 700 East, Columbia City, Indiana 46725
County Location:	Whitley
County Status:	Attainment for all criteria pollutants
SIC Code:	3312 (Steel Mill)
NAICS:	**331111**
Source Status:	1 of 28 Listed Source Categories Major source, under PSD Program Major source, under Part 70 Program Minor Source, CAA Section 112 Clean Units

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

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

SECTION D.1

(a) **Electric Arc Furnaces (EAFs) - - Stack 1**

Two (2) single shell electric arc furnaces (EAFs), identified as EAF-1a and EAF-1b. These furnaces operate at a nominal combined rate of 300 tons of molten steel per hour and utilize a direct-shell evacuation control (DEC) system (fourth hole duct), an overhead roof exhaust system consisting of a capture system consisting of a segmented canopy hood, scavenger duct, and cross-draft partitions.

These furnaces utilize the following emission control technologies:

(i) A DEC for carbon monoxide (CO) and volatile organic compounds (VOC) emissions;

(ii) Low NO_x/oxyfuel burners (combustion control) for nitrogen oxide (NO_x) emissions; and

(iii) A baghouse (identified as EAF Baghouse, ID# 1) for particulate (PM and PM_{10})

emissions.

~~99 percent of~~ **The particulate and lead** emissions escaping the **DEC** system are collected by the overhead roof exhaust system and exhaust through a stack identified as EAF Baghouse stack (Stack 1).

There are no roof monitors in the meltshop.

Opacity is measured with a continuous opacity monitor (COM).

CO and VOC emissions exhausting through the EAF Baghouse stack (Stack 1) are measured with a CO continuous emission monitor system (CEMS) and a VOC CEMS, respectively.

~~SO_2 emissions exhausting through the EAF Baghouse stack (Stack 1) are measured with a SO_2 continuous emission monitor system (CEMS).~~

(b) **Ladle Metallurgy Station (LMS) - - Stack 1**
One (1) ladle metallurgy refining station (LMS) (ID# 3a) with a nominal ~~casting~~ rate of 300 tons of steel per hour.

~~99 percent of~~ The LMS **particulate** emissions are collected by the overhead roof exhaust system and exhaust through the common EAF Baghouse stack (Stack 1).

(c) **Continuous Casters (CCs) - - Stack 1**
The two (2) continuous casters are limited to a maximum combined casting capacity of 300 tons of steel per hour.

(1) One (1) continuous caster (CC) (ID# 3k) with a nominal casting rate of ~~300~~ **200** tons of steel per hour.

~~99 percent of the CC emissions are collected by the overhead roof exhaust system and exhaust through the common EAF Baghouse stack (Stack 1).~~

(2) One (1) continuous caster, identified as ID# 42a, with a nominal casting rate of 200 tons of steel per hour. ~~This is in addition to the mini mill's existing continuous caster.~~

The particulate emissions from ~~this second~~ **the** continuous caster**s** are collected by the overhead roof exhaust system and exhaust through the common electric arc furnace baghouse stack (Stack 1).

SECTION D.2

(d) **Preheaters - - Stack 1**

(1) Four (4) natural gas-fired low NO_x ladle preheaters (ID#s 3b through 3e), each with a nominal heat input rate of 10 million British Thermal Units per hour (MMBtu/hour).

(~~f~~ **2**) One (1) natural gas-fired low NO_x tundish nozzle preheater (ID# 3g), with a nominal heat input rate of 10 MMBtu/hour.

~~Combustion emissions from the tundish nozzle preheater exhaust inside the building, and are collected by the overhead roof exhaust system and ducted to the common EAF Baghouse.~~

(~~g~~ **3**) Two (2) natural gas-fired low NO_x tundish preheaters (ID#s 3h and 3i), each with a nominal heat input rate of 5 MMBtu/hour.

~~Combustion emissions from the tundish preheaters exhaust inside the building, and are collected by the overhead roof exhaust system and ducted to the common EAF Baghouse.~~

(4) One (1) natural gas-fired Tundish Nozzle Preheater, identified as ID# 3m, nominally rated at 10 million Btu per hour.

(5) One (1) natural gas-fired Tundish Preheater, identified as ID# 3n, nominally rated at 10 million Btu per hour.

Combustion emissions from the ~~ladle~~ preheaters exhaust inside the building, and are collected by the overhead roof exhaust system and ducted to the EAF**s** Baghouse.

(e) **Dryers - - Stack 1**

(1) Two (2) natural gas-fired low NO_x ladle dryers(ID# 3f and ID# 3l), each with a nominal heat input rate of 10 MMBtu/hour.

~~Combustion emissions from the ladle dryers exhaust inside the building, and are collected by the overhead roof exhaust system and ducted to the common EAF Baghouse.~~

(~~h~~ **2**) One (1) natural gas-fired low NO_x tundish dryer (ID# 3j), with a nominal heat input rate of 5 MMBtu/hour.

(3) One (1) natural gas-fired Tundish Dryer, identified as ID# 3o, nominally rated at 5 million Btu per hour.

Combustion emissions from the ~~tundish~~ dryer**s** exhaust inside the building, and are collected by the overhead roof exhaust system and ducted to the common EAF**s** Baghouse.

SECTION D.3

(~~i~~ f) **Reheat Furnaces - - Stack 2 and Stack 41**

(1) One (1) natural gas-fired low NO_x reheat furnace (RH) (ID# 2) with a nominal heat input rate of 260 MMBtu per hour.

Combustion and process emissions from the RH **(ID# 2)** exhaust through a stack identified as Stack 2.

(2) One (1) natural gas-fired low NO_x burners reheat furnace, identified as ID# 41, with a nominal heat input rate of 260 million Btu per hour.

Combustion and process emissions from this reheat furnace **(ID# 41)** exhaust through a stack, identified as Stack 41.

~~This reheat furnace is in addition to the mini mill's existing reheat furnace.~~

SECTION D.4

(~~j~~ g) **Ladle Vacuum Degasser (LVD) and LVD Boiler - - Stack 40**

One (1) ladle vacuum degasser (LVD) **(ID# 40**) with a nominal capacity of 300 tons per hour of steel and one (1) boiler to power the LVD. The LVD Boiler **(ID# 41)** has a nominal heat input capacity of 41.8 MMBtu/hour, and uses natural gas as the primary fuel, with propane as an emergency back up fuel.

Gases from the LVD are directed to the boiler for combustion in the boiler. Emissions from the boiler exhausts through a stack identified as Stack 40.

SECTION D.5

(~~k~~ **h**) One (1) EAF dust storage silo (ID# 4), equipped with a bin vent filter for particulate control.

(~~l~~ **i**) Eight (8) raw material storage silos (ID#s 5 through 12) and the associated raw material receiving station.

Each silo is equipped with a bin vent filter for particulate control.

SECTION D.6

(~~m~~ **j**) A slag handling and processing area **(ID# 14), operated by an independent contractor,** with a nominal rated capacity of ~~150~~ **250** tons per hour.

This processing area consists of slag pot dumping, deskulling, slag cooling, digging of slag pits by a front-end loader, loading of grizzly feeder by a front-end loader, crushing, screening, conveyor transfer points, loading of materials into piles, storage piles, load out of materials from piles, and vehicle movement around piles.

This processing area utilizes the following equipment: one (1) grizzly/feeder, three (3) conveyors, one (1) single deck screen, one (1) primary crusher, one (1) by-pass conveyor, one (1) screen, and ~~four (4)~~ **seven (7)** stackers.

Particulate emissions from the slag processing area are controlled, **as needed,** by water suppression and minimizing drop heights.

SECTION D.7

(~~n~~ **k**) Transporting on paved roadways and parking lots, unpaved roadways, and unpaved areas around slag storage piles and steel scrap piles.

SECTION D.8

(~~o~~ **l**) One (1) cooling tower (ID# 13), with a nominal water flow of 15,000 gallons per minute.

~~(p)~~ ~~Three (3) locomotives, each with a nominal diesel consumption of 10 gallons per hour.~~

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

This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability), **except as provided by 326 IAC 2-7-3,** 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 (US EPA) under 40 CFR 70.3 (Part 70 - Applicability).

SECTION B GENERAL CONSTRUCTION CONDITIONS

B.1 Definitions [326 IAC 2-7-1]

Terms in this permit shall have the definition assigned to such terms in the referenced regulation. In the absence of definitions in the referenced regulation, the applicable definitions found in the statutes or regulations (IC 13-11, 326 IAC 1-2 and 326 IAC 2-7) shall prevail.

B.2 Effective Date of the Permit [IC 13-15-5-3]

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

B.3 Revocation of Permits [326 IAC 2-2-8]

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

The IDEM may extend the eighteen (18) month period upon satisfactory showing that an extension is justified.

B.4 Significant Source Modification [326 IAC 2-7-10.5(h)]

This document shall also become the approval to operate pursuant to 326 IAC 2-7-10.5(h) when, prior to start of operation, the following requirements are met:

(a) The attached affidavit of construction/modification shall be submitted to the Office of Air Quality (OAQ), verifying that the emission units were constructed or modified as proposed in the application or the permit.

The emissions units covered in the Significant Source Modification approval may begin operating on the date the affidavit of construction is postmarked or hand delivered to IDEM if constructed as proposed.

If construction is completed in phases: i.e.: the entire construction is not done continuously, a separate affidavit must be submitted for each phase of construction.

Any permit conditions associated with operation start up dates such as stack testing for NSPS shall be applicable for to each individual phase.

(b) If actual construction or modification of the emissions units differs from the construction or modification proposed in the application or the permit in a manner that is regulated under the provisions of 326 IAC 2-2, the Permittee may not begin operation until the source modification has been revised pursuant to the provisions of that rule and the provisions of 326 IAC 2-1.1-6 and an Operation Permit Validation Letter is issued.

(c) If actual construction of the emissions units differs from the construction proposed in the application or the permit in a manner that is not regulated under the provisions of 326 IAC 2-2, the Permittee may not begin operation until the source modification has been revised pursuant to the provisions of that rule and the provisions of 326 IAC 2-7-11 or 326 IAC 2-7-12 and an Operation Permit Validation Letter is issued.

(d) The Permittee shall attach the Operation Permit Validation Letter received from the OAQ **to this permit**.

(e) The changes covered by the Significant Source Modification will be included in the Title V draft.

(f) In the event that the Part 70 application is being processed at the same time as this application, the following additional procedures shall be followed for obtaining the right to operate:

(i) If the Part 70 draft permit has not gone on public notice, then the change/addition covered by the Significant Source Modification will be included in the Part 70 draft.

(ii) If the Part 70 permit has gone through final EPA proposal and would be issued ahead of the Significant Source Modification, the Significant Source Modification will go through a concurrent 45 day EPA review. Then the Significant Source Modification will be incorporated into the final Part 70 permit at the time of issuance.

(iii) If the Part 70 permit has gone through public notice, but has not gone through final EPA review and would be issued after the Significant Source Modification is issued, then the Modification would be added to the proposed Part 70 permit, and the Title V permit will issued after EPA review.

SECTION C GENERAL OPERATION CONDITIONS

C.1 Major Source [326 IAC 2-2] [326 IAC 2-7]

Pursuant to 326 IAC 2-2 (Prevention of Significant Deterioration), 326 IAC 2-7 (Part 70 Permit Program) and PSD Permits 183-10097-00030 and 183-12692-00030, this source is a major source.

C.2 Prior Permits Superseded [326 IAC 2-1.1-9.5]

All terms and conditions of the following previous permits:

PSD Permit Number	Issuance Dates
183-10097-00030	July 7, 1999
183-12692-00030	January 10, 2001
183-15170-00030	May 31, 2002
183-18658-00030	**May 5, 2004**

issued pursuant to permitting programs approved into the state implementation plan have been either incorporated as originally stated, revised, or deleted by this permit.

C.3 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.

One (1) certification may cover multiple forms in one (1) submittal.

(c) A responsible official is defined at 326 IAC 2-7-1(34).

C.4 Preventive Maintenance Plan (PMP) [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 prepare, maintain and implement Preventive Maintenance Plans (PMPs) upon start up of the new emission units, including the following information on each facility:

(i) Identification by jobs or titles of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;

(ii) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and

(iii) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

(b) The Permittee shall implement the PMPs, including any required record keeping, as necessary to ensure that failure to implement a PMP does not cause or contribute to an exceedance of any limitation on emissions or potential to emit.

(c) 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 PMP does not require the certification by the responsible official as defined by 326 IAC 2-7-1(34).

(d) To the extent the Permittee is required by 40 CFR Part 60 or 40 CFR 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.5 Permit Amendment or Modification [326 IAC 2-7-11] [326 IAC 2-7-12]

(a) Permit amendments and modifications are governed by the requirements of 326 IAC 2-7-11 or 326 IAC 2-7-12 whenever the Permittee seeks to amend or modify this permit.

(b) Any application requesting an amendment or modification of this permit shall be submitted to:

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

Any such application shall be certified by the responsible official as defined by 326 IAC 2-7-1(34).

(c) The Permittee may implement administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-7-11(c)(3)]

(d) No permit amendment or modification is required for the addition, operation or removal of a nonroad engine, as defined in 40 CFR 89.2.

C.6 Opacity [326 IAC 5-1]

Pursuant to 326 IAC 5-1-2 (Opacity Limitations) and PSD Permits 183-10097-00030 and 183-12692-00030, 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 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.

326 IAC 5-1-2 (Opacity Limitations) is not federally enforceable.

C.7 Fugitive Dust Emissions [326 IAC 6-4]

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

326 IAC 6-4-2(4) is not federally enforceable.

C.8 Fugitive Particulate Matter Emission Limitations [326 IAC 6-5] [326 IAC 2-2-3]

Pursuant to 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations), 326 IAC 2-2-3 and PSD Permits 183-10097-00030 and 183-12692-00030, fugitive particulate matter shall be controlled according to ~~attached~~ **the** Fugitive Dust Control Plan **(FDCP)** (~~Attachment A~~ **Section E.1**).

C.9 Stack Height [326 IAC 1-7]

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

C.10 Operation of Equipment [326 IAC 2-7-6(6)]

Except as otherwise provided by statute or rule, or in this permit, all air pollution control equipment listed in this permit and used to comply with an applicable requirement shall be operated at all times that the emission units vented to the control equipment are in operation.

C.11 Asbestos Abatement Projects [326 IAC 14-10] [326 IAC 18] [40 CFR 61, Subpart M]

The Permittee shall comply with the applicable requirements of 326 IAC 14-10, 326 IAC 18, and 40 CFR 61.140.

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

C.12 Performance Testing [326 IAC 3-6][326 IAC 2-1.1-11]

(a) All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this permit, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other **applicable** procedures approved by IDEM, OAQ.

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

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

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 not later than forty-five (45) days after the completion of the testing.

An extension may be granted by IDEM, OAQ, if the Permittee submits to IDEM, OAQ, a reasonable written explanation not later than five (5) days prior to the end of the initial forty-five (45) day period.

Compliance Requirements [326 IAC 2-1.1-11]

C.13 Compliance Requirements [326 IAC 2-1.1-11]

(a) 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.

(b) Any monitoring or testing shall be performed in accordance with 326 IAC 3 or other **applicable** methods approved by the commissioner or the US EPA.

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

C.14 Compliance Monitoring [326 IAC 2-7-5(3)] [326 IAC 2-7-6(1)]

Except as otherwise provided in ~~Section D~~ **in this permit**, all monitoring and record keeping requirements, ~~as required in Section D~~ **not already legally required**, shall be implemented when operation begins.

The Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment.

C.15 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.

C.16 **Pressure Gauge and** Instrument Specifications [326 IAC 2-1.1-11] [326 IAC 2-7-5(3)] [326 IAC 2-7-6(1)]

(a) Whenever a condition in this permit requires the measurement of a temperature, the instrument employed shall have a scale such that the expected normal reading shall be no less than twenty percent (20%) of full scale and be accurate within plus or minus two percent (<2%) of full scale reading.

(b) Whenever a condition in this permit requires the measurement of pressure drop across any part of the unit or its control device, the gauge employed shall have a scale such that the expected normal reading shall be no less than twenty percent (20%) of full scale and be accurate within plus or minus two percent (2%) of full scale reading.

(c) The Permittee may request the IDEM, OAQ approve the use of a pressure gauge or

other instrument that does not meet the above specifications provided the Permittee can demonstrate an alternative pressure gauge or other instrument specification will adequately ensure compliance with permit conditions requiring the measurement of pressure drop or other parameters.

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

C.17 Compliance Response Plan (CRP) - Preparation, Implementation, Records, and Reports [326 IAC 2-7-5] [326 IAC 2-7-6]

(a) The Permittee is required to prepare a Compliance Response Plan (CRP) for each compliance monitoring condition **specified in Section D** of this permit.

A CRP shall be submitted to IDEM, OAQ upon request.

The CRP shall be prepared, prior to the start up operation of the modified **or new** units, by the Permittee, supplemented from time to time by the Permittee, maintained on site, and comprised of:

(i) Reasonable response steps that may be implemented in the event that a reasonable response step is needed pursuant to the requirements of Section D of this permit; and an expected timeframe for taking reasonable response steps.

(ii) If, at any time, the Permittee takes reasonable response steps that are not set forth in the Permittee's current Compliance Response Plan **(CRP)** and the Permittee documents such response in accordance with subsection (e) below, the Permittee shall amend its Compliance Response Plan **(CRP)** to include such reasonable response steps taken.

If a Permittee is required to have an Operation, Maintenance and Monitoring (OMM) Plan or Parametric Monitoring Plan and Start-up, Shutdown, and Malfunction (SSM) Plan under 40 CFR 60 or 40 CFR 63 , such plans shall be deemed to satisfy the requirements for a CRP for those compliance monitoring conditions.

(b) For each compliance monitoring condition of this permit, reasonable response steps shall be taken when indicated by the provisions of that compliance monitoring condition as follows:

(i) Reasonable response steps shall be taken as set forth in the Permittee's current Compliance Response Plan **(CRP)** or Operation, Maintenance and Monitoring (OMM) Plan or Parametric Monitoring Plan and Start-up, Shutdown, and Malfunction (SSM) Plan; or

(ii) If none of the reasonable response steps listed in the Compliance Response Plan **(CRP)** or Operation, Maintenance and Monitoring (OMM) Plan or Parametric Monitoring Plan and Start-up, Shutdown, and Malfunction (SSM) Plan is applicable or responsive to the excursion, the Permittee shall devise and implement additional **appropriate** reasonable response steps as expeditiously as practical.

Taking such additional reasonable response steps shall not be considered a deviation from this permit so long as the Permittee documents such **appropriate** reasonable response steps in accordance with this condition.

(iii) If the Permittee determines that additional reasonable response steps would necessitate that the emissions unit or control device be shut down, and it will be ten (10) days or more until the unit or device will be shut down, then the Permittee shall promptly notify the IDEM, OAQ of the expected date of the shut down.

The notification shall also include the status of the applicable compliance monitoring parameter with respect to normal, and the results of the response actions taken up to the time of notification.

(iv) Failure to take reasonable response steps shall be considered a deviation from the permit.

The OMM Plan or Parametric Monitoring and SMM Plan shall be submitted ~~within~~ **no later than** the time frames **as** specified by the applicable 40 CFR 60 or 40 CFR 63 requirement.

(c) The Permittee is not required to take any further reasonable response steps for any of the following reasons:

(i) A false reading occurs due to the malfunction of the monitoring equipment and prompt action was taken to correct the monitoring equipment.

(ii) The Permittee has determined that the compliance monitoring parameters established in the permit conditions are technically inappropriate, has previously submitted a request for a minor permit modification to the permit, and such request has not been denied.

(iii) An automatic measurement was taken when the process was not operating.

(iv) The process has already returned or is returning to operating within normal parameters and no reasonable response steps are required.

(d) When implementing reasonable steps in response to a compliance monitoring condition, if the Permittee determines that an exceedance of an emission limitation has occurred, the Permittee shall report such deviations pursuant to Section **C.18**-Deviations from Permit Requirements and Conditions.

(e) The Permittee shall record all instances when, in accordance with Section D, reasonable response steps are taken. In the event of an emergency, the provisions of 326 IAC 2-7-16 (Emergency Provisions) requiring prompt corrective action to mitigate emissions shall prevail.

(f) Except as otherwise provided by a rule or provided specifically in Section D, all monitoring as required in Section D shall be performed when the emission unit is operating, except for time necessary to perform quality assurance and maintenance activities.

C.18 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.19** - Emergency Provisions), the probable cause of such deviations, and any reasonable 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

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.19 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:

(i) An emergency occurred and the Permittee can, to the extent possible, identify the causes of the emergency;

(ii) The permitted facility was at the time being properly operated;

(iii) 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;

(iv) 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: 317-233-5674 (ask for Compliance Section)
Facsimile Number: 317-233-5967

(v) 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

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).

(vi) 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) IDEM, OAQ may require that the Preventive Maintenance Plans required under 326 IAC 2-7-4-(c)(9) **for the emission unit that experienced an 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 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.

(h) The Permittee shall include all emergencies in the Quarterly Deviation and Compliance Monitoring Report.

C.20 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.12** - 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 **appropriate** 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 noncompliance stack tests.

The response action documents submitted pursuant to this condition do 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.21 Emission Statement [326 IAC 2-7-5(3)(C)(iii)][326 IAC 2-7-5(7)][326 IAC 2-7-19(c)] [326 IAC 2-6]

(a) ~~The Permittee shall submit an emission statement certified pursuant to the requirements of 326 IAC 2-6.~~

~~This statement must be received in accordance with the compliance schedule specified in 326 IAC 2-6-3 and must comply with the minimum requirements specified in 326 IAC 2-6-4.~~

~~The submittal should cover the period identified in 326 IAC 2-6.~~

~~The emission statement shall meet the following requirements:~~

Pursuant to 326 IAC 2-6-3(a)(1), the Permittee shall submit by July 1 of each year an emission statement covering the previous calendar year. The emission statement shall contain, at a minimum, the information specified in 326 IAC 2-6-4(c) and shall meet the following requirements:

(i) Indicate estimated actual emission of pollutants ~~from the source, in compliance with 326 IAC 2-6 (Emission Reporting)~~ **listed in 326 IAC 2-6-4(a);**

(ii) Indicate estimated actual emissions of regulated pollutants ~~(~~as defined by 326 IAC 2-7-1 (32) ("Regulated pollutant, which is used only for purposes of Section 19 of this rule") from the source, for purpose of fee assessment.

The statement must be submitted to:

Indiana Department of Environmental Management
Technical Support and Modeling Section, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204

The emission statement does require the certification by the responsible official as defined

by 326 IAC 2-1.1-1(1).

(b) The emission statement required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due.

If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.

C.22 General Record Keeping Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-6]

(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~~ **not later than** ninety (90) days of permit issuance.

C.23 General Reporting Requirements [326 IAC 2-7-5(3)(C)]

(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 reasonable 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

(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~~ **not later than** 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.

(f) Reporting periods are based on calendar years.

Post Construction Ambient Monitoring

C.24 Post Construction Ambient Monitoring [326 IAC 2-2-4]

Pursuant to 326 IAC 2-2-4, the two (2) ambient monitoring sites established at locations approved by IDEM, OAQ under PSD Permits 183-10097-00030 and 183-12692-00030 shall continue to operate for an additional 36 months from the initial start of the proposed modification:

(a) A downwind monitoring site near the maximum impact area (Annual Maximum Impact Area: UTM East 639300 and UTM North 4553700) shall measure PM_{10}, **ozone**, and the following meteorological parameters:
- - wind speed,
- - wind direction, and
- - outdoor temperature.

After the 36-month period, the Permittee may petition IDEM, OAQ, to cease the monitoring activities and the department shall grant such petition within 45 days after receipt of the petition if it is established that the PM_{10} **and ozone** levels continue to comply with the NAAQS and that the plant has minimal impact on air quality.

(b) A monitoring site upwind from the maximum impact area shall measure PM_{10}.

After the 36-month period, the Permittee may petition IDEM, OAQ, to cease the monitoring activities and the department shall grant such petition within 45 days after receipt of the petition if it is established that the PM_{10} levels continue to comply with the NAAQS and that the plant has minimal impact on air quality.

~~(c) Upon resolution of American Trucking Ass'n v. U.S. EPA, No. 97-1440 (D.C. Circuit), and subsequent USEPA administrative proceedings relative to the National Ambient Air Quality Standard for ozone and PM, the Department may require, consistent with the applicable NAAQS, the Permittee to operate an ozone monitor and/or a PM monitor to assess the impacts of the facility on local air quality.~~

~~The Department will provide an opportunity for public notice and comment prior to finalizing any permit revision.~~

~~IC 13-15-7-3 (Revocation or Modification of a Permit: Appeal to Board) shall apply to this permit condition.~~

(~~d~~ **c**) The monitors shall meet the operating and maintenance criteria contained in the Indiana Department of Environmental Management, Office of Air Quality, Quality Assurance Manual. Additionally, a monitoring QA plan must be submitted and approved by IDEM, OAQ, **if there are any changes to the QA plan**. ~~prior to commencement of the monitoring~~.

(~~e~~ **d**) Ambient data along with precision and accuracy data from the monitors shall be submitted on a quarterly basis in a format approved by the Commissioner within sixty (60) days after the end of the quarter being reported.

Source Wide Hazardous Air Pollutant (HAP) Limitations

C.25 Source Wide Hazardous Air Pollutant (HAP) Limitations [326 IAC 2-4.1-1]

(a) The Permittee shall not allow any single HAP to be emitted from the source which exceeds ten (10) tons per year.

(b) The Permittee shall not allow any combination of HAPs to be emitted from the source which exceeds twenty-five (25) tons per year.

Therefore, the requirements of 326 IAC 2-4.1-1 (New Source Toxics Control) do not apply.

SECTION D.1 **FACILITY OPERATION CONDITIONS**

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

(a) **Electric Arc Furnaces (EAFs) - - Stack 1**
Two (2) single shell electric arc furnaces (EAFs), identified as EAF-1a and EAF-1b. These furnaces operate at a nominal combined rate of 300 tons of molten steel per hour and utilize a direct-shell evacuation control (DEC) system (fourth hole duct), an overhead roof exhaust system consisting of a capture system consisting of a segmented canopy hood, scavenger duct, and cross-draft partitions.

These furnaces utilize the following emission control technologies:
(i) A DEC for carbon monoxide (CO) and volatile organic compounds (VOC) emissions;
(ii) Low NO_x/oxyfuel burners (combustion control) for nitrogen oxide (NO_x) emissions; and
(iii) A baghouse (identified as EAF Baghouse, ID# 1) for particulate (PM and PM_{10}) emissions.

~~99 percent of~~ **The particulate and lead** emissions escaping the **DEC** system are collected by the overhead roof exhaust system and exhaust through a stack identified as EAF Baghouse stack (Stack 1).
There are no roof monitors in the meltshop.
Opacity is measured with a continuous opacity monitor (COM).
CO and VOC emissions exhausting through the EAF Baghouse stack (Stack 1) are measured with a CO continuous emission monitor system (CEMS) and a VOC CEMS, respectively.
~~SO_2 emissions exhausting through the EAF Baghouse stack (Stack 1) are measured with a SO_2 continuous emission monitor system (CEMS).~~

(b) **Ladle Metallurgy Station (LMS) - - Stack 1**
One (1) ladle metallurgy refining station (LMS) (ID# 3a) with a nominal ~~casting~~ rate of 300 tons of steel per hour.

~~99 percent of~~ The LMS **particulate** emissions are collected by the overhead roof exhaust system and exhaust through the common EAF Baghouse stack (Stack 1).

(c) **Continuous Casters (CCs) - - Stack 1**
The two (2) continuous casters are limited to a maximum combined casting capacity of 300 tons of steel per hour.

(1) One (1) continuous caster (CC) (ID# 3k) with a nominal casting rate of ~~300~~ **200** tons of steel per hour. ~~99 percent of the CC emissions are collected by the overhead roof exhaust system and exhaust through the common EAF Baghouse stack (Stack 1).~~

(2) One (1) continuous caster, identified as ID# 42a, with a nominal casting rate of 200 tons of steel per hour. ~~This is in addition to the mini mill's existing continuous caster.~~

The particulate emissions from ~~this second~~ **the** continuous caster**s** are collected by the overhead roof exhaust system and exhaust through the common electric arc furnace baghouse stack (Stack 1).

(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)]

D.1.1 EAFs Operation Limitation [326 IAC 2-1.1-5] [326 IAC 2-2]

Pursuant to 326 IAC 2-1.1-5 (Air Quality Requirements) and 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the Permittee shall operate the electric arc furnaces (EAFs) at a maximum combined rate of:

(a) 300 tons of molten steel per hour, and

(b) 2,628,000 tons of molten steel per 12-consecutive month period, with compliance determined at the end of each month.

This requirement supersedes:
- - Condition D.1.1 of PSD Permit 183-12692-00030, issued on January 10, 2001, and
- - Condition D.1.1 of PSD Permit 183-10097-00030, issued on July 7, 1999.

D.1.2 Nitrogen Oxides (NO_x) - PSD Best Available Control Technology [326 IAC 2-2-3]

(a) Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements) and PSD Permits 183-10097-00030 and 183-12692-00030, the EAF auxiliary burners shall be equipped with Low NO_x/oxyfuel burners.

(b) Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the NO_x emissions from the EAFs Baghouse stack shall not exceed 0.35 pounds per ton of steel produced and 105 pounds of NO_x per hour, based on a three (3) hour block average.

This requirement supersedes:
- - Condition D.1.2 of PSD Permit 183-12692-00030, issued on January 10, 2001, and
- - Condition D.1.2 of PSD Permit 183-10097-00030, issued on July 7, 1999.

D.1.3 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 EAFs except when otherwise specified in 40 CFR Part 60, Subpart AAa.

D.1.4 Particulate Matter (PM) [40 CFR Part 60, Subpart AAa]

Pursuant to 40 CFR Part 60, Subpart AAa (Standards of Performance for Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed After August 7, 1983) and PSD Permits 183-10097-00030 and 183-12692-00030, the filterable PM emissions from the EAFs Baghouse shall not exceed 0.0052 grains per dry standard cubic feet.

D.1.5 Particulate Matter (PM/PM_{10}) - PSD Best Available Control Technology [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements) and PSD Permits 183-10097-00030 and 183-12692-00030:

(a) Filterable PM/PM_{10} emissions from the EAFs shall be controlled by a baghouse.

(b) Filterable PM/PM_{10} emissions from the EAFs Baghouse shall not exceed 0.0018 grains per dry standard cubic feet and 14.4 pounds of filterable particulate per hour based on a 3-hour block average.

(c) The total PM/PM_{10} (~~including~~ **filterable and** condensible PM_{10}) emissions from the EAFs Baghouse shall not exceed 0.0052 grains per dry standard cubic feet and 41.6 pounds of filterable and condensible particulate per hour based on a 3-hour block average.

(d) There shall be no roof monitors in the melt shop.

The meltshop shall be located in a total enclosure subject to general ventilation that maintains the meltshop at a lower than ambient pressure to ensure in-draft through any doorway opening.

Ventilation air from the total enclosure shall be conveyed to the meltshop EAFs Baghouse.

(e) The cross-draft partitions shall be constructed surrounding the EAFs in a manner that will promote good capture efficiency for the meltshop EAFs Baghouse.

(f) A segmented canopy hood shall be constructed above the EAFs. The canopy shall be divided into separate sections and the dampers operated in a manner that will maximize the draft directly above the point of greatest emissions.

D.1.6 Sulfur Dioxide (SO_2) - PSD Best Available Control Technology [326 IAC 2-2]

(a) Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD), SO_2 emissions from the EAFs shall be controlled in accordance with the Scrap Management Program (SMP) (Section E.2)

(b) Pursuant to 326 IAC 2-2-3 Prevention of Significant Deterioration (PSD), the SO_2 emissions from the EAFs Baghouse stack shall not exceed ~~0.25 pounds per ton of steel and~~ 75 pounds of SO_2 per hour based on a three (3) hour block average.

This requirement supersedes:
- - Condition D.1.7 of PSD Permit 183-12692-00030, issued on January 10, 2001, and
- - Condition D.1.7 of PSD Permit 183-10097-00030, issued on July 7, 1999.

~~D.1.29 DRI, Charge and Injection Carbon Sampling and Analysis [326 IAC 2-1.1-11]~~

(c) Pursuant to 326 IAC 2-1.1-11; PSD Permits 183-10097-00030 and 183-12692-00030; and Permit Amendment 183-18658-00030:

(~~a~~ **1**) The sulfur content of the direct iron (DRI), charge carbon, and injection carbon added into the EAFs shall not exceed the following:

Raw Material	Sulfur Content (%)
direct reduced iron (DRI)	0.20
charge carbon	0.6
injection carbon	2.5

(~~b~~ **2**) The Permittee may utilize the following alternative mixture of sulfur content of the charge carbon and injection carbon added into the EAFs:

Raw Material	Sulfur Content (%)
charge carbon	2.0
injection carbon	4.0

The Permittee shall not use DRI when charging this alternative mixture to the EAFs.

(~~c~~ **3**) The Permittee shall obtain vendor certifications and/or analyses to verify that shipments of raw materials do not exceed the thresholds stated in ~~section (a)~~ **Conditions D.1.6(b)(1) and D.1.6(b)(2)**.

D.1.7 Carbon Monoxide (CO) - PSD Best Available Control Technology [326 IAC 2-2-3]

(a) Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements) and PSD Permits 183-10097-00030 and 183-12692-00030, the CO emissions from the EAF shall be controlled by thermal oxidation and maintaining a negative pressure at the direct-shell evacuation **control** ~~(DSE)~~ **(DEC)** system air gap.

(b) Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the CO emissions from the EAFs Baghouse stack shall not exceed 2.0 pounds per ton of steel produced and 600 pounds of CO per hour, based on a three (3) hour block average.

This requirement supersedes:
- - Condition D.1.9 of PSD Permit 183-12692-00030, issued on January 10, 2001, and
- - Condition D.1.9 of PSD Permit 183-10097-00030, issued on July 7, 1999.

D.1.8 Carbon Monoxide (CO) [326 IAC 9-1]

Pursuant to 326 IAC 9-1 (Carbon Monoxide Emission Limits) and PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall not allow the discharge of CO from the EAF unless the waste gas stream is controlled by a direct-flame afterburner, boiler, or other approved method. The Permittee has elected thermal oxidation at the direct-shell evacuation **control** ~~(DSE)~~ **(DEC)** system air gap.

D.1.9 Volatile Organic Compounds (VOC) - PSD Best Available Control Technology [326 IAC 2-2-3]

(a) Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements) and PSD Permits 183-10097-00030 and 183-12692-00030, the VOC emissions from the EAFs shall be ~~minimized~~ **controlled** in accordance with the ~~attached~~ Scrap Management Program (SMP) (~~Attachment B~~ **Section E.2**) and shall be controlled by thermal oxidation and maintaining a negative pressure at the direct shell evacuation **control** (**DEC**) system air gap.

(b) Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the VOC emissions from the EAFs Baghouse shall not exceed 0.09 pounds per ton of steel and 27 pounds of VOC per hour, based on a three (3) hour block average.

This requirement supersedes:
- - Condition D.1.10 of PSD Permit 183-12692-00030, issued on January 10, 2001, and
- - Condition D.1.10 of PSD Permit 183-10097-00030, issued on July 7, 1999.

(c) These VOC limits are as defined in 326 IAC 1-2-90.

D.1.10 Lead - PSD Best Available Control Technology [326 IAC 2-2-3]

(a) Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements), the lead emissions from the EAFs shall be:

- - ~~minimized~~ **controlled** in accordance with the ~~attached~~ Scrap Management Program (SMP) ~~(Attachment B~~ **Section E.2),** and
- - controlled by a baghouse.

(b) Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the lead emissions from the EAFs Baghouse stack shall not exceed 0.00048 pounds per ton of steel and 0.144 pounds of lead per hour, based on a three (3) hour block average.

~~(c) Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the lead content of the EAFs baghouse dust shall not exceed 5% by weight.~~

These requirements supersede:
- - Condition D.1.11 of PSD Permit 183-12692-00030, issued on January 10, 2001, and
- - Condition D.1.11 of PSD Permit 183-10097-00030, issued on July 7, 1999.

D.1.11 Mercury - PSD Best Available Control Technology [326 IAC 2-2]

(a) Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements), the mercury emissions from the EAFs shall be:

- - ~~minimized~~ **controlled** in accordance with the ~~attached~~ Scrap Management Program (SMP) ~~(Attachment B~~ **Section E.2**), and
- - controlled by a baghouse.

(b) Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the mercury emissions from the EAFs Baghouse stack shall not exceed 5.21 $x10^{-4}$ pounds per ton of steel and 0.1563 pounds of mercury per hour, based on a three (3) hour block average.

These requirements supersede:
- - Condition D.1.11(c) of PSD Permit 183-12692-00030, issued on January 10, 2001, and
- - Condition D.1.11(c) of PSD Permit 183-10097-00030, issued on July 7, 1999.

D.1.12 Fluorides- PSD Best Available Control Technology [326 IAC 2-2]

(a) Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements), the fluoride emissions from the EAFs shall be:

- - ~~minimized~~ **controlled by using the granular type of Fluorspar, instead of the powdered type** ~~in accordance with the attached Scrap Management Program (SMP) (Attachment B),~~ and
- - controlled by a baghouse.

(b) Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the Fluorides emissions from the EAFs Baghouse stack shall not exceed ~~0.00697~~ **0.01** pounds per ton of steel and 2.09 pounds of Fluorides per hour based on a three (3) hour block average.

These requirements supersede:
- - Condition D.1.11(e) of PSD Permit 183-12692-00030, issued on January 10, 2001, and

- - Condition D.1.11(e) of PSD Permit 183-10097-00030, issued on July 7, 1999.

D.1.13 Hazardous Air Pollutant (HAP) Limitations [326 IAC 2-1.1-4] [326 IAC 2-2] [326 IAC 2-4.1-1]

Pursuant to 326 IAC 2-1.1-4 and PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall not allow:

(a) Beryllium to be emitted from the EAFs Baghouse stack in a quantity equal to or greater than 8.6 x 10^{-5} pounds per hour. This limitation is not federally enforceable.

This requirement supersedes:
- - Condition D.1.11(d) of PSD Permit 183-12692-00030, issued on January 10, 2001, and
- - Condition D.1.11(d) of PSD Permit 183-10097-00030, issued on July 7, 1999.

(b) Manganese compounds to be emitted from the EAFs Baghouse stack in a quantity equal to or greater than 1.14 pounds per hour.

Compliance with these limitations will assure that the requirements of 326 IAC 2-2 Prevention of Significant Deterioration (PSD) do not apply for beryllium and that the requirements of 326 IAC 2-4.1-1 (New Source Toxics Control) do not apply to the source.

D.1.14 Visible Emission Limitations - PSD Best Available Control Technology [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements) and PSD Permits 183-10097-00030 and 183-12692-00030:

(a) Visible emissions from the EAFs Baghouse stack (Stack 1) shall not exceed three percent (3%) opacity based on a six-minute average (24 readings taken in accordance with 40 CFR Part 60, Appendix A, Method 9).

(b) ~~All f~~ **F**ugitive particulate matter (PM and PM_{10}) emissions generated during furnace operations shall be captured by the melt shop roof canopy and ducted to the EAFs Baghouse such that visible emissions generated at the EAFs shall not exceed three percent (3%) opacity based on a six-minute average (24 readings taken in accordance with 40 CFR Part 60, Appendix A, Method 9) when emitted from any building opening.

(c) ~~Additional i~~ **I**nspections and preventive measures shall be performed as prescribed in the Preventive Maintenance Plan.

Compliance with the above opacity limitations shall also satisfy the requirements of 326 IAC 5-1-2 (Opacity Limitations) under Condition **C.6** - Opacity.

D.1.15 Visible Emission Limitations [40 CFR Part 60, Subpart AAa]

Pursuant to 40 CFR 20.272a(a) and PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall not cause to discharge into the atmosphere from the EAFs any gases that:

(a) Exit from ~~a control device~~ **the EAF Baghouse Stack 1** and exhibit three percent (3%) opacity or greater; and

(b) Exit from the melt shop, and due solely to the operations of the EAFs, exhibit six percent (6%) opacity or greater.

Compliance with the above opacity limitations shall also satisfy the requirements of 326 IAC 5-1-2 (Opacity Limitations) under Condition **C.6** - Opacity.

D.1.16 Ladle Metallurgy Station (LMS) PSD Best Available Control Technology (BACT) [326 IAC 2-2]

Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD) and PSD Permits 183-10097-00030 and 183-12692-00030, ~~at least 99% of~~ the filterable and condensible PM/PM_{10} emissions from the ladle metallurgy station (LMS) **(ID# 3a)** shall be ~~captured by the meltshop roof canopy, then~~ controlled by the **existing** common EAFs Baghouse.

D.1.17 Continuous Caster**s** (CC**s**) PSD Best Available Control Technology (BACT) [326 IAC 2-2]

(a) Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD) and PSD Permits 183-10097-00030 and 183-12692-00030, ~~at least 99% of~~ the filterable and condensible PM/PM_{10} emissions from the continuous caster (CC) **(ID# 3k)** shall be ~~captured by the meltshop roof canopy, then~~ controlled by the common EAFs Baghouse.

(b) **Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD)**, ~~The~~ the filterable and condensible particulate matter (PM/PM_{10}) emissions from the second continuous caster (ID# 42a) shall be controlled by the existing common EAFs Baghouse.

D.1.18 Preventive Maintenance Plan (PMP) [326 IAC 1-6-3] **[326 IAC 2-7-5(13)]**

Pursuant to 326 IAC 1-6-3 and PSD Permits 183-10097-00030 and 183-12692-00030, a Preventive Maintenance Plan (PMP), in accordance with Condition **C.4** - Preventive Maintenance Plan (PMP) of this permit, is required for the **EAFs and LMS** ~~meltshop~~ and **their** associated control devices.

D.1.19 Clean Unit [326 IAC 2-2.2]

(a) **EAFs (EAF-1a and EAF-1b), LMS (ID# 3a), and CC (ID# 3k)**

(1) Pursuant to 326 IAC 2-2.2, the**:**

- - EAFs **(EAF-1a and EAF-1b)**,
- - LMS **(ID# 3a),** and
- - CC **(ID# 3k)**

are classified as Clean Units for:

(~~1~~ **A**) NO_x,
(~~2~~ **B**) PM/PM_{10},
(~~3~~ **C**) SO_2,
(~~4~~ **D**) CO,
(~~5~~ **E**) VOC,
(~~6~~ **F**) Lead,
(~~7~~ **G**) Mercury, and
(~~8~~ **H**) Fluorides.

(~~b~~ **2**) The Clean Unit designations for the EAFs, LMS, and CC are in effect for ten (10) years from the issuance date of this permit.

(~~c~~ **3**) In order to maintain the clean unit designations for the EAFs, LMS, and CC, the Permittee shall comply with the following:

(~~1~~ **4**) The EAFs, LMS, and CC (designated as clean units) shall comply with the emissions limitations or work practice requirements in the following conditions as part of the BACT:

(A)	D.1.1	EAF Operation Limitation (all pollutants),
(B)	D.1.2	Nitrogen Oxides (NO_x) - PSD BACT,
(C)	D.1.5	Particulate Matter (PM/ PM_{10}) - PSD BACT,
(D)	D.1.6	Sulfur Dioxide (SO_2) - PSD BACT,
(E)	D.1.7	Carbon Monoxide (CO) - PSD BACT,
(F)	D.1.9	Volatile Organic Compounds (VOC) - PSD BACT,
(G)	D.1.10	Lead - PSD BACT,
(H)	D.1.11	Mercury - PSD BACT,
(I)	D.1.12	Fluorides- PSD BACT,
(J)	D.1.14	Visible Emission Limitations - PSD BACT,
(K)	D.1.16	Ladle Metallurgy Station (LMS) PSD BACT,
(L)	D.1.17**(a)**	Continuous Caster**s** (CC**s**) PSD BACT, **and**
(M)	D.1.22	CO and VOC CEMS Requirement~~, and~~
~~(N)~~	~~D.124~~	~~SO_2 CEMS Requirement.~~

(b) Continuous Caster (ID# 42a)

(~~a~~ **1**) Pursuant to 326 IAC 2-2.2 (Clean Unit), the continuous caster (ID# 42a) is classified as Clean Unit for filterable and condensible particulate matter (PM/PM_{10}) and opacity.

(~~b~~ **2**) The Clean Unit designation for this continuous caster (ID# 42a) is in effect for ten (10) years from its initial start up.

(~~c~~ **3**) In order to maintain the clean unit designation for the continuous caster (ID# 42a), the Permittee shall comply with the continuous caster (ID# 42a) filterable and condensible particulate matter (PM/PM_{10}) and Opacity PSD BACT limits.

(c) **EAFs (EAF-1a and EAF-1b), LMS (ID# 3a), and CCs (ID# 3k and ID# 42a)**

(1) In addition, the EAFs, LMS, and CC**s** shall comply with all applicable requirements per 326 IAC 2-7 contained in this permit.

(2) No physical change or change in the method of operation shall be undertaken at these emissions units that would allow them to operate in a manner inconsistent with the physical or operational characteristics of the emission units.

(~~d~~ 3) The EAFs, LMS, and CC**s** (designated as clean units) are subject to the following requirements:

(~~1~~ **A**) Any project at these emissions units for which actual construction begins after the effective date of the clean unit designations and before the expiration date shall be considered to have occurred while the emissions units were clean units.

(~~2~~ **B**) If a project at these emission units does not cause the need for a change in the emission limitations or work practice requirements in this permit for these units that were adopted in conjunction with BACT and the project would not alter any physical or operational characteristics that formed the basis for the BACT determination, the clean unit designations remain unchanged.

(~~3~~ **C**) If a project causes the need for a change in the emission limitations or work practice requirements in this permit for these units that were adopted in conjunction with BACT or the project would alter any physical or operational characteristics that formed the basis for the BACT determination, then the clean unit designations shall expire upon issuance of the necessary permit modifications, unless the units requalify as clean units. If the Permittee begins actual construction on the project without first applying to modify the emissions unit's permit, the clean unit designations shall expire immediately prior to the time when actual construction of this project begins.

(~~4~~ **D**) A project that causes emissions units to lose their clean unit designations shall be subject to the applicability requirements of 326 IAC 2-2-2(d)(1) through 326 IAC 2-2-2(d)(4) and 326 IAC 2-2-2(d)(6).

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

D.1.20 EAFs Baghouse Operation [326 IAC 2-2]

Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the EAFs Baghouse shall be in operation and control emissions at all times when the electric arc furnaces (EAFs), Ladle Metallurgy Station (LMS) and**/or** Continuous Caster**s** (CC**s**) are in operation.

D.1.21 Testing Requirements [326 IAC 2-1.1-11] [40 CFR 60.275a]

(a) NO_x

Pursuant to 326 IAC 2-1.1-11, the Permittee shall test for NO_x on the EAFs Baghouse stack **(Stack 1)** within 60 days after achieving maximum capacity **of the modification**, but no later than ~~180~~ **365** days after start up of the modification, utilizing methods as approved by the Commissioner.

Pursuant to 326 IAC 2-1.1-11, this NO_x test shall be repeated at least once every ~~year~~ **2.5 years** from the date of the last valid compliance demonstration.

(b) Filterable and Condensible PM/PM_{10}

Pursuant to 326 IAC 2-1.1-11, the Permittee shall test for PM/PM_{10} on the EAFs Baghouse stack **(Stack 1)** within 60 days after achieving maximum capacity **of the modification,** but no later than ~~180~~ **365** days after start up of the modification, utilizing methods as approved by the Commissioner.

Pursuant to 326 IAC 2-1.1-11 and 40 CFR 60.275a, this filterable and condensible PM/PM_{10} test shall be repeated at least once every five (5) years from the date of the last valid compliance demonstration, utilizing 40 CFR Part 60, Appendix A, Method 5, Method 201 or 201A, Method 202 or other methods as approved by the Commissioner.

(c) Lead

Pursuant to 326 IAC 2-1.1-11, the Permittee shall stack test for lead on the EAFs Baghouse stack **(Stack 1)**, utilizing Method 12 and a method detection level which is below the emission limit, within 60 days after achieving maximum capacity **of the modification**, but no later than ~~180~~ **365** days after start up of the modification, utilizing methods as approved by the Commissioner.

Pursuant to 326 IAC 2-1.1-1, this Lead test shall be repeated at least once every year from the date of the last valid compliance demonstration.

~~(d)~~ ~~Dust Lead Content~~
~~Pursuant to PSD Permits 183-10097-00030 and 183-12692-00030, the EAFs Baghouse 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) **SO_2**
Pursuant to 326 IAC 2-1.1-11, the Permittee shall test for SO_2 on the EAFs Baghouse stack (Stack 1) within 60 days after achieving maximum capacity of the modification, but no later than 365 days after start up of the modification, utilizing methods as approved by the Commissioner.

Pursuant to 326 IAC 2-1.1-11, this SO_2 test shall be repeated at least once every 2.5 years from the date of the last valid compliance demonstration.

(e) Mercury
Pursuant to 326 IAC 2-1.1-11, the Permittee shall test for Mercury on the EAFs Baghouse stack **(Stack 1)** within 60 days after achieving maximum capacity **of the modification**, but no later than ~~180~~ **365** days after start up of the modification, utilizing methods as approved by the Commissioner.

Pursuant to 326 IAC 2-1.1-1, this Mercury test shall be repeated at least once every year from the date of the last valid compliance demonstration.

(f) Fluorides
Pursuant to 326 IAC 2-1.1-11, the Permittee shall test for Fluorides on the EAFs Baghouse stack **(Stack 1)** within 60 days after achieving maximum capacity **of the modification**, but no later than ~~180~~ **365** days after start up of the modification, utilizing methods as approved by the Commissioner.

Pursuant to 326 IAC 2-1.1-11, this Fluorides test shall be repeated at least once every five (5) years from the date of the last valid compliance demonstration.

(g) **Manganese**
Pursuant to 326 IAC 2-1.1-11, the Permittee shall test for Manganese on the EAFs Baghouse stack (Stack 1) within 60 days after achieving maximum capacity of the modification, but no later than 365 days after start up of the modification, utilizing methods as approved by the Commissioner.

Pursuant to 326 IAC 2-1.1-11, this Manganese test shall be repeated at least once every five (5) years from the date of the last valid compliance demonstration.

~~(g)~~ **(h)** Testing shall be conducted in accordance with Section **C.12** - Performance Testing.

D.1.22 CO and VOC Continuous Emission Rate Monitoring Requirement [326 IAC 2-1.1-11] [326 IAC 3-5]

(a) Pursuant to 326 IAC 2-1.1-11 and 326 IAC 3-5-1(d) and PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall ~~install,~~ calibrate, certify, operate, and maintain a continuous emission monitoring system (CEMS) for measuring CO and VOC emissions rates in pounds per hour from the EAFs Baghouse stack **(Stack 1)** in accordance with 326 IAC 3-5-2 and 326 IAC 3-5-3.

(b) Pursuant to 326 IAC 2-1.1-11 ~~and PSD Permits 183-10097-00030 and 183-12692-00030,~~ the Permittee shall submit to IDEM, OAQ, within ninety (90) days after ~~monitor~~ installation **of a new monitor**, a complete written continuous monitoring standard operating procedure (SOP), in accordance with the requirements of 326 IAC 3-5-4. **The Permittee shall also submit a revised SOP whenever changes were made to the existing SOP.**

(c) Pursuant to 326 IAC 2-1.1-11 and PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall record the output of the system and shall perform the required record keeping, pursuant to 326 IAC 3-5-6, and reporting, pursuant to 326 IAC 3-5-7.

(d) 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.

(e) ~~Whenever the CO or VOC continuous emission monitor is malfunctioning or will be down for calibration, maintenance, or repairs for a period of four (4) hours or more, a calibrated backup CEMS shall be brought online within four (4) hours of shutdown of the primary CEMS, and shall be operated until such time as the primary CEMS is back in operation.~~

Whenever the CO or VOC continuous emission monitor 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 day operational status inspections of the equipment that is important to the performance of the DEC, 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.

D.1.23 Visible Emission Observations and Continuous Opacity Monitoring (COM) [326 IAC 2-1.1-11] [326 IAC 3-5] [40 CFR 60.273a]

(a) Pursuant to 326 IAC 2-1.1-11, 326 IAC 3-5, and 40 CFR 60.273a and PSD Permits 183-10097-00030 and 183-12692-00030:

(i) The Permittee shall ~~install,~~ calibrate, certify, operate, and maintain a continuous monitoring system to measure opacity from the EAFs Baghouse stack **(Stack 1)** in accordance with 326 IAC 3-5-2 and 3-5-3.

(ii) The Permittee shall submit to IDEM, OAQ, within (90) days after ~~monitor~~ installation **of a new monitor**, a **complete** written continuous monitoring

standard operating procedure (SOP), in accordance with the requirements of 326 IAC 3-5-4. **The Permittee shall also submit a revised SOP whenever changes were made to the existing SOP.**

(b) All continuous opacity monitoring 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.

(c) In the event that a breakdown of a continuous opacity monitoring system occurs, a record shall be made of the times and reasons of the breakdown and efforts made to correct the problem.

(d) ~~Whenever a continuous opacity monitor (COM) is malfunctioning or will be down for calibration, maintenance, or repairs for a period of one (1) hour or more, compliance with the applicable opacity limits shall be demonstrated by the following:~~

~~(i) 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 emission unit 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 four 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.~~

~~(ii)~~ 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 emission unit 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.

(D) Any opacity exceedances determined by Method 9 readings shall be reported with the Quarterly Opacity Exceedances Reports.

~~(iii)~~ **(e)** If abnormal emissions are observed, the Permittee shall take reasonable response steps in accordance with Section **C.17** - Compliance Response Plan **(CRP)** - Preparation, Implementation, Records, and Reports.

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.17** - Compliance Response Plan **(CRP)** - Preparation, Implementation, Records, and Reports, shall be considered a deviation from this permit.

~~(e)~~ **(f)** Nothing in this permit shall excuse the Permittee from complying with the requirements to operate a continuous opacity monitoring system pursuant to 326 IAC 3-5.

~~D.1.24 SO_2 Continuous Emission Rate Monitoring Requirement [326 IAC 2-1.1-11] [326 IAC 3-5]~~

~~(a) Pursuant to 326 IAC 2-1.1-11, the Permittee shall install, calibrate, certify, operate, and maintain a continuous emission monitoring system (CEMS) for measuring SO_2 emissions rates in pounds per hour from the EAFs Baghouse stack in accordance with 326 IAC 3-5-2 and 326 IAC 3-5-3.~~

~~(b) Pursuant to 326 IAC 2-1.1-11, the Permittee shall submit to IDEM, OAQ, within ninety (90) days after monitor installation, a complete written continuous monitoring standard operating procedure (SOP), in accordance with the requirements of 326 IAC 3-5-4.~~

~~(c) Pursuant to 326 IAC 2-1.1-11, the Permittee shall record the output of the system and shall perform the required record keeping, pursuant to 326 IAC 3-5-6, and reporting, pursuant to 326 IAC 3-5-7.~~

~~(d) 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.~~

~~(e) Whenever the SO_2 continuous emission monitor is malfunctioning or will be down for calibration, maintenance, or repairs for a period of four (4) hours or more, a calibrated backup CEMS shall be brought online within four (4) hours of shutdown of the primary CEMS, and shall be operated until such time as the primary CEMS is back in operation.~~

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

~~D.1.25 Baghouse Operating Condition [326 IAC 2-1.1-11]~~

~~Pursuant to PSD Permits 183-10097-00030 and 183-12692-00030, the baghouse (ID# 1) shall be operated at all times when the electric arc furnaces (EAFs), Ladle Metallurgy Station (LMS) and continuous caster~~**~~s~~** ~~(CC~~**~~s~~**~~) are in operation.~~

~~(a) The Permittee shall record the pressure drop across the baghouse at least once per shift when the EAFs, LMS and CC~~**~~s~~** ~~are in operation.~~

~~(b) Unless operated under conditions for which the Preventive Maintenance Plan specifies otherwise, the pressure drop across the baghouse shall be maintained within the range of 4 - 10 inches of water to monitor compliance with the particulate emission limits.~~

~~(c) The Preventive Maintenance Plan for the baghouse shall contain troubleshooting contingency and response steps for when the pressure drop reading is outside of the above mentioned range for any one reading.~~

~~(d) The instruments used for determining the pressure shall comply with condition C-Pressure Gauge Specifications of this permit and shall be calibrated at least once every six (6) months.~~

~~D.1.26 Baghouse Inspections [326 IAC 2-1.1-11]~~

~~Pursuant to PSD Permits 183-10097-00030 and 183-12692-00030, an inspection shall be performed annually of all bags controlling the EAFs. All defective bags shall be replaced.~~

~~A record shall be kept of the results of the inspection and the number of bags replaced.~~

D.1.~~27~~ **24** Bag Leak Detection System (BLDS) [326 IAC 2-2]

Pursuant to PSD Permit 183-12692-00030:

(a) The Permittee shall ~~install and~~ operate continuous bag leak detection systems (BLDS) for the EAFs Baghouse. The bag leak detection systems **(BLDS)** shall meet the following requirements:

(i) The bag leak detection systems **(BLDS)** 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.

(ii) The bag leak detection system **(BLDS)** sensor must provide output of relative particulate matter loading.

(iii) The bag leak detection system **(BLDS)** must be equipped with an alarm system that will alarm when an increase in relative particulate loading is detected over a preset level.

(iv) The bag leak detection system **(BLDS)** 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.

~~(v) 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.~~

(v~~i~~) 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.

(vi~~i~~) The bag detector must be installed downstream of the baghouses.

(vii~~i~~) Each sensor should be inspected at least once per month to remove any build-up of material that may collect on the probe or insulator.

(ix) **(viii)** Monthly QA checks shall be performed to ensure the monitor is operating properly. If the results of the response test or electronics drift check are not favorable, the cause shall be investigated and any malfunctions corrected.

(b) In the event of a bag leak detection system alarm:

(i) ~~For multi-compartment units, the~~ **The** affected compartments will be shut down ~~immediately~~ **as soon as possible** 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 emergency provisions of this permit (Section **C.19** - Emergency Provisions).

(ii) ~~Within~~ **Not later than** eight (8) business hours of the determination of failure, reasonable response steps according to the timetable described in the Compliance Response Plan **(CRP)** shall be initiated.

For any failure with corresponding reasonable response steps and timetable not described in the Compliance Response Plan **(CRP)**, reasonable response steps shall be devised ~~within~~ **not later than** eight (8) business hours of discovery of the failure and shall include a timetable for completion.

Failure to take reasonable response steps in accordance with Section **C.17** - Compliance Response Plan **(CRP)** - Preparation, Implementation, Records and Reports, shall be considered a deviation from this permit.

(c) If operations continue after bag failure is observed and it will be 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.~~28~~ **25** Monitoring of Operations [40 CFR 60.274a]

Pursuant to 40 CFR 60.274a and PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall comply with the following monitoring requirements:

(a) Except as provided under item ~~(c)~~ **(e)** of this condition, the Permittee shall check and record on a once-per-shift basis the furnace static pressure **provided the DEC system is in use, and a furnace static pressure gauge is installed according to Condition D.1.25(d)** and either:

(i) check and record the control system fan motor amperes and damper positions on a once-per-shift basis; or

(ii) install, calibrate, and maintain a monitoring device that continuously records the volumetric flow rate through each separately ducted hood; or

(iii) 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 ± 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) The Permittee shall determine either the control system fan motor amperes and all damper positions or the volumetric flow rate through each separately ducted hood during all periods in which a hood is operated for the purpose of capturing emissions from the EAFs.

(c) 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) **Except as provided under item (f) of this condition**, the Permittee shall install, calibrate, and maintain a monitoring device that allows the pressure in the free space inside the EAF to be monitored.

The monitoring device may be installed in any appropriate location in the EAF or DEC duct prior to the introduction of ambient air such that reproducible results will be obtained.

The pressure monitoring device shall have an accuracy of ± 5 millimeter of water gauge over its normal operating range and shall be calibrated according to the manufacturer's instructions.

(e) **Except as provided under item (f) of this condition**, the pressure in the free space inside the EAF shall be determined during the melting and refining period(s) using the monitoring device required under item (d) of this condition.

The pressure determined during the most recent demonstration of compliance shall be maintained at all times when the EAF is operating in a meltdown and refining period.

(f) Pursuant to 40 CFR 60.273a(d), a furnace static pressure monitoring device is not required on any EAF equipped with a DEC system if observations of the shop opacity are performed by a certified visible emission observer.

D.1.~~30~~ **26** Monitoring for Total Building Enclosure [326 IAC 2-2]

Pursuant to 326 IAC 2-2 and PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall demonstrate compliance with the requirement to provide total enclosure of the meltshop using the procedures listed in either (1) or (2) below.

This compliance demonstration shall be repeated at the time of each Method 12 stack test for lead emissions from the meltshop baghouse stack.

The results of this compliance demonstration shall be submitted to IDEM, OAQ with the test results of each Method 12 stack test for lead emissions from the meltshop baghouse.

(1)(A) The Permittee shall use a propeller anemometer or equivalent device meeting the requirements specified in (i) through (iii) below:

(a) The propeller of the anemometer shall be made of a material of uniform density and shall be properly balanced to optimize performance.

(b) The measurement range of the anemometer shall extend to at least 300 meters per minute (1,000 feet per minute).

(c) A known relationship shall exist between the anemometer signal output and air velocity, and the anemometer must be equipped with a suitable readout system.

(B) Doorway in-draft shall be determined by placing the anemometer in the plane of the doorway opening near its center.

(C) Doorway in-draft shall be demonstrated for each doorway that is open during normal operation with all remaining doorways in the position that they are in during normal operation.

The Preventive Maintenance Plan (PMP) for the meltshop shall contain troubleshooting contingency and response steps for when doorway in-draft is not demonstrated for any doorway that is open during normal operation.

(2)(A) The Permittee shall install a differential pressure gauge on the leeward wall of the building to measure the pressure difference between the inside and outside of the building.

(B) The pressure gauge shall be certified by the manufacturer to be capable of measuring pressure differential in the range of 0.02 to 0.2 mm Hg.

(C) Both the inside and outside taps shall be shielded to reduce the effects of wind.

(D) The Permittee shall demonstrate the inside of the building is maintained at a negative pressure as compared to the outside of the building of no less than 0.02 mm Hg when all doors are in the position they are in during normal operation.

The Preventive Maintenance Plan (PMP) for the meltshop shall contain troubleshooting contingency and response steps for when the pressure differential between the inside and outside of the building is less than 0.02 mm Hg.

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

D.1.~~31~~ **27** Record Keeping Requirements [326 IAC 2-1.1-11] [40 CFR 60.276a]

(a) Pursuant to 326 IAC 2-1.1-11 and PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall maintain records required under 326 IAC 3-5-6 at the source in a manner so that they may be inspected by the IDEM, OAQ, or the U.S. EPA., if so requested or required.

(b) **To document compliance with Condition D.1.1 - EAFs Operation Limitation, the** ~~The~~ Permittee shall maintain records of the amount of steel produced.

(c) **To document compliance with Conditions D.1.7 - CO PSD BACT, and D.1.9 - VOC PSD BACT, the** ~~The~~ Permittee shall maintain records of the readings of the CO, **and** VOC~~, and SO_2~~ CEMS.

(d) **To document compliance with Conditions D.1.14 - Visible Emission Limitations PSD BACT, and D.1.15 - Visible Emission Limitation, the** ~~The~~ Permittee shall maintain records of the readings of the COM.

(e) Pursuant to PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall maintain records of visible emission readings at the EAFs Baghouse stack **(Stack 1)** and make the records available upon request to IDEM, OAQ, and the U.S. EPA.

~~(f) Pursuant to PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall maintain the following:~~

~~(i) Records of the following baghouse differential pressure once per shift during normal operation.~~

~~(ii) Documentation of all response steps implemented for every pressure drop reading that is outside of the range.~~

~~(g) Pursuant to 326 IAC 2-1.1-11 and PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall maintain monthly records of the results of the lead analyses of the EAFs Baghouse dust. The lead content of the EAF Baghouse dust shall be recorded as a percent by weight.~~

~~(h)~~ **(f)** Pursuant to 40 CFR 60.276a and PSD Permits 183-10097-00030 and 183-12692-00030, records of the measurements required in 40 CFR 60.274a must be retained for at least 5 years following the date of the measurement.

~~(i)~~ **(g)** Pursuant to 326 IAC 2-1.1-11, 326 IAC 2-2 and PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall maintain records of the verification of sulfur content of DRI, charge carbon, and injection carbon added into the EAFs.

~~(j)~~ **(h)** Pursuant to 326 IAC 2-1.1-11 and PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall maintain records of the dates and times of all bag leak detection system alarms, the cause of each alarm, and an explanation of all corrective actions taken.

The Permittee shall also maintain records of the dates and results of the sensor inspections, response tests, electronic drift checks, and response steps taken.

~~(k)~~ **(i)** **To document compliance with Condition D.1.18 - Preventive Maintenance Plan (PMP), the** ~~The~~ Permittee shall maintain records of any additional inspections prescribed by the Preventive Maintenance Plan **(PMP)** and make the records available upon request to IDEM, OAQ, and the U.S. EPA.

~~(l)~~ **(j)** All records shall be maintained in accordance with Condition **C.22** - General Record Keeping Requirements of this permit.

~~(m)~~ **(k)** Records necessary to demonstrate compliance shall be available ~~within~~ **not later than** 30 days of the end of each compliance period.

D.1.~~32~~ **28** Reporting Requirements [326 IAC 2-1.1-11] [40 CFR 60.276a]

(a) **To document compliance with Condition D.1.1 - EAFs Operation Limitation, the** ~~The~~ Permittee shall submit a quarterly summary of the actual amount of steel produced, using the Steel Production Report or its equivalent, located at the end of this permit. These reports shall be submitted ~~within~~ **not later than** thirty (30) calendar days following the end of each calendar quarter and in accordance with Condition **C.23** - General Reporting Requirements of this permit.

(b) Pursuant to 326 IAC 2-1.1-11 and PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall submit a quarterly excess emissions report, if applicable, based on the continuous emissions monitor (CEM) data for CO, **and** VOC~~, and SO_2~~, and continuous opacity monitor (COM) data, pursuant to 326 IAC 3-5-7.

These reports shall be submitted ~~within~~ **not later than** thirty (30) calendar days following the end of each calendar quarter and in accordance with Condition **C.23** - General Reporting Requirements of this permit.

(c) Pursuant to 40 CFR 60.276a and PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall comply with the following reporting requirements:

(i) The Permittee shall submit a semi-annual written report of exceedances of the control device opacity to IDEM, OAQ, and **upon request,** the U.S. EPA.

(ii) The Permittee shall submit semi-annually any values that exceed furnace static pressure established under 40 CFR 60.274a(g) and values of control system fan motor amperes that exceed 15 percent of the value established under 40 CFR 60.274a(c) or values of flow rates lower than those established under 40 CFR 60.274a(c) to IDEM, OAQ, and **upon request,** the U.S. EPA.

(iii) The Permittee shall furnish to IDEM, OAQ, and the U.S. EPA a written report of the results of the compliance emission tests. This report shall include the following information:

(A) Facility name and address;

(B) Plant representative;

(C) Make and model of process, control device, and continuous monitoring equipment;

(D) Flow diagram of process and emissions capture equipment including other equipment or process(es) ducted to the same control device;

(E) Rated (design) capacity of process equipment;

(F) The following operating conditions:

(1) List of charge and tap weights and materials;

(2) Heat times and process log;

(3) Control device operation log; and

(4) Continuous monitor or Reference Method 9 data.

(G) Test dates and test times;

(H) Test company;

(I) Test company representative;

(J) Test observers from outside agency;

(K) Description of test methodology used, including any deviation from standard reference methods;

(L) Schematic of sampling location;

(M) Number of sampling points;

(N) Description of sampling equipment;

(O) Listing of sampling equipment calibrations and procedures;

(P) Field and Laboratory data sheets;

(Q) Description of sample recovery procedures;

(R) Sampling equipment leak check results;

(S) Description of quality assurance procedures;

(T) Description of analytical procedures;

(U) Notation of sample blank corrections; and

(V) Sample emission calculations.

Non Applicable Existing Requirements

D.1.~~33~~ **29** Non Applicable Existing Requirements [326 IAC 2-1.1-9.5]

Pursuant to 326 IAC 2-1.1-9.5, the following **existing** emission standards have **not been carried over in this permit** ~~been deleted~~:

(a) Condition D.1.2(a) NO_x BACT [326 IAC 2-2-3]
PSD Permits 183-10097-00030 and 183-12692-00030

This existing requirement is not applicable because the NO_x BACT limits of 0.51 pounds per ton steel and 102 pounds per hour for the EAFs were specified only for the first 365 days of operation of the EAFs. This time period was over.

(b) Condition D.1.5 Particulate Matter (PM) [326 IAC 6-3]
PSD Permits 183-10097-00030 and 183-12692-00030

		This existing requirement is not applicable pursuant to 326 IAC 6-3(c), because the particulate matter limitations for the EAFs had been established under 326 IAC 2-2 Prevention of Significant Deterioration (PSD).
(c)	**Condition D.1.10(b)**	**Lead and Hazardous Air Pollutant (HAP) Limitations [326 IAC 2-1.1-4] [326 IAC 2-2] [326 IAC 2-4.1-1]** **PSD Permits 183-10097-00030 and 183-12692-00030** **This existing requirement is not applicable, because Lead limitations had been established under 326 IAC 2-2 Prevention of Significant Deterioration (PSD).**
(d)	**Condition D.1.5(f)**	**Testing Requirements [326 IAC 2-1.1-11]** **PSD Permits 183-10097-00030 and 183-12692-00030** **This existing requirement is not applicable, because compliance verification for Lead limitations has been established in this permit.**
~~(c)~~ **(e)**	Condition D.2.2	Particulate Matter (PM) [326 IAC 6-3] PSD Permits 183-10097-00030 and 183-12692-00030 This existing requirement is not applicable pursuant to 326 IAC 6-3(c), because the particulate matter limitations for the Ladle Metallurgy Station (LMS) had been established under 326 IAC 2-2 Prevention of Significant Deterioration (PSD).
~~(d)~~ **(f)**	Condition D.4.2	Particulate Matter (PM) [326 IAC 6-3] PSD Permits 183-10097-00030 and 183-12692-00030 This existing requirement is not applicable pursuant to 326 IAC 6-3(c), because particulate matter limitations for the Continuous Caster (CC) had been established under 326 IAC 2-2 Prevention of Significant Deterioration (PSD).
(g)	**Condition 7.2**	**Particulate Matter [326 IAC 6-3** **PSD Permits 183-10097-00030 and 183-12692-00030** **This existing requirement is not applicable pursuant to 326 IAC 6-3(c), because the particulate matter limitations for the slag processing had been established under 326 IAC 2-2 Prevention of Significant Deterioration (PSD).**

SECTION D.2 FACILITY OPERATION CONDITIONS

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

Preheaters - - Stack 1

(1) Four (4) natural gas-fired low NO_x ladle preheaters (ID#s 3b through 3e), each with a nominal heat input rate of 10 million British Thermal Units per hour (MMBtu/hour).

(~~f~~ **2**) One (1) natural gas-fired low NO_x tundish nozzle preheater (ID# 3g), with a nominal heat input rate of 10 MMBtu/hour.
~~Combustion emissions from the tundish nozzle preheater exhaust inside the building, and are collected by the overhead roof exhaust system and ducted to the common EAF Baghouse.~~

(~~g~~ **3**) Two (2) natural gas-fired low NO_x tundish preheaters (ID#s 3h and 3i), each with a nominal heat input rate of 5 MMBtu/hour.
~~Combustion emissions from the tundish preheaters exhaust inside the building, and are collected by the overhead roof exhaust system and ducted to the common EAF Baghouse.~~

(4) One (1) natural gas-fired Tundish Nozzle Preheater, identified as ID# 3m, nominally rated at 10 million Btu per hour.

(5) One (1) natural gas-fired Tundish Preheater, identified as ID# 3n, nominally rated at 10 million Btu per hour.

Combustion emissions from the ~~ladle~~ preheaters exhaust inside the building, and are collected by the overhead roof exhaust system and ducted to the EAF Baghouse.

Dryers - - Stack 1

(1) Two (2) natural gas-fired low NO_x ladle dryers (ID# 3f and ID# 3l), each with a nominal heat input rate of 10 MMBtu/hour.
~~Combustion emissions from the ladle dryers exhaust inside the building, and are collected by the overhead roof exhaust system and ducted to the common EAF Baghouse.~~

(~~h~~ **2**) One (1) natural gas-fired low NO_x tundish dryer (ID# 3j), with a nominal heat input rate of 5 MMBtu/hour.

(3) One (1) natural gas-fired Tundish Dryer, identified as ID# 3o, nominally rated at 5 million Btu per hour.

Combustion emissions from the ~~tundish~~ dryer**s** exhaust inside the building, and are collected by the overhead roof exhaust system and ducted to the common EAF Baghouse.

(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)]

D.2.1 Nitrogen Oxides (NO_x) - PSD Best Available Control Technology [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements) and PSD Permits 183-10097-00030 and 183-12692-00030, the ~~above mentioned~~ **following** ~~facilities (except the new second ladle dryer)~~**:**

(a) Four (4) natural gas-fired low NO_x ladle preheaters (ID#s 3b through 3e),

(b) One (1) natural gas-fired low NO_x tundish nozzle preheater (ID# 3g),

(c) Two (2) natural gas-fired low NO_x tundish preheaters (ID#s 3h and 3i),

(d) One (1) natural gas-fired low NO_x ladle dryer (ID# 3f), and

(e) One (1) natural gas-fired low NO_x tundish dryer (ID# 3j)

shall be limited to the use of low NO_x natural gas-fired burners ~~such that~~ **and** NO_x emissions shall not exceed 0.10 pound per million British Thermal Units.

D.2.2 Clean Unit [326 IAC 2-2.2]

(a) Pursuant to 326 IAC 2-2.2, the ~~above mentioned~~ **following** facilities ~~(except the new second ladle dryer, ID# 3l)~~**:**

(1) Four (4) natural gas-fired low NO_x ladle preheaters (ID#s 3b through 3e),

(2) One (1) natural gas-fired low NO_x tundish nozzle preheater (ID# 3g),

(3) Two (2) natural gas-fired low NO_x tundish preheaters (ID#s 3h and 3i),

(4) One (1) natural gas-fired low NO_x ladle dryer (ID# 3f), and

(5) One (1) natural gas-fired low NO_x tundish dryer (ID# 3j)

are classified as Clean Units for NO_x.

(b) The Clean Unit designations for the above mentioned facilities **in Condition D.2.2(a)** ~~(except the new second ladle dryer, ID# 3l)~~ are in effect from September 9, 2004 to October 22, 2012.

The Clean Unit designations were based on the approval of the Affidavit of Construction for these units as permitted to be constructed under PSD Permits 193-10097-00030, issued on July 7, 1999 and PSD Permit 183-12692-00030, issued on January 10, 2001.

(c) In order to maintain the clean unit designations the above mentioned facilities **in Condition D.2.2(a)** ~~(except the new second ladle dryer),~~ the Permittee shall comply with the following:

(1) The emissions units designated as clean unit s shall comply with the emissions limitations or work practice requirements in Condition D.2.1 (Nitrogen Oxides (NO_x) - PSD Best Available Control Technology) as part of the BACT.

In addition the emissions unit shall comply with all applicable requirements per 326 IAC 2-7 contained in this permit.

(2) No physical change or change in the method of operation shall be undertaken at these emissions units that would allow them to operate in a manner inconsistent with the physical or operational characteristics of the emission units.

(d) The above mentioned facilities **in Condition D.2.2(a)** ~~(except the new second ladle dryer)~~, designated as clean units, are subject to the following requirements:

(1) Any project at these emissions units for which actual construction begins after the effective date of the clean unit designations and before the expiration date shall be considered to have occurred while the emissions units were clean units.

(2) If a project at these emission units does not cause the need for a change in the emission limitations or work practice requirements in this permit for these units that were adopted in conjunction with BACT and the project would not alter any physical or operational characteristics that formed the basis for the BACT determination, the clean unit designations remain unchanged.

(3) If a project causes the need for a change in the emission limitations or work practice requirements in this permit for these units that were adopted in conjunction with BACT or the project would alter any physical or operational characteristics that formed the basis for the BACT determination, then the clean unit designations shall expire upon issuance of the necessary permit modifications, unless the units requalify as clean units. If the Permittee begins actual construction on the project without first applying to modify the emissions unit's permit, the clean unit designations shall expire immediately prior to the time when actual construction of this project begins.

(4) A project that causes emissions units to lose their clean unit designations shall be subject to the applicability requirements of 326 IAC 2-2-2(d)(1) through 326 IAC 2-2-2(d)(4) and 326 IAC 2-2-2(d)(6).

D.2.3 Ladle Preheater PSD BACT Limits [326 IAC 2-2]

Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the Permittee shall comply with the following Best Available Control Technology (BACT) requirements:

(a) The new second ladle dryer (ID# 3l) shall use natural gas as fuel.

(b) The nitrogen oxides (NO_x) emissions from the new second ladle dryer (ID# 3l) shall not exceed 0.050 pounds per million British Thermal Unit (MMBtu) and 0.5 pounds of NO_x per hour, based on a three (3) hour block average.

(c) The carbon monoxide (CO) emissions from the new second ladle dryer (ID# 3l) shall not exceed 0.084 pounds per MMBtu and 0.84 pounds of CO per hour, based on a three (3) hour block average.

(d) The volatile organic compound (VOC) emissions from the new second ladle dryer (ID# 3l) shall not exceed 0.0055 pounds per MMBtu and 0.055 pounds of VOC per hour, based on a three (3) hour block average.

(e) The sulfur dioxide (SO_2) emissions from the new second ladle dryer (ID# 3l) shall not exceed 0.0006 pounds per MMBtu and 0.006 pounds of SO_2 per hour based on a three (3) hour block average.

(f) The PM $_{(filterable)}$ emissions from the new second ladle dryer (ID# 3l) shall not exceed 0.0019 pounds per MMBtu and 0.019 pounds of filterable PM per hour, based on a three (3) hour block average.

(g) The PM_{10} $_{(filterable\ and\ condensible)}$ emissions from the new second ladle dryer (ID# 3l) shall not exceed 0.0076 pounds per MMBtu and 0.076 pound of filterable and condensible PM_{10} per hour, based on a three (3) hour block average.

D.2.4 Clean Unit [326 IAC 2-2.2]

(a) Pursuant to 326 IAC 2-2.2, the new second ladle dryer (ID# 3l) is classified as Clean Unit for NO_x.

(b) The Clean Unit designation for this new second ladle dryer (ID# 3l) is in effect for ten (10) years from the initial start up of this dryer.

(c) In order to maintain the clean unit designation for new second ladle dryer, the Permittee shall comply with the following:

(1) The new second ladle dryer, designated as clean unit, shall comply with the emissions limitations or work practice requirements in Conditions D.2.3(a) and D.2.3(b) as part of the BACT.

In addition, the new second ladle dryer shall comply with all applicable requirements per 326 IAC 2-7 contained in this permit.

(2) No physical change or change in the method of operation shall be undertaken at this emissions unit that would allow them to operate in a manner inconsistent with the physical or operational characteristics of the emission units.

(d) The new second ladle dryer (ID# 3l), designated as clean unit, is subject to the following requirements:

(1) Any project at this emissions unit for which actual construction begins after the effective date of the clean unit designation and before the expiration date shall be considered to have occurred while the emissions unit was clean unit.

(2) If a project at this emission unit does not cause the need for a change in the emission limitations or work practice requirements in this permit for this unit that were adopted in conjunction with BACT and the project would not alter any physical or operational characteristics that formed the basis for the BACT determination, the clean unit designation remains unchanged.

(3) If a project causes the need for a change in the emission limitations or work practice requirements in this permit for this unit that were adopted in conjunction with BACT or the project would alter any physical or operational characteristics that formed the basis for the BACT determination, then the clean unit designation shall expire upon issuance of the necessary permit modifications, unless the unit

requalifies as clean unit. If the Permittee begins actual construction on the project without first applying to modify the emissions unit's permit, the clean unit designation shall expire immediately prior to the time when actual construction of this project begins.

(4) A project that causes emissions unit to lose its clean unit designation shall be subject to the applicability requirements of 326 IAC 2-2-2(d)(1) through 326 IAC 2-2-2(d)(4) and 326 IAC 2-2-2(d)(6).

D.~~3.1~~ **2.5** Tundish Nozzle Preheater PSD BACT Limits [326 IAC 2-2]

Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the Permittee shall comply with the following PSD Best Available Control Technology (BACT) standards:

(a) The Tundish Nozzle Preheater (ID# 3m) shall use natural gas as **the primary** fuel **and propane as back up fuel.**

(b) Low NO_x burners shall be installed and utilized to reduce the NO_x emissions from the Tundish Nozzle Preheater (ID# 3m).

(c) The NO_x emissions from the Tundish Nozzle Preheater (ID# 3m) shall not exceed 0.05 pounds per million Btu and 0.5 pounds per hour, based on a 3-hour block average.

(d) The CO emissions from the Tundish Nozzle Preheater (ID# 3m) shall not exceed 0.084 pounds per million Btu and 0.84 pounds per hour, based on a 3-hour block average.

(e) The VOC emissions from the Tundish Nozzle Preheater (ID# 3m) shall not exceed 0.0055 pounds per million Btu and 0.055 pounds per hour, based on a 3-hour block average.

(f) The SO_2 emissions from the Tundish Nozzle Preheater (ID# 3m) shall not exceed 0.0006 pounds per million Btu and 0.006 pounds per hour, based on a 3-hour block average.

(g) The filterable and condensible particulate matter (PM/PM_{10}) emissions from the Tundish Nozzle Preheater (ID# 3m) shall not exceed 0.0076 pounds per million Btu and 0.076 pounds per hour, based on a 3-hour block average.

(h) Good combustion practices shall be observed.

D.~~3.2~~ **2.6** Tundish Preheater PSD BACT Limits [326 IAC 2-2]

Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the Permittee shall comply with the following PSD Best Available Control Technology (BACT) standards:

(a) The Tundish Preheater (ID# 3n) shall use natural gas as **the primary** fuel **and propane as back up fuel.**

(b) Low NO_x burners shall be installed and utilized to reduce the NO_x emissions from the Tundish Preheater (ID# 3n).

(c) The NO_x emissions from the Tundish Preheater (ID# 3m) shall not exceed 0.05 pounds per million Btu and 0.5 pounds per hour, based on a 3-hour block average.

(d) The CO emissions from the Tundish Preheater (ID# 3n) shall not exceed 0.084 pounds per million Btu and 0.84 pounds per hour, based on a 3-hour block average.

(e) The VOC emissions from the Tundish Preheater (ID# 3n) shall not exceed 0.0055 pounds per million Btu and 0.055 pounds per hour, based on a 3-hour block average.

(f) The SO_2 emissions from the Tundish Preheater (ID# 3n) shall not exceed 0.0006 pounds per million Btu and 0.006 pounds per hour, based on a 3-hour block average.

(g) The filterable and condensible particulate matter (PM/PM_{10}) emissions from the Tundish Preheater (ID# 3n) shall not exceed 0.0076 pounds per million Btu and 0.076 pounds per hour, based on a 3-hour block average.

(h) Good combustion practices shall be observed.

D.~~3.3~~ **2.7** Tundish Dryer PSD BACT Limits [326 IAC 2-2]

Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the Permittee shall comply with the following PSD Best Available Control Technology (BACT) standards:

(a) The Tundish Dryer (ID# 3o) shall use natural gas as **the primary** fuel **and propane as back up fuel.**

(b) Low NO_x burners shall be installed and utilized to reduce the NO_x emissions from the Tundish Dryer (ID# 3o).

(c) The NO_x emissions from the Tundish Dryer (ID# 3o) shall not exceed 0.05 pounds per million Btu and 0.25 pounds per hour, based on a 3-hour block average.

(d) The CO emissions from the Tundish Dryer (ID# 3o) shall not exceed 0.084 pounds per million Btu and 0.42 pounds per hour, based on a 3-hour block average.

(e) The VOC emissions from the Tundish Dryer (ID# 3o) shall not exceed 0.0055 pounds per million Btu and 0.028 pounds per hour, based on a 3-hour block average.

(f) The SO_2 emissions from the Tundish Dryer (ID# 3o) shall not exceed 0.0006 pounds per million Btu and pounds per hour, based on a 3-hour block average.

(g) The filterable and condensible particulate matter (PM/PM_{10}) emissions from the Tundish Dryer (ID# 3o) shall not exceed 0.0076 pounds per million Btu and 0.038 pounds per hour, based on a 3-hour block average.

(h) Good combustion practices shall be observed.

D.~~3.4~~ **2.8** Clean Units [326 IAC 2-2.2]

(a) Pursuant to 326 IAC 2-2.2 (Clean Unit):

(1) The Tundish Nozzle Preheater (ID# 3m) is classified as Clean Unit for NO_x.

(2) The Tundish Preheater (ID# 3n) is classified as Clean Unit for NO_x.

(3) The Tundish Dryer (ID# 3o) is classified as Clean Unit for NO_x.

(b) The Clean Unit designations for these preheaters and dryer are in effect for ten (10) years from their initial start ups.

(c) In order to maintain the clean unit designations for the:

(1) Tundish Nozzle Preheater (ID# 3m):
The Permittee shall comply with the Tundish Nozzle Preheater (ID# 3m) NO_x PSD BACT limit.

(2) Tundish Preheater (ID# 3n):
The Permittee shall comply with the Tundish Preheater (ID# 3n) NO_x PSD BACT limit.

(3) Tundish Dryer (ID# 3o):
The Permittee shall comply with the Tundish Dryer (ID# 3o) NO_x PSD BACT limit.

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

~~None~~

D.~~3.5~~ **2.9** Low NO_x Burners [326 IAC 2-2]

Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD):

(a) The Tundish Nozzle Preheater (ID# 3m) shall utilize the low NO_x burners at all times when the Tundish Nozzle Preheater (ID# 3m) is in operation.

(b) The Tundish Preheater (ID# 3n) shall utilize the low NO_x burners at all times when the Tundish Preheater (ID# 3n) is in operation.

(c) The Tundish Dryer (ID# 3o) shall utilize the low NO_x burners at all times when the Tundish Dryer (ID# 3o) is in operation.

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

None

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

D.2.~~5~~ **10** Vendor Certification [326 IAC 2-2]

To document compliance with Conditions:
- - D.2.3 - Ladle Preheater PSD BACT Limits,
- - D.2.5 - Tundish Nozzle Preheater PSD BACT Limits,
- - D.2.6 - Tundish Preheater PSD BACT Limits, and
- - D.2.7 - Tundish Dryer PSD BACT limits,
and pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the Permittee shall obtain and submit with the Affidavit of Construction/Modification (Condition B.4), all vendor guarantees for the new second ladle dryer (ID# 3l), Tundish Nozzle Preheater (ID# 3m), Tundish Preheater (ID# 3n) and Tundish Dryer (ID# 3o).

SECTION D.3 FACILITY OPERATION CONDITIONS

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

Reheat Furnaces - - Stack 2 and Stack 41

(1) One (1) natural gas-fired low NO_x reheat furnace (RH) (ID# 2) with a nominal heat input rate of 260 MMBtu per hour.

Combustion and process emissions from the RH **(ID# 2)** exhaust through a stack identified as Stack 2.

(2) One (1) natural gas-fired low NO_x burners reheat furnace, identified as ID# 41, with a nominal heat input rate of 260 million Btu per hour.

Combustion and process emissions from this reheat furnace **(ID# 41**) exhaust through a stack, identified as Stack 41.

~~This reheat furnace is in addition to the mini mill's existing reheat furnace.~~

(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)]

D.3.1 Nitrogen Oxides (NO_x) - Best Available Control Technology [326 IAC 2-2-3]

(a) Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements) and PSD Permits 183-10097-00030 and 183-12692-00030, the Reheat Furnace (RF) **(ID# 2)** shall be limited to the use of ultra low- NO_x natural gas-fired burners such that NO_x emissions shall not exceed 0.11 pound per million British Thermal Units.

(b) Pursuant to PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall not allow more than 189.8 million cubic feet of natural gas to be combusted in the Reheat Furnace (RF) **(ID# 2)** on a monthly basis averaged over a twelve (12) month period, with compliance determined at the end of each month.

D.3.2 Carbon Monoxide (CO) - Best Available Control Technology [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements) and PSD Permits 183-10097-00030 and 183-12692-00030, the CO emissions from the Reheat Furnace (RF) **(ID# 2)** shall not exceed 0.03 pound per million British Thermal Units.

D.3.3 Clean Unit [326 IAC 2-2.2]

(a) Pursuant to 326 IAC 2-2.2, the Reheat Furnace (RF) **(ID# 2)** is classified as Clean Unit for NO_x.

(b) The Clean Unit designation for this RF **(ID# 2)** is in effect from September 9, 2004 to October 22, 2012.

The Clean Unit designation was based on the approval of the Affidavit of Construction for this unit as permitted to be constructed under PSD Permits 193-10097-00030, issued on July 7, 1999 and PSD Permit 183-12692-00030, issued on January 10, 2001.

(c) In order to maintain the clean unit designation for the RF**(ID# 2)**, the Permittee shall comply with the following:

(1) The RF **(ID# 2)**, designated as clean unit, shall comply with the emissions limitations or work practice requirements in Condition D.3.1 as part of the BACT:

In addition, the RF**(ID# 2)** shall comply with all applicable requirements per 326 IAC 2-7 contained in this permit.

(2) No physical change or change in the method of operation shall be undertaken at this emissions unit that would allow them to operate in a manner inconsistent with the physical or operational characteristics of the emission unit.

(d) The RF **(ID# 2)**, designated as clean unit, is subject to the following requirements:

(1) Any project at this emissions unit for which actual construction begins after the effective date of the clean unit designation and before the expiration date shall be considered to have occurred while the emissions unit was clean unit.

(2) If a project at this emission unit does not cause the need for a change in the emission limitations or work practice requirements in this permit for this unit that were adopted in conjunction with BACT and the project would not alter any physical or operational characteristics that formed the basis for the BACT determination, the clean unit designation remains unchanged.

(3) If a project causes the need for a change in the emission limitations or work practice requirements in this permit for this unit that were adopted in conjunction with BACT or the project would alter any physical or operational characteristics that formed the basis for the BACT determination, then the clean unit designation shall expire upon issuance of the necessary permit modifications, unless the unit requalifies as clean unit. If the Permittee begins actual construction on the project without first applying to modify the emissions unit's permit, the clean unit designation shall expire immediately prior to the time when actual construction of this project begins.

(4) A project that causes emissions unit to lose its clean unit designation shall be subject to the applicability requirements of 326 IAC 2-2-2(d)(1) through 326 IAC 2-2-2(d)(4) and 326 IAC 2-2-2(d)(6).

D.3.4 Reheat Furnace PSD BACT [326 IAC 2-2]

Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the Permittee shall comply with the following PSD Best Available Control Technology (BACT) standards:

(a) The Reheat Furnace (ID# 41) shall use natural gas as **the primary** fuel **and propane as back up fuel.**

(b) Low NO_x burners shall be installed and utilized to reduce the NO_x emissions from the Reheat Furnace (ID# 41).

(c) The NO_x emissions from the Reheat Furnace (ID# 41) shall not exceed 0.08 pounds per million Btu and 20.8 pounds per hour, based on a 3-hour block average.

(d) The CO emissions from the Reheat Furnace shall not exceed 0.03 pounds per million Btu and 7.8 pounds per hour, based on a 3-hour block average.

(e) The VOC emissions from the Reheat Furnace (ID# 41) shall not exceed 0.005 pounds per million Btu and 1.3 pounds per hour, based on a 3-hour block average.

(f) The SO_2 emissions from the Reheat Furnace (ID# 41) shall not exceed 0.0006 pounds per million Btu and 0.156 pounds per hour, based on a 3-hour block average.

(g) The filterable particulate matter (PM) emissions from the Reheat Furnace (ID# 41) shall not exceed 0.0019 pounds per million Btu and 0.49 pounds per hour, based on a 3-hour block average.

(h) The filterable and condensible particulate matter (PM/PM_{10}) emissions from the Reheat Furnace (ID# 41) shall not exceed 0.0076 pounds per million Btu and 1.98 pounds per hour, based on a 3-hour block average.

(i) The visible emissions from the Reheat Furnace (ID# 41) Stack 41 shall not exceed 3% opacity.

(j) The lead emissions from the Reheat Furnace (ID# 41) shall not exceed 0.0005 pounds per million Btu and 0.13 pounds per hour, based on a 3-hour block average.

(k) The mercury emissions from the Reheat Furnace (ID# 41) shall not exceed 0.00026 pounds per million Btu and 0.068 pounds per hour, based on a 3-hour block average.

(l) Good combustion practices shall be observed.

D.3.5 Reheat Furnace Clean Unit [326 IAC 2-2.2]

(a) Pursuant to 326 IAC 2-2.2 (Clean Unit), the Reheat Furnace (ID# 41) is classified as Clean Unit for NO_x.

(b) The Clean Unit designation for this Reheat Furnace (ID# 41) is in effect for ten (10) years from its initial start up.

(c) In order to maintain the clean unit designations for the Reheat Furnace, the Permittee shall comply with the Reheat Furnace (ID# 41) NO_x PSD BACT limit.

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

D.~~2.3~~ **3.6** Low NO_x Burners [326 IAC 2-2]

Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the Reheat Furnace (ID# 41) shall utilize the low NO_x burners at all times when the Reheat Furnace (ID# 41) is in operation.

D.3.4 **7** Testing Requirements [326 IAC 2-1.1-11]

(a) Pursuant to 326 IAC 2-1.1-11 and PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall perform NO_x and CO testing on the Reheat Furnace (RF) **(ID# 2)** at least once every five (5) years from the date of the last valid compliance demonstration.

(b) Pursuant to 326 IAC 2-1.1-11, the Permittee shall test for NO_x on the Reheat Furnace stack (Stack 41) within 60 days after achieving maximum capacity, but no later than 180

days after the initial start up of the Reheat Furnace, utilizing methods as approved by the Commissioner.

This NO_x test shall be repeated at least once every five (5) years from the date of the last valid compliance demonstration.

(c) Testing shall be conducted in accordance with Section **C.12** - Performance Testing.

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

None

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

D.3.~~5~~ **8** Record Keeping Requirements [326 IAC 2-7-5] [326 IAC 2-7-19]

(a) Pursuant to PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall maintain records of the natural gas **and propane** combusted in the Reheat Furnace (RF) **(ID# 2)** each month and make the records available upon request to IDEM, OAQ, and the US EPA.

(b) All records shall be maintained in accordance with Condition **C.22** - General Record Keeping Requirements of this permit.

D.~~2.5~~ **3.9** Vendor Certification [326 IAC 2-2]

To document compliance with Condition D.3.4 - Reheat Furnace PSD BACT, and pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the Permittee shall obtain and submit with the Affidavit of Construction (Condition B.4), vendor specifications and guarantees for the Reheat Furnace (ID# 41).

SECTION D.4 FACILITY OPERATION CONDITIONS

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

Ladle Vacuum Degasser (LVD) and LVD Boiler - - Stack 40

One (1) ladle vacuum degasser (LVD) **(ID# 40)** with a nominal capacity of 300 tons per hour of steel and one (1) boiler to power the LVD. The LVD Boiler **(ID# 41)** has a nominal heat input capacity of 41.8 MMBtu/hour, and uses natural gas as the primary fuel, with propane as an emergency back up fuel.

Gases from the LVD are directed to the boiler for combustion in the boiler. Emissions from the boiler exhausts through a stack identified as Stack 40.

(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)]

D.4.1 PM/ PM_{10} Limitations (PM) [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 Prevention of Significant Deterioration (PSD) and PSD Permit 183-15170-00030, the total PM/ PM_{10} (including both filterable and condensible) emissions from the LVD Boiler **(ID# 41)** shall not exceed 0.0076 pound per million Btu of heat input and 0.318 pound per hour.

D.4.2 NO_x Limitations (PM) [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 Prevention of Significant Deterioration (PSD) and PSD Permit 183-15170-00030, the NO_x emissions from the LVD Boiler **(ID# 41)** shall not exceed 0.04 pound per million Btu of heat input and 1.67 pounds per hour~~, unless these limits are adjusted as follows~~.

~~If the stack test shows that these NO_x limits are not achievable in practice for the vacuum degasser boiler, the Department may revise the permit to adjust these NO_x limitations.~~
~~If the stack test shows that more stringent NO_x limits are achievable, the Department may, at its discretion, use the authority under IC 13-15-7-2 to re-open and revise the limit to more closely reflect the actual stack test results. The Department will provide an opportunity for public notice and comment prior to finalizing any permit revision. IC 13-15-7-3 (Revocation or Modification of a Permit: Appeal to Board) shall apply to this permit condition. Any relaxation of the emission limit will require an air quality analysis that ensures protection of the NAAQS and compliance with the PSD increment.~~

D.4.3 CO Limitations PSD BACT [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 Prevention of Significant Deterioration (PSD) and PSD Permit 183-15170-00030, the CO emissions from the LVD Boiler **(ID# 41)** shall not exceed 0.084 pound per million Btu of heat input and 3.51 pounds per hour~~, unless these limits are adjusted as follows~~.

~~If the stack test required shows that these CO limits are not achievable in practice for the vacuum degasser boiler, the Department may revise the permit to adjust these CO limitations. If the stack test shows that more stringent CO limits are achievable, the Department may, at its discretion, use the authority under IC 13-15-7-2 to re-open and revise the limit to more closely reflect the actual stack test results. The Department will provide an opportunity for public notice and comment prior to finalizing any permit revision. IC 13-15-7-3 (Revocation or Modification of a Permit: Appeal to~~

~~Board) shall apply to this permit condition. Any relaxation of the emission limit will require an air quality analysis that ensures protection of the NAAQS and compliance with the PSD increment.~~

D.4.4 VOC Limitations PSD BACT [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 Prevention of Significant Deterioration (PSD) and PSD Permit 183-15170-00030, the VOC emissions from the LVD Boiler **(ID# 41)** shall not exceed 0.0026 pound per million Btu of heat input and 0.11 pound per hour.

D.4.5 SO_2 Limitations PSD BACT [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 Prevention of Significant Deterioration (PSD) and PSD Permit 183-15170-00030, the SO_2 emissions from the LVD Boiler **(ID# 41)** shall not exceed 0.0006 pound per million Btu of heat input and 0.025 pound per hour.

D.4.6 Operating Parameters [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 (PSD) and PSD Permit 183-15170-00030, the following conditions shall apply:

(a) Only natural gas or propane fuels shall be used in the LVD Boiler **(ID# 41**).

(b) The amount of natural gas used in the LVD Boiler **(ID# 41)** shall not exceed 209 million cubic feet per 12-consecutive month period, with compliance determined at the end of each month.

(c) The amount of propane used in the LVD Boiler **(ID# 41)** shall not exceed 222 kilogallons per 12 consecutive month period with compliance determined at the end of each month.

(d) Combustion emissions shall be reduced through the use of good combustion practices.

D.4.7 PM/ PM_{10} Limitations (PM) [326 IAC 6-2-4]

Pursuant to 326 IAC 6-2-4 (Particulate emission limitations for sources of indirect heating: emission limitations for facilities specified in 326 IAC 6-2-1(d)) and PSD Permit 183-15170-00030, the particulate emissions from the LVD Boiler **(ID# 41)** shall not exceed 0.1 pound per million Btu of heat input.

D.4.8 Clean Unit [326 IAC 2-2.2]

(a) Pursuant to 326 IAC 2-2.2, the LVD Boiler **(ID# 41)** is classified as Clean Unit for NO_x.

(b) The Clean Unit designation for this LVD Boiler **(ID# 41)** is in effect from September 9, 2004 to June 5, 2013.

The Clean Unit designation was based on the approval of the Affidavit of Construction for this unit as permitted to be constructed under PSD Permit 183-15170-00030) was issued on May 31, 2002.

(c) In order to maintain the clean unit designation for the LVD Boiler **(ID# 41)**, the Permittee shall comply with the following:

(1) The LVD Boiler **(ID# 41)**, designated as clean unit, shall comply with the emissions limitations or work practice requirements in the following conditions as part of the BACT:

(A) D.4.2 NO_x Limitations PSD BACT, and

(B) D.4.6 Operating Parameters.

In addition, the LVD Boiler **(ID# 41)** shall comply with all applicable requirements per 326 IAC 2-7 contained in this permit.

(2) No physical change or change in the method of operation shall be undertaken at this emissions unit that would allow them to operate in a manner inconsistent with the physical or operational characteristics of the emission unit.

(d) The LVD Boiler **(ID# 41)**, designated as clean unit, is subject to the following requirements:

(1) Any project at this emissions unit for which actual construction begins after the effective date of the clean unit designation and before the expiration date shall be considered to have occurred while the emissions unit was clean unit.

(2) If a project at this emission unit does not cause the need for a change in the emission limitations or work practice requirements in this permit for this unit that were adopted in conjunction with BACT and the project would not alter any physical or operational characteristics that formed the basis for the BACT determination, the clean unit designation remains unchanged.

(3) If a project causes the need for a change in the emission limitations or work practice requirements in this permit for this unit that were adopted in conjunction with BACT or the project would alter any physical or operational characteristics that formed the basis for the BACT determination, then the clean unit designation shall expire upon issuance of the necessary permit modifications, unless the unit requalifies as clean unit. If the Permittee begins actual construction on the project without first applying to modify the emissions unit's permit, the clean unit designation shall expire immediately prior to the time when actual construction of this project begins.

(4) A project that causes emissions unit to lose its clean unit designation shall be subject to the applicability requirements of 326 IAC 2-2-2(d)(1) through 326 IAC 2-2-2(d)(4) and 326 IAC 2-2-2(d)(6).

~~D.4.9 General Provisions Relating to NSPS and NESHAP~~
~~[326 IAC 12-1][40 CFR Part 60, Subpart A] [326 IAC 20-1-1] [40 CFR Part 63, Subpart A]~~

~~(a) The provisions of 40 CFR Part 60, Subpart A (General Provisions), which are incorporated by reference in 326 IAC 12-1, apply to LVD Boiler, except when otherwise specified in 40 CFR Part 60, Subpart Dc.~~

~~(b) The provisions of 40 CFR Part 63, Subpart A (General Provisions), which are incorporated by reference in 326 IAC 20-1-1, apply to the LVD Boiler, except when otherwise specified in 40 CFR Part 63, Subpart DDDDD.~~

~~D.4.10 National Emission Standards for Hazardous Air Pollutants (NESHAP) for Industrial, Commercial, and Institutional Boilers and Process Heaters [40 CFR Part 63, Subpart DDDDD]~~

~~(a) The LVD Boiler is subject to the National Emission Standards for Hazardous Air~~

~~Pollutants (NESHAP) for Industrial, Commercial, and Institutional Boilers and Process Heaters, (40 CFR 63, Subpart DDDDD) and considered an existing affected source because the LVD Boiler was constructed before January 13, 2003 and will be use for manufacturing and processing to provide steam.~~

~~(b)~~ ~~The definitions of 40 CFR 63, Subpart DDDDD at 40 CFR 63.7575 are applicable to LVD Boiler.~~

D.4.~~11~~ **9** Preventive Maintenance Plan (PMP) **[316 IAC 1-6-3]** [326 IAC 2-7-5(13)]

Pursuant to 326 IAC 1-6-3 and PSD Permit 183-15170-00030, a Preventive Maintenance Plan (PMP), in accordance with Section **C.4** - Preventive Maintenance Plan (PMP), of this permit, is required for the LVD Boiler **(ID# 41)**.

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

D.4.~~12~~ **10** Testing Requirements [326 IAC 2-7-6(1),(6)] [326 IAC 2-1.1-11]

Pursuant to 326 IAC 2-1.1-11 and PSD Permit 183-15170-00030, ~~within 60 days after achieving maximum capacity, but not later than 180 days after startup,~~ the Permittee shall perform NO_x and CO testing on the LVD Boiler **(ID# 41)**, **at least once every five (5) years from the date of the last valid compliance demonstration,** using methods as approved by the Commissioner.

Testing shall be performed in compliance with Section **C.12** - Performance Testing.

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

None

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

D.4.~~13~~ **11** Record Keeping Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19] [40 CFR 60, Subpart Dc]

(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 US EPA, if so requested or required.

(b) Pursuant to 40 CFR 60, Subpart Dc and PSD Permit 183-15170-00030, the Permittee shall maintain records of the amount of each type of fuel combusted in the LVD Boiler **(ID# 41)** each day.

(c) Pursuant to ~~40 CFR 63.7555(d)(1) and~~ PSD Permit 183-15170-00030 **and to document compliance with Condition D.4.6 - Operating Parameters**, the Permittee shall keep records of monthly fuel used by LVD Boiler **(ID# 41)**, including the types of fuel and amount used.

(d) **To document compliance with Condition D.4.9 - Preventive Maintenance Plan (PMP), the** ~~The~~ Permittee shall maintain records of any additional inspections prescribed by the Preventive Maintenance Plan (PMP), and make the records available upon request to IDEM, OAQ and the US EPA.

(e) Records necessary to demonstrate compliance shall be available within 30 days of the end of each compliance period.

(f) All records shall be maintained in accordance with Section **C.22** - General Record Keeping Requirements of this permit.

D.4.~~14~~ **12** Reporting Requirements [326 IAC 2-1.1-11]

Pursuant to 326 IAC 2-1.1-11 and PSD Permit 183-15170-00030 **and to document compliance with Condition D.4.6 - Operating Parameters**, a quarterly summary of the following:

(a) the amount of natural gas used in the LVD boiler, and

(b) the amount of propane used in the LVD boiler

shall be submitted to the address listed in Section **C.23** - General Reporting Requirements, of this permit, using the reporting form (Natural Gas and Propane Usage Quarterly Report) located at the end of this permit, or its equivalent, within thirty (30) calendar days following the end of each calendar quarter.

The report submitted by the Permittee does require the certification by the “responsible official” as defined by 326 IAC 2-7-1(34).

SECTION D.5 FACILITY OPERATION CONDITIONS

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

(a) One (1) EAF dust storage silo (ID# 4), equipped with a bin vent filter for particulate control.

(b) Eight (8) raw material storage silos (ID#s 5 through 12) and the associated raw material receiving station.

Each silo is equipped with a bin vent filter for particulate control.

(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)]

D.5.1 Particulate Matter (PM/PM_{10}) - PSD Best Available Control Technology [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements) and PSD Permits 183-10097-00030 and 183-12692-00030, the filterable PM/PM_{10} emissions from each of the nine (9) storage silos shall not exceed 0.01 grains per dry standard cubic feet.

D.5.2 Visible Emission Limitation - PSD Best Available Control Technology [326 IAC 2-2-3]

(a) Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements) and PSD Permits 183-10097-00030 and 183-12692-00030, the visible emissions from each of the nine (9) storage silos shall not exceed three percent (3%) opacity.

(b) Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements) and PSD Permits 183-10097-00030 and 183-12692-00030, the visible emissions from the EAFs dust handling system and the raw material receiving station shall not exceed three percent (3%) opacity or greater based on a six-minute average (24 readings taken in accordance with 40 CFR Part 60, Appendix A, Method 9).

D.5.3 Clean Unit [326 IAC 2-2.2]

(a) Pursuant to 326 IAC 2-2.2, the nine (9) storage silos are classified as Clean Units for PM/PM_{10}.

(b) The Clean Unit designations for these nine (9) storage silos are in effect from September 9, 2004 to October 22, 2012.

The Clean Unit designations were based on the approval of the Affidavit of Construction for these units as permitted to be constructed under PSD Permits 193-10097-00030, issued on July 7, 1999 and PSD Permit 183-12692-00030, issued on January 10, 2001.

(c) In order to maintain the clean unit designations for the nine (9) storage silos, the Permittee shall comply with the following:

(1) The nine (9) storage silos, designated as clean units, shall comply with the emissions limitations or work practice requirements in the following conditions as part of the BACT:

(A) D.5.1 Particulate Matter (PM/PM_{10}) - PSD Best Available Control Technology, and
(B) D.5.2 Visible Emission Limitation - PSD Best Available Control Technology.

In addition, the nine (9) storage silos shall comply with all applicable requirements per 326 IAC 2-7 contained in this permit.

(2) No physical change or change in the method of operation shall be undertaken at these emissions units that would allow them to operate in a manner inconsistent with the physical or operational characteristics of the emission units.

(d) The nine (9) storage silos, designated as clean units, are subject to the following requirements:

(1) Any project at these emissions units for which actual construction begins after the effective date of the clean unit designations and before the expiration date shall be considered to have occurred while the emissions units were clean units.

(2) If a project at these emission units does not cause the need for a change in the emission limitations or work practice requirements in this permit for these units that were adopted in conjunction with BACT and the project would not alter any physical or operational characteristics that formed the basis for the BACT determination, the clean unit designations remain unchanged.

(3) If a project causes the need for a change in the emission limitations or work practice requirements in this permit for these units that were adopted in conjunction with BACT or the project would alter any physical or operational characteristics that formed the basis for the BACT determination, then the clean unit designations shall expire upon issuance of the necessary permit modifications, unless the units requalify as clean units. If the Permittee begins actual construction on the project without first applying to modify the emissions unit's permit, the clean unit designations shall expire immediately prior to the time when actual construction of this project begins.

(4) A project that causes emissions units to lose their clean unit designations shall be subject to the applicability requirements of 326 IAC 2-2-2(d)(1) through 326 IAC 2-2-2(d)(4) and 326 IAC 2-2-2(d)(6).

D.5.4 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 Dust Handling System except when otherwise specified in 40 CFR Part 60, Subpart AAa.

D.5.5 Visible Emission Limitations [40 CFR Part 60, Subpart AAa]

Pursuant to 40 CFR 60.272a(a) and PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall not cause to discharge into the atmosphere from the EAF Dust Handling System any gases that exhibit ten percent (10%) opacity or greater.

D.5.6 Preventive Maintenance Plan (PMP) [326 IAC 1-6-3] **[326 IAC 2-7-5(13)]**

Pursuant to 326 IAC 1-6-3 and PSD Permits 183-10097-00030 and 183-12692-00030, a Preventive Maintenance Plan (PMP), in accordance with Condition **C.4** - Preventive Maintenance Plan (PMP), of this permit, is required for the ~~nine (9) storage silos and associated control devices~~ **bin vent filters.**

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

D.5.7 Bin Vent Operation [326 IAC 2-2]

Pursuant to 326 IAC 2-2 Prevention of Significant Deterioration (PSD) and PSD Permits 183-10097-00030 and 183-12692-00030, the bin vent filters shall be in operation and control emissions at all times when the storage silos are in operation.

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

D.5.8 Visible Emissions Notations [326 IAC 2-1.1-11]

Pursuant to 326 IAC 2-1.1-11 and PSD Permits 183-10097-00030 and 183-12692-00030:

(a) Weekly visible emission notations of the nine (9) storage silos exhaust vents and the raw material receiving station shall be performed during normal daylight operations when loading or unloading material. A trained employee shall record whether emissions are normal or abnormal.

(b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, when the process is in operation, not counting startup or shut down time.

(c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

(d) 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.

(e) The Compliance Response Plan (CRP) for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed.

D.5.9 Bin Vent Filter Inspections [326 IAC 2-1.1-11]

Pursuant to PSD Permits 183-10097-00030 and 183-12692-00030, an inspection shall be performed each calendar quarter of all bin vent filters controlling the nine (9) storage silos. All defective filters shall be replaced. A record shall be kept of the results of the inspection and the number of bags replaced.

D.5.10 Broken or Failed Bin Vent Filter Detection [326 IAC 2-1.1-11]

Pursuant to 326 IAC 2-1.1-11 and PSD Permits 183-10097-00030 and 183-12692-00030:

In the event that filter failure has been observed:

~~(a)~~ ~~The affected compartments will be shut down immediately until the failed units have been repaired or replaced. Within eight (8) hours of the determination of failure, response steps according to the timetable described in the Preventive Maintenance Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Preventive Maintenance Plan, response steps shall be devised within eight (8) hours of discovery of the failure and shall include a timetable for completion.~~

~~(b)~~ ~~For~~ **for** single compartment filters, failed units and the associated process will be shut down ~~immediately~~ **as soon as possible** until the failed units have been repaired or replaced.

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

D.5.11 Record Keeping Requirements [326 IAC 2-7-5] [326 IAC 2-7-19]

(a) Pursuant to PSD Permits 183-10097-00030 and 183-12692-00030 **and to document compliance with Condition D.5.2 - Visible Emission Limitation PSD BACT,** the Permittee shall maintain records of the following and make the records available upon request to IDEM, OAQ, and the US EPA:

(i) Weekly visible emission notations of the bin vent exhaust and raw material receiving station.

(ii) Documentation of all response steps implemented for every event that visible emissions were noted to be “abnormal”.

(b) **To document compliance with Condition D.5.6 - Preventive Maintenance Plan (PMP), the** ~~The~~ Permittee shall maintain records of any additional inspections prescribed by the Preventive Maintenance Plan (PMP) and make the records available upon request to IDEM, OAQ, and the US EPA.

(c) All records shall be maintained in accordance with Condition **C.22** - General Record Keeping Requirements of this permit.

SECTION D.6 FACILITY OPERATION CONDITIONS

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

A slag handling and processing area **(ID# 14), operated by an independent contractor,** with a nominal rated capacity of ~~150~~ **250** tons per hour.

This processing area consists of slag pot dumping, deskulling, slag cooling, digging of slag pits by a front-end loader, loading of grizzly feeder by a front-end loader, crushing, screening, conveyor transfer points, loading of materials into piles, storage piles, load out of materials from piles, and vehicle movement around piles.

This processing area utilizes the following equipment: one (1) grizzly/feeder, three (3) conveyors, one (1) single deck screen, one (1) primary crusher, one (1) by-pass conveyor, one (1) screen, and ~~four (4)~~ **seven (7)** stackers.

Particulate emissions from the slag processing area are controlled by water suppression**, as needed,** and minimizing drop heights.

(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)]

D.6.1 Annual Slag Production Limitation [326 IAC 2-1.1-5] [326 IAC 2-2]

Pursuant to 326 IAC 2-1.1-5 and 326 IAC 2-2 Prevention of Significant Deterioration (PSD), the Permittee shall not process more than 438,000 tons of slag per 12-consecutive month period, with compliance determined at the end of each month.

This requirement supersedes:
- - Condition D.7.1 of PSD Permit 183-12692-00030, issued on January 10, 2001, and
- - Condition D.7.1 of PSD Permit 183-10097-00030, issued on July 7, 1999.

D.6.2 Particulate Matter (PM) [326 IAC 6-3]

Pursuant to 326 IAC 6-3 (Particulate Emission Limitations for Process Operations), the combined filterable PM emissions from the crushing, screening, conveyor transfer points, continuous stacking operations shall not exceed 60.96 pounds per hour.

This limit is based on the nominal process weight rate of 250 tons per hour.

PM emissions will be considered in compliance with 326 IAC 6-3 in the absence of PM compliance tests provided that visible emissions do not exceed the visible emissions requirements specified for these operations in this permit.

The pounds per hour limitation was calculated using the following equation:

$E = 55.0P^{0.11}-40$ where E = rate of emission in pounds per hour; and
P = process weight rate in tons per hour.

The above equation shall be used for extrapolation of the data for process weight rates in excess of sixty thousand (60,000) pounds per hour.

This requirement supersedes:
- - Condition D.7.2 of PSD Permit 183-12692-00030, issued on January 10, 2001, and
- - Condition D.7.2 of PSD Permit 183-10097-00030, issued on July 7, 1999.

D.6.3 Visible Emission Limitations - Best Available Control Technology [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements) and PSD Permits 183-10097-00030 and 183-12692-00030, the fugitive dust emissions from the various slag handling and processing operations shall be controlled in accordance with the ~~attached~~ Fugitive Dust Control Plan **(FDCP) (Section E.1)** such that the following visible emission limitations are not exceeded:

Slag Handling/Processing Operation	Visible Emission Limitation (% opacity) (six (6) minute average)
Transferring of skull slag to slag pot	10 %
Pouring of liquid slag from EAF or ~~LMF~~ **LMS** to slag pots	3% (on any building opening)
Dumping of liquid slag from slag pot to slag pit and cooling	3 %
Transferring of skull slag from slag pot to skull pit	5 %
Digging skull slag pits	5 %
Digging slag pits	3 %
Stockpiling of slag adjacent to the grizzly feeder	3 %
Wind erosion of stockpiles	3 %
Crushing	3 %
Screening	3 %
Conveyor transfer points	3 %
Continuous stacking of processed slag to stockpiles	3 %
Loadout of processed slag from stockpiles to haul trucks for shipment	3 %
Inplant hauling of slag pots (filled) and processed slag	3 %

D.6.4 Slag Dumping Fugitive Particulate Matter (PM/ PM_{10}) [326 IAC 2-2-3] [326 IAC 2-2]

Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements) and PSD Permits 183-10097-00030 and 183-12692-00030, the slag dumping pits shall be covered by a partially enclosed, roofed structure to reduce PM emissions during slag dumping. The roof shall extend over the entire slag pit area and past the dump stations. The sides of the structure shall extend sufficiently downward from the roof, taking into account:

(a) reduction of PM emissions during dumping and partial shielding of prevailing winds; and

(b) dissipation of heat and consideration of safety concerns within the structure.

D.6.5 Clean Unit [326 IAC 2-2.2]

(a) Pursuant to 326 IAC 2-2.2, the slag handling and processing operations are classified as Clean Units for PM/PM_{10}.

(b) The Clean Unit designation for these slag handling and processing operations are in

effect for ten (10) years from the issuance date of this permit.

(c) In order to maintain the clean unit designations for the slag handling and processing operations, the Permittee shall comply with the following:

(1) The slag handling and processing operations, designated as clean units, shall comply with the emissions limitations or work practice requirements in the following conditions as part of the BACT:

(A) D.6.1 Annual Slag Production Limitation,

(B) D.6.3 Visible Emission Limitations - BACT, and

(C) D.6.4 Slag Dumping Fugitive Particulate Matter.

In addition, the slag handling and processing operations shall comply with all applicable requirements per 326 IAC 2-7 contained in this permit.

(2) No physical change or change in the method of operation shall be undertaken at these operations that would allow them to operate in a manner inconsistent with the physical or operational characteristics of the operations.

(d) The slag handling and processing operations, designated as clean units, are subject to the following requirements:

(1) Any project at these emissions units for which actual construction begins after the effective date of the clean unit designations and before the expiration date shall be considered to have occurred while the emissions units were clean units.

(2) If a project at these emission units does not cause the need for a change in the emission limitations or work practice requirements in this permit for these units that were adopted in conjunction with BACT and the project would not alter any physical or operational characteristics that formed the basis for the BACT determination, the clean unit designations remain unchanged.

(3) If a project causes the need for a change in the emission limitations or work practice requirements in this permit for these units that were adopted in conjunction with BACT or the project would alter any physical or operational characteristics that formed the basis for the BACT determination, then the clean unit designations shall expire upon issuance of the necessary permit modifications, unless the units requalify as clean units. If the Permittee begins actual construction on the project without first applying to modify the emissions unit's permit, the clean unit designations shall expire immediately prior to the time when actual construction of this project begins.

(4) A project that causes emissions units to lose their clean unit designations shall be subject to the applicability requirements of 326 IAC 2-2-2(d)(1) through 326 IAC 2-2-2(d)(4) and 326 IAC 2-2-2(d)(6).

D.6.6 Preventive Maintenance Plan (PMP) [326 IAC 1-6-3] **[326 IAC 2-7-5(13)]**

Pursuant to 326 IAC 1-6-3 and PSD Permits 183-10097-00030 and 183-12692-00030, a Preventive Maintenance Plan (PMP), in accordance with Condition **C.4** - Preventive Maintenance Plan (PMP), of this permit, is required for the slag handling and processing operations associated control devices.

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

D.6.7 Testing Requirements [326 IAC 2-2]

Pursuant to PSD Permits 183-10097-00030 and 183-12692-00030, the Permittee shall perform a compliance test for opacity on the above-mentioned slag handling and processing operations, utilizing 40 CFR Part 60, Appendix A, Method 9, or other methods as approved by the Commissioner at least once every five (5) years from the date of the last valid compliance demonstration.

Testing shall be conducted in accordance with Section **C.12** - Performance Testing.

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

None

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

D.6.8 Record Keeping Requirements [326 IAC 2-7-19]

Pursuant to PSD Permits 183-10097-00030 and 183-12692-00030:

(a) **To document compliance with Condition D.6.1 - Annual Slag Production Limitation, the** ~~The~~ Permittee shall maintain records of the amount of slag processed.

(b) **To document compliance with Condition D.6.6 - Preventive Maintenance Plan (PMP), the** ~~The~~ Permittee shall maintain records of any ~~additional~~ inspections prescribed by the Preventive Maintenance Plan (PMP) and make the records available upon request to IDEM, OAQ, and the US EPA.

(c) All records shall be maintained in accordance with Condition **C.22** - General Record Keeping Requirements of this permit.

D.6.9 Reporting Requirements [326 IAC 2-1.1-11]

Pursuant to PSD Permits 183-10097-00030 and 183-12692-00030, **and to document compliance with Condition D.6.1 - Annual Slag Production Limitation,** the Permittee shall submit a quarterly summary of the amount of slag processed, using the reporting form (Slag Production Report) located at the end of this permit, or its equivalent, not later than thirty (30) days after the end of the quarter being reported and in accordance with Section **C.23** - General Reporting Requirements of this permit.

The report submitted by the Permittee does require the certification by the responsible official" as defined by 326 IAC 2-7-1(34).

SECTION D.7 FACILITY OPERATION CONDITIONS

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

Transporting on paved roadways and parking lots, unpaved roadways, and unpaved areas around slag storage piles and steel scrap piles.

(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)]

D.7.1 Fugitive Dust Emission Limitations - Best Available Control Technology [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements) and PSD Permits 183-10097-00030 and 183-12692-00030, the fugitive dust emissions from transporting on paved roadways and parking lots, unpaved roadways, and unpaved areas around slag storage piles and steel scrap piles shall be controlled in accordance with the ~~attached~~ Fugitive Dust Control Plan (FDCP) (~~Attachment~~ A **Section E.1**) such that the following limitations are not exceeded:

~~Paved surface silt loading shall not exceed 9.7 grams of silt per square meter and the average~~ **Instantaneous** opacity from paved roadways and parking lots shall not exceed ten percent (10%). The average instantaneous opacity shall be the average of twelve (12) instantaneous opacity readings, taken for four (4) vehicle passes, consisting of three (3) opacity readings for each vehicle pass.

The three (3) opacity readings for each vehicle pass shall be taken as follows:

(a) The first will be taken at the time of emission generation.

(b) The second will be taken five (5) seconds later.

(c) The third will be taken five (5) seconds later or ten (10) seconds after the first.

The three (3) readings shall be taken at the point of maximum opacity.

The observer shall stand at least fifteen (15) feet, but no more than one-fourth (1/4) mile, from the plume and at approximately right angles to the plume.

Each reading shall be taken approximately four (4) feet above the surface of the paved roadway.

D.7.2 Visible Emission Limitations - Best Available Control Technology [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements) and PSD Permits 183-10097-00030 and 183-12692-00030, the visible emissions from unpaved roadways and unpaved areas around slag storage piles and steel scrap piles shall not exceed an average instantaneous opacity of ten percent (10%).

The average instantaneous opacity shall be the average of twelve (12) instantaneous opacity readings, taken for four (4) vehicle passes, consisting of three (3) opacity readings for each vehicle pass.

The three (3) opacity readings for each vehicle pass shall be taken as follows:

(a) The first will be taken at the time of emission generation.

(b) The second will be taken five (5) seconds later.

(c) The third will be taken five (5) seconds later or ten (10) seconds after the first.

The three (3) readings shall be taken at the point of maximum opacity.

The observer shall stand at least fifteen (15) feet, but no more than one-fourth (1/4) mile, from the plume and at approximately right angles to the plume.

Each reading shall be taken approximately four (4) feet above the surface of the unpaved roadway.

D.7.3 Clean Unit [326 IAC 2-2.2]

(a) Pursuant to 326 IAC 2-2.2, the transporting on paved roadways and parking lots, unpaved roadways, and unpaved areas around slag storage piles and steel scrap piles are classified as Clean Units for PM/PM_{10}.

(b) The Clean Unit designations for these transporting on paved roadways and parking lots, unpaved roadways, and unpaved areas around slag storage piles and steel scrap piles are in effect from September 9, 2004 to October 22, 2012.

The Clean Unit designations were based on the approval of the Affidavit of Construction for these units as permitted to be constructed under PSD Permits 193-10097-00030, issued on July 7, 1999 and PSD Permit 183-12692-00030, issued on January 10, 2001.

(c) In order to maintain the clean unit designations for the transporting on paved roadways and parking lots, unpaved roadways, and unpaved areas around slag storage piles and steel scrap piles, the Permittee shall comply with the following:

(1) The transporting on paved roadways and parking lots, unpaved roadways, and unpaved areas around slag storage piles and steel scrap piles (designated as clean units) shall comply with the emissions limitations or work practice requirements in the following conditions as part of the BACT:

(A) D.7.1 Fugitive Dust Emission Limitations - Best Available Control Technology,
and

(B) D.7.2 Visible Emission Limitations - Best Available Control Technology.

In addition, the transporting on paved roadways and parking lots, unpaved roadways, and unpaved areas around slag storage piles and steel scrap piles shall comply with all applicable requirements per 326 IAC 2-7 contained in this permit.

(2) No physical change or change in the method of operation shall be undertaken at these emissions units that would allow them to operate in a manner inconsistent with the physical or operational characteristics of the emission units.

(d) The transporting on paved roadways and parking lots, unpaved roadways, and unpaved

areas around slag storage piles and steel scrap piles (designated as clean units) are subject to the following requirements:

(1) Any project at these emissions units for which actual construction begins after the effective date of the clean unit designations and before the expiration date shall be considered to have occurred while the emissions units were clean units.

(2) If a project at these emission units does not cause the need for a change in the emission limitations or work practice requirements in this permit for these units that were adopted in conjunction with BACT and the project would not alter any physical or operational characteristics that formed the basis for the BACT determination, the clean unit designations remain unchanged.

(3) If a project causes the need for a change in the emission limitations or work practice requirements in this permit for these units that were adopted in conjunction with BACT or the project would alter any physical or operational characteristics that formed the basis for the BACT determination, then the clean unit designations shall expire upon issuance of the necessary permit modifications, unless the units requalify as clean units. If the Permittee begins actual construction on the project without first applying to modify the emissions unit's permit, the clean unit designations shall expire immediately prior to the time when actual construction of this project begins.

(4) A project that causes emissions units to lose their clean unit designations shall be subject to the applicability requirements of 326 IAC 2-2-2(d)(1) through 326 IAC 2-2-2(d)(4) and 326 IAC 2-2-2(d)(6).

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

None

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

None

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

None

SECTION D.8 FACILITY OPERATION CONDITIONS

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

~~(a)~~ One (1) cooling tower (ID# 13), with a nominal water flow of 15,000 gallons per minute.

~~(b) Three (3) locomotives, each with a nominal diesel consumption of 10 gallons per hour.~~

(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)]

D.8.1 Particulate Matter (PM/PM_{10}) - Best Available Control Technology [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review; Requirements) and PSD Permits 183-10097-00030 and 183-12692-00030, the filterable PM/PM_{10} emissions from the cooling tower shall not exceed 0.008 pound per hour.

~~D.8.2 Nitrogen Oxides (NO_x) - Air Quality Impact [326 IAC 2-2-5]~~

~~Pursuant to 326 IAC 2-2-5 (PSD - Air Quality Impact; Requirements) and PSD Permits 183-10097-00030 and 183-12692-00030, the NO_x emissions from the locomotives shall not exceed 490 pounds per kilogallon of diesel fuel.~~

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

None

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

None

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

None

SECTION E.1 FUGITIVE DUST CONTROL PLAN (FDCP)

E.1.1 Implementation and Contact

(a) The following fugitive dust control plan (FDCP), when implemented, is designed to reduce uncontrolled fugitive dust, based on a PM_{10} mass emission basis, from:

(1) paved roadways and parking lots down to 9.7 grams per square meter,

(2) unpaved areas within the slag processing area ~~by 90 percent~~, and

(3) the slag processing operations ~~by 95 percent (95%)~~,

such that the silt loading limitation and visible emissions limitations specified in the permit are met.

(b) This FDCP shall be implemented on a year-round basis until such time as another plan is approved or ordered by the Indiana Department of Environmental Management (IDEM).

(c) **If there is a change in the** ~~The~~ name, title, and telephone number of the person who is responsible for implementing the **fugitive dust control plan (FDCP), the information** will be supplied to the Office of Air Quality (OAQ) Compliance Section within ninety (90) days ~~of the issuance of this permit~~ **of such change.**

E.1.2 Paved Roadways and Parking Lots

The following dust control measures shall be performed such that the visible emission limitations in the permit are met. Visible emissions shall be determined in accordance with the procedures specified in the permit.

(a) Paved roads and parking lots shall be controlled by the use of a vehicular vacuum sweeper, wet sweeping, or water flushing and shall be performed every 14 days.

(b) Since an Industrial Augmentation factor of I=1 was used for the emissions inventory, vehicles shall be limited to traveling on paved surfaces only and not allowed to enter any paved surface except from public paved roads and tarred and chipped roads.

Vehicles shall also not be allowed to travel on the shoulder of paved road ways.

(c) Upon request of the Indiana Department of Environmental Management (IDEM), Steel Dynamics, Inc. (SDI) shall sample and provide to IDEM surface material silt content and surface dust loadings in accordance with C. Cowherd, Jr., et al., Iron and Steel Plant Open Dust Source Fugitive Emission Evaluation, EPA-600/2-79-103, U.S. Environmental Protection Agency, Cincinnati, OH, May 1979.

IDEM will have the right to specify road segments to be sampled.

(c) Steel Dynamics, Inc. (SDI) shall provide supplemental cleaning of paved road sections found to exceed the controlled silt surface loading of 9.7 grams per square meter.

(d) Cleaning of paved road segments and parking lots may be delayed by one day when:

(1) 0.1 or more inches of rain has accumulated during the 24-hour period prior to the scheduled cleaning.

(2) The road segment is closed or abandoned. Abandoned roads will be barricaded to prevent vehicle access.

(3) It is raining at the time of the scheduled cleaning.

(4) Ambient air temperature is below 32 ^{o}F.

E.1.3 Unpaved Areas within the Slag Processing Area and Scrap Yard

The following dust control measures shall be performed such that the visible emission limitations in the permit are met. Visible emissions shall be determined in accordance with the procedures specified in the permit.

(a) Unpaved areas traveled around slag storage piles and steel scrap piles shall be treated with an IDEM-approved dust suppressant ~~at the rate of 0.16 gallons per square yard, or another rate approved by the IDEM, OAQ~~ in order to meet compliance with the associated visible emissions limitations.

(b) Fugitive dust emissions shall be reduced by at least 90 percent (90%) instantaneous control on a PM_{10} mass emission basis.

(c) Treating of unpaved areas may be delayed by one day when:

(1) 0.1 or more inches of rain has accumulated during the 24-hour period prior to the scheduled treatment.

(2) Unpaved areas are saturated with water such that chemical dust suppressants cannot be accepted by the surface.

(3) Unpaved areas are frozen or covered by ice, snow, or standing water.

(4) The area is closed or abandoned.

(5) It is raining at the time of the scheduled treatment.

(6) The ambient air temperature is below 32^{0}F.

E.1.4 Wind Erosion from Open Slag Piles

Open slag piles consist of slag in various stages of processing.

To maintain product quality and chemical stability, watering the stockpiles shall be the primary means of dust control.

Water must be limited so as to keep the moisture content of the product within standards.

~~Pile I.D.~~	~~Acres~~	~~Material~~	~~% Moisture~~	~~% Silt~~
~~101~~	~~015~~	~~Raw~~	~~2 - 5~~	~~1~~
~~103~~	~~0.03~~	~~- 4" x 1 1/2"~~	~~1 - 5~~	~~less than 1~~
~~104~~	~~0.04~~	~~-1 1/4" x 3/4"~~	~~1 - 5~~	~~4 - 5~~
~~105~~	~~0.03~~	~~- 3/4" x 0"~~	~~2 - 6~~	~~4 - 5~~

Slag piles shall be sprayed with water, on an “as-needed” basis to eliminate wind erosion and not exceed the visible emission limitations in the permit. Water added to the product during processing provides added control. Visible emissions shall be determined in accordance with the procedures specified in the permit.

E.1.5 Slag Handling and Processing

(a) During transferring of the skull slag to the slag pot, the drop height shall be minimized and the transferring shall be done slowly such that the visible emission limitations in the permit are not exceeded.

(b) Pouring of liquid slag from the EAFs or LMS to the slag pot shall be conducted inside the melt shop and emissions shall be captured by the melt shop roof canopy and ducted to the EAF baghouse.

(c) Emissions during the dumping of liquid slag from the slag pot to the slag pit shall be controlled by the use of skull slag and by applying water, **as needed,** such that the visible emission limitations in the permit are not exceeded.

(d) Water suppression to control emissions during the transferring of the skull slag from the slag pot to the skull pit can be waived for safety reasons.

(e) Emissions during the digging of the slag and skull pit by front-end loaders shall be controlled by applying water, **as needed,** such that the visible emission limitations in the permit are not exceeded.

(f) Emissions from slag processing operations shall be controlled, as needed, through the application of water.

Spray bars shall be use to apply water on crushing and screening operations, and conveyor transfer points.

(g) ~~Application rates and frequencies shall be sufficient to provide at least 95 percent (95%) control efficiency by limiting~~ **The** stacker to pile drop height **shall be limited** to less than 48 inches, and front end loader batch drop height into trucks **shall be limited** to less than 48 inches~~, and by applying water on crushing and screening operations, and conveyor transfer points using spray bars~~.

E.1.6 Vehicle Speed Control

(a) Speed limits on paved roads shall be posted to be 20 mph.

(b) Speed limits on unpaved areas shall be 10 mph.

(c) All traffic on paved and unpaved roads shall obey the posted speed limits.

(d) Compliance with the above mentioned speed limits shall be monitored by plant security guards.

(e) Upon violation, employees shall receive a written warning, followed by a one day suspension if a second violation occurs.

(f) Visitors to the plant shall be denied access if repeated violations occur.

E.1.7 Material Spill Control

Incidents of material spillage on plant property shall be investigated by the person responsible for implementing the plan.

That person shall arrange for prompt cleanup and shall contact the party responsible for the spill to insure that prompt corrective action is taken.

E.1.8 Monitoring and Recording Keeping

Daily records of the vacuum sweeping, wet sweeping, or water flushing and spill control activities, and dust suppressant application frequency and amount shall be kept.

The records shall also contain the amount of water sprayed:

(a) on the aggregate piles,

(b) at the slag quench station, and

(c) at the slag processing spray bars.

E.1.9 Compliance Schedule

This FDCP shall be fully implemented when construction and modification is completed.

Until that time, the plan shall be implemented within portions of the site where construction is considered complete.

Where construction is incomplete, appropriate control measures shall be implemented, but cannot be comprehensively addressed.

Records of these activities shall be kept.

SECTION E.2 SCRAP MANAGEMENT PLAN (SMP)

E.2.1 General Specifications

(~~1~~ **a**) Unless specifically allowed, all grades of scrap shall be essentially free of materials containing excessive amounts of volatile organic compounds ~~such as oil, grease, fuels, and glycols,~~ **and** hazardous material**s** ~~such as tin plate, babbit, or lead material, mercury switches, or radioactive material.~~

~~These~~ **Scrap** materials with **excessive amounts of volatile organic compounds and hazardous materials** ~~and those specified in the following sections~~ are ~~hereby~~ referred to as contaminated scrap.

(~~2~~ **b**) All scrap material shall meet the specifications in this Scrap Management Plan (SMP) and be acceptable to Steel Dynamics, Inc. (SDI) or its scrap-processing agent.

(~~3~~ **c**) Any material that deviates from the following specifications must be noted on the purchase order and agreed to prior to shipment.

(~~4~~ **d**) Rejection of scrap material because it does not conform to the following specifications is a judgment decision of the employees responsible for inspecting the scrap material.

(~~5~~ **e**) A portion or an entire scrap load shall be rejected depending on the contaminants, placement/location of the contaminated material or frequency of occurrence.

E.2.2 Scrap Specifications

~~1.~~ ~~COPPER~~
~~Copper containing material shall be removed or the load shall be rejected. This includes copper wire and cable, sheet, copper-coated materials, bearing journals, electric motors or windings, and radiator cores.~~

~~2.~~ **(a)** Hazardous Material
Scrap received with evidence of hazardous material, **or** hazardous material containers, ~~or material, which during melting will produce a hazardous pollutant~~, shall be rejected ~~(i.e. asbestos, oils, and chemical containers).~~

~~3.~~ **(b)** Lead
The presence of babbit, solder, balancing weights, or materials with excessive amounts of lead-based paint shall be removed or the load shall be rejected.

~~4.~~ **(c)** NON-FERROUS MATERIAL
Non-ferrous scrap may contain elevated levels of hazardous constituents such as chromium, nickel, and lead. Such scrap is generally nonmagnetic (e.g. electric motors, aluminum pots and pans, brass, and pewter) and shall be rejected. Only scrap that is picked up by the magnets from the scrap cranes is acceptable.

~~5.~~ ~~RADIATION~~
~~a.~~ ~~All grades of scrap must be free of radioactive materials or radiation sources. If any such material or sources are present, the load shall be rejected.~~

~~b.~~ ~~In addition to the scrap being rejected when radiation is detected, the railcar or truck shall be handled in accordance with all applicable laws or rules of the Indiana State Board of Health, Radiological Department, or any other agency having jurisdiction in the area in which the radiation is detected.~~

~~6.~~ **(d)** Tanks And Cylinders

~~a.~~ **(1)** Tanks, cylinders, or sealed units may be included in shipments if the ends are cut open and prepared in a manner to insure that they are not sealed and will not retain contaminating fluids.

~~b.~~ **(2)** These shall include, but are not limited to, torque converters, transmissions, rear ends, hydraulic cylinders, gas tanks, closed pipe compressors, capacitors, shock absorbers, and gearboxes.

~~c.~~ **(3)** Visual presence of any of these items shall be cause for the material to be removed from the scrap or the load shall be rejected. However, coated gas tanks shall be rejected regardless of its condition or even if cut open.

~~7.~~ ~~TIN~~

~~The presence of tin cans, solder, coatings, or other tinned material shall be removed or the load shall be rejected.~~

~~8.~~ **(e)** Mercury Switches

All mercury switches that are susceptible to removal and that are found in scrap shall be removed and disposed of. SDI shall inform automotive scrap dealers that mercury switches shall be removed from scrap wherever possible.

~~9.~~ **(f)** Top-Dressing

~~a.~~ **(1)** Trucks and cars must not be top-dressed with clean scrap in order to hide contaminated scrap.

~~b.~~ **(2)** If evidence of top-dressing is apparent during unloading process, the contaminated scrap shall be removed or the remaining partial shipments shall be rejected.

~~Contaminated scrap already unloaded shall be reloaded and rejected.~~

E.2.3 Scrap Inspection Procedure

At any point in the inspection process, SDI personnel or agents working on behalf of Steel Dynamics, Inc. (SDI) ~~have to~~ **shall** issue warnings and accept loads with minor deficiencies or ~~to~~ **shall** reject loads which contain contaminated scrap.

~~1.~~ **(a)** Scrap Inspectors

The persons responsible for inspecting the loads for contaminated scrap are the SDI employees operating the railcar or truck scales, the scrap bay and unloading operators, and yard personnel (crane operators, sorters, supervisors, etc.), Environmental Department, the scrap broker, and other agents working on behalf of SDI.

~~2.~~ **(b)** Entry

~~a.~~ ~~All scrap shall pass through the radiation detector when entering the scales.~~

~~b.~~ **(1)** The scale operator shall verify that the paperwork accompanying the load matches the load.

If not, then the correct paper work shall be obtained before acceptance of the load or the load shall be rejected.

~~c.~~ **(2)** The scale operator shall verify that the paperwork does not indicate the load contains contaminated scrap.

~~3.~~ **(c)** Scrap Inspection

~~a.~~ **(1)** The scrap bay and unloading operators or yard personnel shall inspect the top of the load to insure it complies with the specifications.

~~b.~~ **(2)** Yard personnel or scrap bay operators shall observe the load being dumped to make sure the load is consistent and contains no contaminated scrap.

~~c.~~ **(3)** If the scrap bay and unloading operator suspect top-dressing of the load, they shall direct the load to be magged-off to inspect for load consistency.

~~d.~~ **(4)** Yard operators shall inspect the scrap during loading from stockpiles into railcars slated for delivery the scrap bay.

~~e.~~ **(5)** Scrap bay operators shall inspect the scrap during loading into the charge bucket.

~~f.~~ **(6)** Contaminated scrap found in the stockpile or scrap bay shall be removed and discarded in accordance with applicable rules and regulations.

~~4. Radioactive Scrap Inspection~~

~~a. Inspection for radioactive scrap shall rely on radiation gauges located at the scales and the charge bucket.~~

~~b. In the event that the detector is activated, the load shall pass through the detector again.~~

~~c. Should the alarm be triggered again, a scan using a hand Geiger Counter of the load shall be conducted.~~

~~5.~~ **(d)** Load Acceptance

Loads that meet the scrap specifications in this Program may be directed for unloading and melting.

~~6.~~ **(e)** Rejected Loads

~~a.~~ **(1)** Loads that do not meet the specifications within this Program shall be returned to the vendor or the contaminated scrap removed from the load.

~~b.~~ **(2)** Contaminated scrap that is removed from the load shall be returned to the vendor or disposed in accordance with applicable rules and regulations.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
Compliance Branch
100 North Senate Avenue, Indianapolis, Indiana 46204

CERTIFICATION

Source Name: Steel Dynamics, Inc. (SDI)
Source Address: 2601 County Road 700 East, Columbia City, Indiana 46725
Mailing Address: 2601 County Road 700 East, Columbia City, Indiana 46725

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:
Telephone:

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
Compliance Data Section
100 North Senate Avenue, Indianapolis, Indiana 46204

QUARTERLY DEVIATION AND COMPLIANCE MONITORING REPORT

Source Name: Steel Dynamics, Inc. (SDI)
Source Address: 2601 County Road 700 East, Columbia City, Indiana 46725
Mailing Address: 2601 County Road 700 East, Columbia City, Indiana 46725

Months: _____ to _____ Year: _____

This report shall be submitted quarterly based on a calendar year. Additional pages may be attached if necessary. Any deviation from the requirements, the date(s) of each deviation, the probable cause of the deviation, and the reasonable response steps taken must be reported. Deviations that are required to be reported by an applicable requirement shall be reported according to the schedule stated in the applicable requirement and do not need to be included in this report. If no deviations occurred, please specify in the box marked "No deviations occurred this reporting period.
☐ NO DEVIATIONS OCCURRED THIS REPORTING PERIOD.
☐ THE FOLLOWING DEVIATIONS OCCURRED THIS REPORTING PERIOD
Permit Requirement (specify permit condition #)
Date of Deviation:
Duration of Deviation:
Number of Deviations:
Probable Cause of Deviation:
Reasonable Response Steps Taken:

Form Completed By:	
Title/Position:	
Date:	Telephone:

A certification by the responsible official as defined by 326 IAC 2-7-1(34) is required for this report.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
Compliance Branch
100 North Senate Avenue, Indianapolis, Indiana 46204

EMERGENCY OCCURRENCE REPORT

Source Name: Steel Dynamics, Inc. (SDI)
Source Address: 2601 County Road 700 East, Columbia City, Indiana 46725
Mailing Address: 2601 County Road 700 East, Columbia City, Indiana 46725

This is an emergency as defined in 326 IAC 2-7-1(12)

The Permittee must notify the Office of Air Quality (OAQ), within four (4) **daytime** business hours (1-800-451-6027 or 317-233-5674, ask for Compliance Section); and

The Permittee must submit notice in writing or by facsimile within two (2) working days (Facsimile Number: 317-233-5967), and follow the other requirements of 326 IAC 2-7-16.

Address: 100 North Senate Avenue, Indianapolis, Indiana 46204

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

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

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/ reasonable 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:

Telephone:

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

STEEL PRODUCTION REPORT

Source Name: Steel Dynamics, Inc. (SDI)
Source Address: 2601 County Road 700 East, Columbia City, Indiana 46725
Mailing Address: 2601 County Road 700 East, Columbia City, Indiana 46725
Steel Production: 2,628,000 tons/year
[Section D.1]

Reporting Year:

Month	Steel Production		
	Column 1	Column 2	Column 1 + Column 2
	This month (tons/month)	Previous 11 Months	12-Month Total (tons/year)

Form Completed By:
Title/Position:
Date:
Telephone:

A certification by the responsible official as defined by 326 IAC 2-7-1(34) is required for this report.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
Compliance Data Section
100 North Senate Avenue, Indianapolis, Indiana 46204

NATURAL GAS AND PROPANE USAGE QUARTERLY REPORT

Source Name:	Steel Dynamics, Inc. (SDI)
Source Address:	2601 County Road 700 East, Columbia City, Indiana 46725
Mailing Address:	2601 County Road 700 East, Columbia City, Indiana 46725
Facility:	LVD Boiler **(ID# 41)** (41.08 MMBtu/hour)
Parameters:	natural gas and propane usages
Limits:	209 MMCF of natural gas per twelve consecutive month period and 222 kilogallons of propane per twelve consecutive month period [Section D.4]

Reporting Year:

Month	Fuel	Natural Gas and Propane Used		
		Column 1	Column 2	Column 1 + Column 2
		This Month	Previous 11 Months	12-Month Total
	Natural gas (MMCF)			
	Propane (kgal)			
	Natural gas (MMCF)			
	Propane (kgal)			
	Natural gas (MMCF)			
	Propane (kgal)			

Form Completed By:
Title/Position:
Date:
Telephone:

A certification by the responsible official as defined by 326 IAC 2-7-1(34) is required for this report.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
Compliance Branch
100 North Senate Avenue, Indianapolis, Indiana 46204

SLAG PRODUCTION REPORT

Source Name: Steel Dynamics, Inc. (SDI)
Source Address: 2601 County Road 700 East, Columbia City, Indiana 46725
Mailing Address: 2601 County Road 700 East, Columbia City, Indiana 46725
Slag Production: 438,000 tons per twelve consecutive month period
[Section D.6]

Reporting Year:

Month	Slag Production		
	Column 1	Column 2	Column 1 + Column 2
	This month (tons/month)	Previous 11 Months	12- Month Total (tons/year)

Form Completed By:
Title/Position:
Date:
Telephone:

A certification by the responsible official as defined by 326 IAC 2-7-1(34) is required for this report.

Indiana Department of Environmental Management
Office of Air Quality

Appendix B - - Revised Air Quality Analysis - -
of the Addendum to the Technical Support Document for the
Prevention of Significant Deterioration (PSD) and
Part 70 Significant Source Modification (SSM)

Source Background and Description

Source Name:	Steel Dynamics, Inc. (SDI)
Source Location:	2601 County Road 700 East, Columbia City, IN 46725
Mailing Address:	2601 County Road 700 East, Columbia City, IN 46725
Responsible Official:	General Manager
County:	Whitley
SIC Code:	3312 (Steel Mill)
NAICS Code:	331111
Source Categories:	1 of 28 Listed Source Categories
	Major PSD Source
	Minor source under Section 112 of the CAA
Permit Number:	PSD/SSM 183-18426-00030
Air Modeler:	Jeffrey Stoakes

Proposed Project

Steel Dynamics, Incorporated (SDI), 2601 County Road 700 East, Columbia City, IN 46725 proposes to expand their existing steel mill by increasing the capacity of the meltshop operations, to allow operation of both the electric arc furnaces simultaneously and installing a second continuous caster; a second reheat furnace and caster. This was proposed in two (2) separate applications; both applications will be considered as one.

Keramida Environmental prepared both permit applications for Steel Dynamics, Incorporated (SDI). The Modeling Section in the Office of Air Quality (QAQ) received the permit application on September and November 2004. 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 PM_{10}, SO_2, NO_2, VOCs, CO, Lead, and Fluorides. The significant impact analysis determined that modeling concentrations for all pollutants did exceed significant impact levels except for CO. A refined analysis was required for all other criteria pollutants. A refined modeling analysis for all other criteria pollutants was performed and showed no violation of the NAAQS.

There were no violations of the PSD increment.

Accordingly, the additional impact analysis and pre-and post-construction monitoring requirements are not a problem.

A Hazardous Air Pollutant (HAP) analysis was performed because of public interest in the proposed modification even though SDI was not above the 10 and 25 tons per year thresholds. Based on the modeling results, the source will not have a significant impact upon federal air quality standards.

Air Quality Impact Objectives

The purpose of the air quality impact analysis in the permit application is to accomplish the objectives listed below. Each objective is individually addressed in a later section of this document.

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 source's emissions and background air quality levels.

Section D. Demonstrate that the source 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 an analysis of any air toxic compound with a health risk factor on the general population.

Section F. Perform a qualitative analysis of the source'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 G. Section Summarize the Air Quality Analysis.

Section A - Pollutants Analyzed for Air Quality Impact

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 and in the Code of Federal Register (CFR) 52.21(b)(23)(i).

Proposed Project Emissions

Particulate Matter less than 10 microns (PM_{10}), Sulfur Dioxide (SO_2), Nitrogen Dioxide (NO_2), Volatile Organic Compounds (VOC)(an Ozone (O_3) precursor), and Carbon Monoxide (CO), Lead, Fluorides, and Mercury are the pollutants that will be emitted from SDI. Therefore, an air quality analysis is required for these pollutants which exceeded their significant emission rates, except as noted, as shown in Table 1:

Table 1 - - Significant Emission Rates for PSD			
Pollutant	Source Emission Rate (facility totals) (tons/year)	Significant Emission Rate (tons/year)	Preliminary AQ Analysis Required
PM_{10}	247	15.0	Yes
NO_2	724	40.0	Yes
VOCs (O_3) [1]	134	40.0	Yes
CO	2814	100.0	Yes
SO_2	330	40.0	Yes
Lead	2.6	0.6	Yes
Fluorides[2]	9.24	3	Yes – See Footnote Below
Mercury[2]	1.02	0.1	Yes – See Footnote Below

[1] An air quality analysis is not performed for VOCs because it is a photochemically reactive pollutant and did not exceed an emission threshold of 250 tons per year. A cursory review is performed when the threshold is exceeded but does not involved modeling.

[2] Fluorides, and Mercury have monitoring concentration thresholds listed in 326 IAC 2-2-4. There is no National Ambient Air Quality Standard for these pollutants.

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

Stack Height Compliance with Good Engineering Practice (GEP)

Stacks should comply with GEP requirements established in 326 IAC 1-7-1. If stacks are lower than GEP, excessive ambient concentrations due to aerodynamic downwash may occur. Stacks taller than 65 meters (213 feet) are limited to GEP, the stack height for 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:

$$Hg = H + 1.5L$$

Where: Hg is the GEP stack height
H is the structure height
L is the structure's lesser dimension (height or width)

Proposed Project Stack

Since the stack heights of the modification were below GEP stack height the effect of aerodynamic downwash will be accounted for in the air quality analysis for the project.

Meteorological Data

The meteorological data used in the Industrial Source Complex Short Term (ISCST3) model consisted of 1990 through 1994 surface data from the Fort Wayne Airport Weather Service station merged with the mixing heights from Dayton, Ohio 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.

Model Description

Keramida Environmental used an older version of ISC3, Version 00101. OAQ used ISC3 Version 02035 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.

Receptor Grid

OAQ modeling utilized the same receptor grids generated by Keramida Environmental. The receptor grid extended approximately 10 kilometers from the plant. Since all of the proposed emission sources have stack heights less than GEP stack height, 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 is conducted to determine whether a more refined analysis is required.

A significant impact analysis was conducted to determine if the source exceeded the PSD significant impact levels (concentrations). If the source's concentrations exceed these levels, further air quality analysis is required. Modeling for PM_{10}, and NOx was required because the results did exceed significant impact levels. CO and SO_2 did not exceed significant impact levels and refined modeling was not required.

Significant impact levels are defined by the following time periods in Table 2 below 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 AQ Analysis Required
PM_{10}	**24 Hour**	**20.1**	**5**	**Yes**
PM_{10}	**Annual**	**2.16**	**1**	**Yes**
SO_2	3 Hour	9.36	25	No
SO_2	24 Hour	2.45	5	No
SO_2	Annual	0.33	1	No
CO	1 Hour	427	2000	No
CO	8 Hour	127	500	No
NO_2	**Annual**	**9.47**	**1**	**Yes**
Lead	Quarter	.20	None	N/A

Pre-construction Monitoring Analysis

A comparison of the preliminary modeling results was compared to the PSD preconstruction monitoring thresholds. The results are shown in the table below.

Table 3 - - Preconstruction Monitoring Analysis				
Pollutant	Time averaging period	Maximum modeled impact (ug/m3)	Deminimis level (ug/m3)	Above de minimis level
PM_{10}	**24 Hour**	**20.1**	**10**	**Yes**
SO_2	24 Hour	2.45	13	No
NO_2	Annual	9.47	14	No
CO	8 Hour	127	575	No
Lead	**3 Month**	**0.2**	**.1**	**Yes**
Mercury*	24 Hour	0.0053	.25	No
Fluorides*	24 Hour	0.066	.25	No

* No ambient air quality standard for this pollutants.

For the criteria pollutants, PM_{10} and Lead the modeled impact was greater than the

preconstruction monitoring de minimis level. SDI can satisfy the preconstruction monitoring requirement for PM_{10} and Lead since there is an existing air quality monitoring data representative of the area. The Ambient Monitoring Guidelines for Prevention of Significant Deterioration [EPA 450/4-87-007, May 1987] states that as a general rule, modeling impacts are preferred and ambient monitoring for non-criteria pollutants should not be required. More recent guidance from EPA, including the 1990 New Source Review Workshop Manual, reiterates this guidance.

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 regional monitoring sites for this area.

Background Monitors

For all 24-hour background concentrations, the averaged second highest monitoring values were used. Annual background concentrations were taken from the maximum annual values.

Table 4 - - Existing Monitoring Data Used For Background Concentrations

Pollutant	Monitoring Site	Approximate Distance From Site	Averaging Period	Concentration ug/m3
SO_2	Michigan City	130	H2H 3 Hour	65.5
SO_2	Michigan City	130	H2H 24 Hour	34.1
SO_2	**Michigan City**	130	Annual	9.7
PM_{10}	SDI Upwind	On-site	Annual	45.3
PM_{10}	SDI Upwind	On-site	H2H 24 Hour	28
CO	Fort Wayne	30	H2H 8 Hour	3240
CO	Fort Wayne	30	H2H 1 Hour	5152
NO_2	Childrens Hospital-South Bend	80	Annual	27.4
Lead	Muncie-East Site	110	Highest Quarter	0.53

Section D - NAAQS and PSD Increment

NAAQS Compliance Analysis and Results

IDEM supplied all emission inventories of sources within a 50-kilometer radius of SDI. Inventories were taken from IDEM air quality web site.

NAAQs modeling for the appropriate time-averaging periods for PM_{10}, NO_2, and lead was conducted and compared to the respective NAAQs limit. OAQ modeling results are shown in Table 5.

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

Table 5 - - NAAQS Analysis							
Pollutant	Year	Time-Averaging Period	Modeled Concentration (ug/m3)	Background Concentratio n (ug/m3)	Total (ug/m3)	NAAQS Limit (ug/m3)	NAAQS Violation
PM_{10}	1993	24 Hour (Highest 6th High)	15.4	45.3	60.7	150	NO
PM_{10}	1993	Annual	3.82	28	31.8	50	NO
NO_2	1993	Annual	15.0	27.4	42.4	100	NO
Lead	1994	Quarter	0.26	0.53	0.79	1.5	NO

Analysis and Results of Source Impact on the PSD Increment

Maximum allowable increases (PSD increments) are established by 326 IAC 2-2 for PM10. This rule also limits a source to no more than 80 percent of the available PSD increment to allow for future growth.

Since the impacts for PM10, and NOx from SDI modeled above significant impact levels, a PSD increment analysis for the all increment consuming sources in Whitley County and its surrounding counties was required.

Results of the increment modeling are summarized in Table 6 below.

Table 6 - - Increment Analysis						
Pollutant	Year	Time-Averaging Period	Modeled Concentration (ug/m3)	PSD Increment (ug/m3)	Percent Impact on the PSD Increment	Increment Violation
PM10	1993	24 Hour (Highest 6th High)	15.4	30	51.3%	NO
PM10	1993	Annual	3.82	20	19%	NO
NO_2	1993	Annual	15	25	60%	NO

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

Section E - Hazardous Air Toxics Analysis and Results

The OAQ currently requests data concerning the emission of 189 HAPs listed in the 1990 Clean Air Act Amendments (CAAA) that are either carcinogenic or otherwise considered toxic and may be used by industries in the State of Indiana.

Potential emissions of any single HAP from the proposed project are estimated to be less than 10 tons per year. Potential emissions of aggregate HAPs are estimated to be less than 25 tons per year. However, due to public interest in the proposed modification, a HAP analysis was performed.

For SDI, a full HAP analysis was completed comparing the maximum estimated concentrations of each pollutant with the Unit Risk Factor (URF) or Inhalation Unit Risk and the Reference Concentration (RfC). This analysis differs from the analysis performed on the initial permit application. The original analysis compared modeled pollutant levels with CEP Benchmarks, which are derived for national scale exposure project, and the current analysis offers a more refined, up to datesite specific analysis that takes into account the different potencies and health affects that each pollutant presents to the public.

Deleted:

The Unit risk factor (URF) is the upper-bound excess lifetime cancer risk estimated to result from continuous inhalation exposure to a pollutant over a 70 year lifetime. Multiplying the estimated concentration by the URF will produce a cancer risk estimate. The cancer risk estimate is the conservative probability of developing cancer from exposure to a pollutant or a mixture of pollutants over a 70 year lifetime, usually expressed as the number of additional cancer cases in a given number of people, e.g., one in a million. For screening purposes at SDI, the cancer estimates for each pollutant are considered to be additive when deriving the cumulative maximum individual cancer risk.

Non-cancer health effects are determined using the Reference Concentration (RfC). The RfC is an estimate of a continuous inhalation exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime. Dividing the estimated pollutant concentration by the RfC will determine the pollutant's Hazard Quotient (HQ). All of the HAPs Hazard Quotients were added together to determine SDI's Hazard Index (HI).

This HAP screening analysis uses health protective assumptions that overestimate the actual risk associated with emissions from SDI. Estimates:

(1) assume a 70 year exposure time,
(2) assume that all carcinogens cause the same type of cancer,
(3) assume that all non-carcinogens have additive health effects,
(4) assume maximum allowable emissions from the facility, and
(5) use conservatively derived dose-response information.

Specific to this risk assessment, all chromium emissions were assumed to be the more toxic chromium VI form and not the non-toxic chromium III form. Information is not available to determine the type of chromium emissions from the source, so the type that would lead to a greater estimate of risk was used. The risk analysis cannot accurately predict whether there will be observed health problems around SDI, rather it identifies possible avenues of risk.

The results of the HAP modeling are in Table 7.

Table 7 - - Hazardous Air Pollutant Modeling Results

Pollutant	Emission Rate (G/sec)	Emission Rate (TPY)	Estimated Concentration (ug/m3)	Risk Factor(URF) [(ug/m^3)$^{-1}$]	Reference Conc.(RfC) (ug/m3)	Cancer Risk	Hazard Quotient
Antimony	1.57E-03	5.46E-02	6.08E-05				
Arsenic	1.19E-03	4.14E-02	5.57E-05	4.30E-03	0.03	2.40E-07	0.002
Benzene	1.78E-04	6.19E-03	1.96E-04	7.80E-06	30	1.53E-09	0.000
Benz(a)anthracene	6.47E-08	2.25E-06	7.51E-08	1.10E-04		8.26E-12	
Benzo(a)pyrene	4.31E-08	1.50E-06	5.00E-08	1.10E-03		5.50E-11	
Benzo(b)fluoranthene	6.47E-08	2.25E-06	7.51E-08	1.10E-04		8.26E-12	
Benzo(k)fluoranthene	6.47E-08	2.25E-06	7.51E-08	1.10E-04		8.26E-12	
Beryllium	1.52E-05	5.28E-04	7.93E-06	2.40E-03	0.02	1.90E-08	0.000
Cadmium	5.73E-03	1.99E-01	2.72E-04	1.80E-03	0.02	4.86E-07	0.014
Chromium	**5.53E-03**	**1.92E-01**	**6.76E-04**	**1.20E-02**	**0.002**	**8.11E-06**	**0.338**
Chrysene	5.96E-07	2.07E-05	6.33E-07	8.90E-04		5.63E-10	
Cobalt	1.09E-03	3.79E-02	4.82E-05		0.005		0.010
Dibenz(ah)anthracene	4.31E-08	1.50E-06	5.00E-08	8.90E-01		4.45E-08	
Dichlorobenzene	1.02E-04	3.55E-03	1.12E-04	1.10E-05	800	1.23E-09	0.000
7,12-Dimethylbenz	5.74E-07	2.00E-05	6.67E-07				
Formaldehyde	6.36E-03	2.21E-01	6.99E-03	1.30E-05	3	9.09E-08	0.002
Hexane	1.33E-01	4.62E+00	1.17E-01		200		0.001
Hydrogen Fluoride	2.66E-01	9.25E+00	7.02E-03				
Indeno(123cd)pyrene	6.47E-08	2.25E-06	7.51E-08	1.10E-04		8.26E-12	
Manganese	**5.58E-02**	**1.94E+00**	**6.51E-02**		**0.05**		**1.302**
Mercury	1.98E-02	6.88E-01	5.69E-04		0.3		0.002
Naphthalene	5.17E-05	1.80E-03	5.68E-05		3		0.000
Nickel	2.53E-03	8.79E-02	5.88E-04	2.40E-04	0.05	1.41E-07	0.012
Selenium	1.59E-03	5.53E-02	8.24E-05		20		0.000
Toluene	2.51E-04	8.72E-03	2.21E-04		400		0.000
					Maximum Individual Risk	**9.13E-06**	
					Hazard Index		**1.682**

Manganese

The Hazard Index for the project exceeds 1, and it is primarily driven by the estimated manganese concentrations. Pollutants with a Hazard Quotient (HQ) greater than 1 are considered to be at concentrations that could represent a health concern. Hazard Quotients above 1 do not represent areas where adverse health effects will be observed but indicate that the potential exists. Manganese has a HQ greater than 1 based on modeling results for the proposed project.

Since manganese has a HQ above 1, a more refined analysis of emissions from SDI was performed to better determine the risk from manganese. Manganese concentrations are estimated to be at levels above the reference concentration at locations where people may live. Furthermore, the manganese concentrations modeled take into account only the added process change to the facility. When coupled with existing emissions from the facility, it is possible that concentrations will be above the reference concentration in additional areas where people may live. Part of the uncertainty inherent in this analysis is due to the source of the manganese emissions. Most of the manganese emissions are from the slag process area. Estimating emissions from slag process area is difficult. The modeling makes health protective assumptions to account for these difficulties and likely overestimates the risk from the slag process area. This adds a significant amount of uncertainty to the risk estimate. Since concentrations are modeled above the reference concentration for manganese off the property boundary using worst case conditions, there is a possibility that chronic health effects could be observed over a 70 year time frame. However, given the uncertainties associated with the emission estimates from the slag, concentrations may not actually be above the reference concentration beyond the property line or in areas where people may live.

Chromium

The additive cancer risk estimate from all HAPs is a potential nine additional cancer cases in one million people, driven primarily by chromium. The cancer risk for chromium is above the one in a million (1.0E-06) excess lifetime cancer risk, but below one in ten thousand (1.0E-04) excess cancer risk, which is considered by the US EPA to be the upper range of acceptability with ample margin of safety. This means that if an individual breathed in this concentration of chromium continuously for 70 years, the risk of getting cancer from this exposure would be between one in 10,000 and one in 1,000,000. This maximum individual risk is at the fence line of SDI. However, the cancer risk estimates fall below 1 in a million within 100 meters of the property line of the facility, so this project would not increase cancer risk within the community.

Section F – Qualitative Analysis

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 source.

The SDI PSD permit application provided an additional impact analysis performed by Keramida Environmental.

Economic Growth

The project did not create a significant need for new housing for employees during installation and operation of the facility. A minimal number of new positions are expected to be created. Most employees will be drawn from the nearby population, so that additional housing is not required. Given the employees required by SDI will be drawn from the present work force, staffing and operation of this project did not have a negative impact on regional residential trends.

Soils and Vegetation Analysis

A list of soil types present in the general area was determined. Soil types include the following: Silty and Clayey Lacustrine deposits, and Clayey Glacial Till.

Vegetation in the vicinity of the proposed facility consists mainly of grasses. No sensitive aspects of the soil and vegetation in the area surrounding the facility have been identified. The secondary NAAQs, which establish the ambient concentration levels to protect soil or vegetation, will not be violated.

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 12 species of mussels, 4 species of birds, 2 species of bat and butterflies and 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 threatened and one 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 source is not expected to impact the area.

Additional Analysis Conclusions

The nearest Class I area to the proposed facility is Mammoth Cave National Park in Kentucky outside the 100 km Class I range. Thus no visibility analysis is required.

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

Section G - Summary of Air Quality Analysis

Steel Dynamics, Incorporated (SDI) has applied for a PSD construction permit to construct a facility in Whitley County. Keramida Environmental Incorporated of Indianapolis, Indiana prepared the PSD application. Whitley County is designated as attainment for all criteria. PM_{10}, SO_2, NOx, VOCs, CO, Lead, Fluorides, and Mercury 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 PM_{10}, and NO_2 impacts were predicted to be greater than the significant impact levels. The NAAQS and increment modeling for those two pollutants showed no violations of the standards.

An air toxic analysis was preformed because they were above the thresholds required to do an analysis. Chromium was above the one in a million excess lifetime cancer risk but below the one in ten thousand level of concern. It was also below one in a million risks a 100 meters beyond the property line.

Manganese has a Hazard Quotient (HQ) above 1. This pollutant is of potential concern, however, there is significant uncertainty associated with emissions of this pollutant which has resulted in conservative assumptions being used in the modeling.

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

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

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD)
Prevention of Significant Deterioration (PSD) and
Part 70 Significant Source Modification (SSM)

Source Background and Description

Source Name:	Steel Dynamics, Inc. (SDI)
Source Location:	2601 County Road 700 East, Columbia City, IN 46725
Mailing Address:	2601 County Road 700 East, Columbia City, IN 46725
Responsible Official:	General Manager
County:	Whitley
SIC Code:	3312 (Steel Mill)
NAICS Code:	331211
Source Categories:	1 of 28 Listed Source Categories Major PSD Source Minor source under Section 112 of the CAA Clean Units
Permit Number:	PSD/SSM 183-18426-00030
Permit Writer:	Iryn Calilung 317/233-5692 icalilun@dem.state.in.us

Permitting History of SDI Whitley, IN

Steel Dynamics, Inc. (SDI) owns and operates a mini mill in Whitley County that produces a variety of carbon and low alloy structural steel products. Whitley County is designated as attainment or unclassifiable for all criteria pollutants.

On July 7, 1999, SDI was approved under PSD permit 193-10097-00030 to construct a mini mill. This PSD permit was modified on January 10, 2001 due to an Environmental Appeals Board (EAB) remand. This PSD permit specified PSD BACT limits for all criteria pollutants, except Mercury, Lead, Fluoride and Beryllium.

Another PSD permit (183-15170-00030) was issued on May 31, 2002 for the installation of a degassing operation.

The following table summarizes these approvals:

Table 1 - - - Issued Approvals

Permit Number	Issuance Dates
183-10097-00030	July 7, 1999
183-12692-00030	January 10, 2001
183-15170-00030	May 31, 2002

In February 2003, SDI conducted compliance stack testing as required under the issued PSD permits to verify compliance with the PSD BACT limits and to confirm the emission rated for Mercury, Lead, and Fluoride. Based on the stack test results, SDI exceeded the PSD Significant threshold for Mercury, Lead, and Fluoride. Thus, PSD major review is required for these pollutants. An enforcement referral has been made for these violations.

Description of the Proposed Modification

In addition to the permit revision due to non compliance for Mercury, Lead, and Fluoride, SDI proposed to modify their existing operation.

On January 21, 2004, Steel Dynamics, Inc. (SDI) submitted an application to the Office of Air Quality (OAQ) for the following revisions:

(1) Electric Arc Furnaces Operations And Capacity

(a) To be able to operate the two (2) electric arc furnaces (EAFs) simultaneously at an increased combined rate of 300 tons of steel per hour and include a fourth fan in the EAF Baghouse. Each EAF has a maximum capacity of 200 tons of steel per hour, however, the maximum combined rate of 300 tons per hour was based on the capacity of the continuous caster.

(b) The increase in maximum capacity of the EAFs also results an increase in the capacities of the ladle metallurgical station (LMS) and continuous caster of the meltshop.

The existing permits described the EAFs and their current operations as follows:

One (1) main single shell electric arc furnace (ID#s EAF 1a) and one (1) back-up single shell electric arc furnace (ID# EAF 1b). These furnaces are operated one at a time to produce molten steel at a maximum rate of 200 tons per hour. These furnaces utilize a direct shell evacuation control (DEC) system (fourth hole" duct), an overhead roof exhaust system consisting of a capture system consisting of a segmented canopy hood, scavenger duct, and cross-draft partitions, and the following emission control technologies:

(1) DEC air gap for carbon monoxide (CO) and volatile organic compounds (VOC) emissions;

(2) Low NO_x/oxy fuel burners (combustion control) for nitrogen oxide (NO_x) emissions; and

(3) a baghouse (ID# 1) for particulate (PM and PM-10) emissions.

99 percent of the emissions escaping the DEC system are collected by the overhead roof exhaust system and exhaust through a stack (ID# 1). There are no roof monitors in the meltshop.

(2) Ladle Dryer

Add a natural gas fueled Low NOx ladle dryer, rated at 10 million British Thermal Units per hour (MMBtu/hour).

This is in addition to the existing natural gas fueled ladle dryer, also rated at 10 MMBtu/hour.

(3) Slag Production

(a) Increase the slag production from 150 tons/hour to 250 tons/hour.

(b) Increase the total annual slag production from 262,800 tons/year to 438,000 tons/year.

The slag handling and processing area consists of slag pot dumping, deskulling, slag cooling, digging of slag pits by a front-end loader, loading of grizzly feeder by a front-end loader, crushing, screening, conveyor transfer points, loading of materials into piles, storage piles, load out of materials from piles, and vehicle movement around piles.

(4) Lead, Mercury And Fluorides Emissions

Revise the mass emission rates for Lead, Mercury and Fluorides and undergo PSD major review.

Initial emissions rates of Lead, Mercury and Fluorides were specified such that the limited potential to emit of these criteria pollutants were less than the PSD significant levels.

The table below compares the existing operation with the proposed changes:

Table 2 - - - Change in Operation

Operation	Previous Permitted Operation		Proposed Operation	
EAFs	200	tons/hour (each)	200	tons/hour (each)
	200	tons/hour (total)	300	tons/hour (total)
LMS	200	tons/hour	300	tons/hour
Caster	200	tons/hour	300	tons/hour
Slag Processing	150	tons/hour	250	tons/hour
	262,800	tons/year	438,000	tons/year
Ladle Dryer	10	MMBtu/hour	20	MMBtu/hour

Description of the Source after Modification

The following descriptions of the steel mill reflect the operations after the modification.

(a) Two (2) single shell electric arc furnaces (EAFs), identified as EAF-1a and EAF-1b. These furnaces operate at a nominal combined rate of 300 tons of molten steel per hour and utilize a direct-shell evacuation control (DEC) system (fourth hole duct), an overhead roof exhaust system consisting of a capture system consisting of a segmented canopy hood, scavenger duct, and cross-draft partitions.

These furnaces utilize the following emission control technologies:

(i) A DEC for carbon monoxide (CO) and volatile organic compounds (VOC) emissions;

(ii) Low NO_x/oxyfuel burners (combustion control) for nitrogen oxide (NO_x) emissions; and

(iii) A baghouse (identified as EAF Baghouse, ID# 1) for particulate (PM and PM_{10}) emissions.

99 percent of the emissions escaping the DSE system are collected by the overhead roof exhaust system and exhaust through a stack identified as EAF Baghouse stack (Stack 1).

There are no roof monitors in the meltshop.

Opacity is measured with a continuous opacity monitor (COM).

CO and VOC emissions exhausting through the EAF Baghouse stack (Stack 1) are measured with a CO continuous emission monitor system (CEMS) and a VOC CEMS, respectively.

SO_2 emissions exhausting through the EAF Baghouse stack (Stack 1) are measured with a SO_2 continuous emission monitor system (CEMS).

(b) One (1) ladle metallurgy refining station (LMS) (ID# 3a) with a nominal casting rate of 300 tons of steel per hour.

99 percent of the LMS emissions are collected by the overhead roof exhaust system and exhaust through the common EAF Baghouse stack (Stack 1).

(c) One (1) continuous caster (CC) (ID# 3k) with a nominal casting rate of 300 tons of steel per hour.

99 percent of the CC emissions are collected by the overhead roof exhaust system and exhaust through the common EAF Baghouse stack (Stack 1).

(d) Four (4) natural gas-fired low NO_x ladle preheaters (ID#s 3b through 3e), each with a nominal heat input rate of 10 million British Thermal Units per hour (MMBtu/hour).

Combustion emissions from the ladle preheaters exhaust inside the building, and are collected by the overhead roof exhaust system and ducted to the EAF Baghouse.

(e) Two (2) natural gas-fired low NO_x ladle dryers(ID# 3f and ID# 3l), each with a nominal heat input rate of 10 MMBtu/hour.

Combustion emissions from the ladle dryers exhaust inside the building, and are collected by the overhead roof exhaust system and ducted to the common EAF Baghouse.

(f) One (1) natural gas-fired low NO_x tundish nozzle preheater (ID# 3g), with a nominal heat input rate of 10 MMBtu/hour.

Combustion emissions from the tundish nozzle preheater exhaust inside the building, and are collected by the overhead roof exhaust system and ducted to the common EAF Baghouse.

(g) Two (2) natural gas-fired low NO_x tundish preheaters (ID#s 3h and 3i), each with a nominal heat input rate of 5 MMBtu/hour.

Combustion emissions from the tundish preheaters exhaust inside the building, and are collected by the overhead roof exhaust system and ducted to the common EAF Baghouse.

(h) One (1) natural gas-fired low NO_x tundish dryer (ID# 3j), with a nominal heat input rate of 5 MMBtu/hour.

Combustion emissions from the tundish dryer exhaust inside the building, and are collected by the overhead roof exhaust system and ducted to the common EAF Baghouse.

(i) One (1) natural gas-fired low NO_x reheat furnace (RH) (ID# 2) with a nominal heat input rate of 260 MMBtu/hour.

Combustion and process emissions from the RH exhaust through a stack identified as Stack 2.

(j) One (1) ladle vacuum degasser (LVD) with a nominal capacity of 300 tons per hour of steel and one (1) boiler to power the LVD. The LVD Boiler has a nominal heat input capacity of 41.8 MMBtu/hour, and uses natural gas as the primary fuel, with propane as an emergency back up fuel.

Gases from the LVD are directed to the boiler for combustion in the boiler. Emissions from the boiler exhausts through a stack identified as Stack 40.

(k) One (1) EAF dust storage silo (ID# 4), equipped with a bin vent filter for particulate control.

(l) Eight (8) raw material storage silos (ID#s 5 through 12) and the associated raw material receiving station.

Each silo is equipped with a bin vent filter for particulate control.

(m) A slag handling and processing area with a nominal rated capacity of 150 tons per hour.

This processing area consists of slag pot dumping, deskulling, slag cooling, digging of slag pits by a front-end loader, loading of grizzly feeder by a front-end loader, crushing, screening, conveyor transfer points, loading of materials into piles, storage piles, load out of materials from piles, and vehicle movement around piles.

This processing area utilizes the following equipment: one (1) grizzly/feeder, three (3) conveyors, one (1) single deck screen, one (1) primary crusher, one (1) by-pass conveyor, one (1) screen, and four (4) stackers.

Particulate emissions from the slag processing area are controlled by water suppression and minimizing drop heights.

(n) Transporting on paved roadways and parking lots, unpaved roadways, and unpaved areas around slag storage piles and steel scrap piles.

(o) One (1) cooling tower (ID# 13), with a nominal water flow of 15,000 gallons per minute.

(p) Three (3) locomotives, each with a nominal diesel consumption of 10 gallons per hour.

Emissions Calculations

The following assumptions and methodologies were used for the emissions calculations:

(1) The potential to emit (PTE) is based on the BACT limits.

(2) The electric arc furnaces (EAFs), ladle metallurgy refining station (LMS) and continuous caster (CC) exhaust to the same stack (Stack 1) and control device (EAF Baghouse), therefore the PTE accounts for the emissions from the EAFs, LMS and CC.

(3) Maximum Capacity of the EAFs, LMS and CC = 300 tons per hour

(4) Fugitive emissions are assumed to be emitted through building openings.

(5) Efficiencies:
- (a) 99.5% of the EAFs uncontrolled particulate emissions are captured and emitted through the EAF Baghouse.
- (b) 99% of the SO_2, NO_x, VOC and CO emissions are emitted through the EAFs Baghouse stack (Stack 1).
- (c) 99.5% of the Lead, Mercury and Fluorides and other HAPs from the EAFs are emitted through the EAF Baghouse.
- (d) 99% of the particulate emissions from the LMS and CC are emitted through the EAF Baghouse.

(6) Total PTE of the EAFs = (Maximum capacity 300 tons/hour)*(EF lbs/ton)*(8,760 hours/year) *(1 ton/2000 lbs)

(7) Non Fugitive = (Total PTE tons/year)*(Capture Efficiency %)

(8) PM Emission Factor is filterable only and PM_{10} Emission Factor is condensible and filterable combined.

(9) PM/PM_{10} = (grain loading grain/dscf)*(933,333 flow rate dscf/min)*(1 lb/7,000 grains)*(60 min/hr) *(8760 hr/yr)*(1 ton/2000 lb)

(10) Lead Fugitive Emissions = (1-Capture Efficiency %)*(Fugitive Emission Factor lb/ton)*(Maximum annual production tons/year)*(Lead content in the EAF dust)*(1 ton/2000 lbs)

where:

Capture Efficiency = 99%
Fugitive Emission Factor = 2 lbs/ton
Maximum Annual Production = 300 tons/hour * 8760 hours/year = 2,628,000 tons/year
Lead content in the EAF dust = 5%

Lead Fugitive Emissions = (1-0.99)*(2)*(2,628,000)*(0.05)*(1/2000)

(11) PTE of the Dryer = (Heat Input 10 MMBtu/hr)*(EF lbs/MMBtu)*(8760 hours/yr)*(1 ton/2000 lbs)
= 1.31 tons/year

(12) Limited PTE of the slag production = (Maximum capacity 438,000 tons/year)*(EF lbs/ton)
*(1 ton/2000 lbs)

(13) HAPs emissions are based on EAF dust analyses and tests.

Table 3 - - Electric Arc Furnace (EAF), Ladle Metallurgy Station (LMS) and Continuous Caster (CC)		
Pollutant	Emission Factor (EF) (lbs/ton)	Non-Fugitives PTE (tons/year)
SO_2	0.25	325.22
NO_x	0.35	455.30
VOC	0.09	117.08
CO	2.0	2,601.72
PM	0.0052 gr/dscf	63.07
PM_{10}	0.0018 gr/dscf	182.21
Lead	0.000478	0.62
Mercury	0.000519	0.679
Fluorides	0.007	9.15

Table 4 - - Electric Arc Furnace (EAF), Ladle Metallurgy Station (LMS) and Continuous Caster (CC)		
Pollutant	Emission Factor (EF) (lbs/ton)	Fugitives PTE (tons/year)
SO_2	0.25	3.285
NO_x	0.35	4.60
VOC	0.09	1.18
CO	2.0	26.28
PM	1.4	9.20
PM_{10}	0.812	5.33
Lead	0.001	1.31
Mercury	1% of EAF	0.00679
Fluorides	1% of EAF	0.0915

Table 5 = Table 3 + Table 4

Table 5 - - - Electric Arc Furnace (EAF), Ladle Metallurgy Station (LMS) and Continuous Caster (CC)			
Pollutant	PTE (tons/year)		
	Non-Fugitives	Fugitives	Total
SO_2	325.22	3.285	328.51
NO_x	455.30	4.60	459.90
VOC	117.08	1.18	118.26
CO	2,601.72	26.28	2628.00
PM	63.07	9.20	72.27
PM_{10}	182.21	5.33	187.54
Lead	0.62	1.31	1.93
Mercury	0.679	0.00679	0.69
Fluorides	9.15	0.0915	9.24

Table 6 - - - LMS and CC (300 tons/hour)		
Unit	PM and PM_{10} Emission Factor (EF) (lbs/ton)	PTE (tons/year)
LMS	0.61	8.02
CC	0.07	1.84

Table 7 - - - New Natural Gas Ladle Dryer (10.0 MMBtu/hr)		
Pollutant	Emission Factor (EF) (lbs/MMBtu)	PTE (tons/year)
SO_2	0.0006	0.0026
NO_x	0.050	0.219
VOC	0.0055	0.0241
CO	0.084	0.368
PM	0.0019	0.0083
PM_{10}	0.0076	0.0333
Lead	0.0005	0.0022
PTE (combustion) = (Nominal Heat Input 10 MMBtu/hr)*(EF lb/MMBtu)*(8760 hr/yr)*(1 ton/2000 lb) = tons/year		

Table 8 - - - Slag Production (438,000 tons/year at 250 tons/hour)	
Pollutant	PTE (tons/year)
PM	22.89
PM_{10}	11.45
Lead	0.00394
Mercury	1.82×10^{-6}

Potential To Emit of Modification

SDI is located in Columbia City, Whitley County, Indiana.

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as " the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U.S. EPA.

Total PTE of the Proposed Modification = (Table 5) + (Table 6) + (Table 7) + (Table 8)

Table 9 - - - Total PTE of the Proposed Modification

Pollutant	Total PTE (tons/year)
SO_2	328.53
NO_x	462.09
VOC	118.5
CO	2631.68
PM	105.103
PM_{10}	209.18
Lead	1.96
Mercury	0.686
Fluorides	9.24

Permitting Level Determination

Steel Dynamics, Inc. (SDI) is an existing Part 70 source, thus the level of approval for the proposal to construct or modify the existing source is evaluated under 326 IAC 2-7-10.5.

(1) 326 IAC 2-7-10.5(f)
This modification is considered a significant source modification to the existing Part 70 source because the PTE after control is greater than 25 tons/year and it is subject to PSD major review under 326 IAC 2-2.

(2) 326 IAC 2-7-10.5(d)(5)
Even though, the electric arc furnaces (EAFs) involved in this modification are subject to a New Source Performance Standards (NSPS) 40 CFR 60, this modification is not considered a minor source modification because the NSPS applicable requirement for the EAFs are not the most stringent applicable requirements applicable to the EAFs.

Past Actual Emissions

In October 2002, Steel Dynamics, Inc. (SDI) informed the Office of Air Quality (OAQ) of the start of operation of the plant. The table below shows the actual emissions emitted by SDI in 2002. This information was derived from the OAQ Emission Inventory database.

Table 10 - - - 2002 Actual Emissions						
Operation	SO_2	NO_x	VOC	CO	PM_{10}	Lead
EAFs	18.94	26.51	9.75	150.1	4.35	0.57
Reheat Furnace	0.1	15.12	0.77	4.2	1.06	- -
Ladle, Tundish and Caster	0.02	2.83	0.15	2.32	0.77	- -
EAF Dust Storage Silo	- -	- -	- -	- -	0.05	- -
Raw Material Storage Silo	- -	- -	- -	- -	0.05	- -
Slag Production	- -	- -	- -	- -	0.33	- -
Total	19.06	44.46	10.67	156.62	6.98	0.57

SDI has only operated for approximately 3 months in 2002.

At this stage of the permit review, there are no 2003 actual emissions data available in the OAQ Emission Inventory database.

PSD Applicability Determination

(1) Mercury, Lead, and Fluoride Exceedance of PSD Significant Thresholds
Due to the emissions exceedance of the PSD Significant levels for Mercury, Lead, and Fluoride, PSD major review is required for these pollutants.

(2) Production Rate Increase
To determine which pollutants are subject to major review due to the increase in production rate, the emissions increases occurring at all new or modified units, and any other increases at existing emissions units not being modified, which could experience increase in utilization, have to be aggregated.

(3) Fugitive Emissions
Since this type of operation is one of the 28 listed source categories under 326 IAC 2-2-1(y)(1), the fugitive emissions are counted toward determination of PSD applicability.

Table 11 - - - Total Emissions Increases			
Pollutant	PTE (tons/year)	PSD Significant Level (tons/year)	Subject to PSD Review (Yes/No)
SO_2	328.53	40	Yes
NO_x	462.09	40	Yes
VOC	118.5	40	Yes
CO	2631.68	100	Yes
PM	105.103	25	Yes
PM_{10}	209.18	15	Yes
Lead	1.96	0.6	Yes
Mercury	0.686	0.1	Yes
Fluorides	9.24	3.0	Yes

Source Status

(1) PSD Major Source
SDI is an existing major stationary source because one or more attainment regulated pollutants are emitted at a rate of 100 tons per year or more.

(2) 1 of 28 Listed Source Categories
SDI is one of the 28 listed source categories under 326 IAC 2-2-1(gg).

(3) Part 70 Source
SDI is a Part 70 source. SDI submitted their Part 70 permit application on April 10, 2003. The Part 70 permit is still under review by the OAQ.

(4) Hazardous Air Pollutants (HAPs) Minor Source
SDI is an existing minor source for HAPs because emissions of each HAP is less than 10 tons/year and the sum of all the HAPs emitted is less than 25 tons/year.
(a) Fluoride is the highest HAPs emitted (9.15 tons/year).
(b) The sum of all the HAPs emitted is estimated to be 16 tons/year.

The table below summarizes the PTE of the significant emission units.

Table 12 - - - Total Emissions Of The Source After The Modification

Operations	PM	PM_{10}	SO_2	NO_x	VOC	CO	Pb
EAF Baghouse (EAFs, LMS and CC) (300 tons/hour) Fugitives & Non-Fugitives	72.27	187.54	328.5	459.9	118.26	2,628.0	1.93
LMS (300 tons/hour)	8.02	8.02					
CC (300 tons/hour)	1.84	1.84					
Reheat Furnace (260 MMBtu/hour)	8.65	8.65	0.68	123.13	6.26	95.66	5.69×10^{-4}
Tundish Nozzle Preheater (10 MMBtu/hour)	0.33	0.33	0.03	4.38	0.24	3.68	2.19×10^{-5}
Ladle Preheaters (40 MMBtu/hour)	1.33	1.33	0.11	17.52	0.96	14.72	8.76×10^{-5}
Ladle Dryout (10 MMBtu/hour)	0.33	0.33	0.03	4.38	0.24	3.68	2.19×10^{-5}
Ladle Dryer (10 MMBtu/hour)	0.083	0.33	0.03	2.19	0.24	3.68	2.19x10-5
Tundish Dryer (5 MMBtu/hour)	0.17	0.17	0.01	2.19	0.12	1.84	1.1×10^{-5}
Tundish Preheater (10 MMBtu/hour)	0.33	0.33	0.03	4.38	0.24	3.68	2.19×10^{-5}
Slag Handling (438,000 tons/year)	22.89	11.45	-	-	-	-	3.94×10^{-3}
Paved Roadways	47.88	9.34	-	-	-	-	-
Storage Silos (8 silos)	6.01	6.01	-	-	-	-	-
Baghouse Dust Silo	0.75	0.75	-	-	-	-	-
Cooling Tower (15,000 gallons/min)	0.033	0.033	-	-	-	-	-
Vacuum Degasser/Boiler (41.8 MMBtu/hour)	1.39	1.39	0.11	9.16	1.01	15.38	9.16×10^{-5}
Total	172.306	237.843	329.53	627.23	127.57	2770.32	1.931

County Attainment Status

SDI is located in Columbia City, Whitley County, Indiana.

Table 13 - - - Whitley County	
Pollutant	Status
PM_{10}	Attainment
SO_2	Attainment
NO_2	Attainment
1-Hour Ozone	Attainment
8-Hour Ozone	Attainment
CO	Attainment
Lead	Attainment

(1) Volatile organic compounds (VOC) and Ozone
VOC and NOx are regulated under the Clean Air Act for the purposes of attaining and maintaining the National Ambient Air quality Standards (NAAQS) for ozone. Therefore, VOC and NOx emissions are considered when evaluating the rule applicability relating to the ozone standards. Whitley County has been designated as attainment or unclassifiable for the 1-hour and 8-hour ozone. Therefore, VOC emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD) 326 IAC 2-2.

(2) Criteria Pollutants
Whitley County has been classified as attainment or unclassifiable for all the other pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

Federal Rule Applicability Determination

(1) New Source Performance Standards (NSPS) 40 CFR Part 60

Even prior to this proposed modification:

(a) SDI has been subject to 40 CFR Part 60 Subpart AAa (NSPS for steel plants: EAF and AOD). Pursuant to this NSPS, the filterable PM from the EAF Baghouse shall not exceed 0.0052 grains per dry standard cubic feet. Even though the EAFs are being reviewed and permitted again, SDI will not be required to report the commencement of construction because there is no change in the federal applicability and standards for the EAFs.

(b) The LVD Boiler (rated at 41.8 MMBtu/hour) has been subject to the 40 CFR Subpart Dc. LVD Boiler commenced construction on October 28, 2002, and since this LVD Boiler is not being physically modified under this proposal, this LVD Boiler is considered an existing affected unit.

(2) National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR Part 63

(a) A NESHAP for integrated iron and steel manufacturing plants is in the proposed stage at this time. It is subject to sinter plants, blast furnaces, and BOP shops. SDI is not going to be subject to this proposed NESHAP because SDI does not have the affected processes.

(b) The LVD Boiler, upon commencement of construction, is subject to 40 CFR Part 63, Subpart DDDDD (NESHAPs for Industrial/Commercial/Institutional Boilers and Process Heaters).

(i) The LVD Boiler (a natural gas fueled low NO_x boiler, rated at 41.8 MMBtu/hour) is considered an industrial boiler because it will be used for manufacturing and processing to provide steam. [40 CFR 63.7575]

(ii) The LVD Boiler belongs to the large gaseous fuel category because it burns only gaseous fuels not combined with any liquid or solid fuels, has a rating capacity greater than 10 MMBtu/hour, and has an annual capacity factor of greater than 10%. [40 CFR 63.7575]

(iii) The LVD Boiler is considered an existing affected source because it was constructed before January 13, 2003. [40 CFR Part 63.7490(b)]

(3) Prevention of Significant Deterioration (PSD) 40 CFR 52.21

(a) US EPA has granted conditional approval to the PSD State Implementation Plan (SIP) of Indiana under provisions of 40 CFR 51.166 and 40 CFR 52.770 and superceding the delegated PSD SIP authority under 40 CFR 52.793. The effective date for these provisions is April 2, 2003. Therefore, the PSD permits will be issued under the authority of 326 IAC 2-2 and will no longer be issued under the provision of 40 CFR 52.21 and 40 CFR 124.

(b) Under PSD SIP approved program:

- - The permit becomes effective upon its issuance. [IC 13-15-5-3]

- - Petitions of appeals are directed to the Office of Environmental Adjudication (OEA).

- - There is also no automatic stay if the permit is appealed.

(c) For additional information regarding the SIP PSD approval, see the following websites: http://www.in.gov/idem/air/permits/psdapprovalhistory.html and http://a257.g.akamaitech.net/7/257/2422/14mar20010800/edocket.access.gpo.gov/2003/03-5024.htm

Detailed PSD BACT determinations are shown in Appendix B -- PSD BACT Evaluations - - of this TSD.

(4) 40 CFR 64 (Compliance Assurance Monitoring)
There are specific pollutants in this proposed modification that are subject to 40 CFR 64.2(a)(2). Monitoring of the pollutant-specific emission unit will be conducted pursuant to 40 CFR Part 64.

Table 14 - - Electric Arc Furnace, Ladle Metallurgy Station and Continuous Caster (300 tons/hour)

Pollutant	PTE After Control	Control technology
SO_2	328.5	Scrap Management Plan (SMP)
NO_x	459.9	Low NO_x /Oxy Fuel Burners
VOC	118.26	Direct Shell Evacuation (DSE) Scrap Management Plan (SMP)
CO	2,628.0	Direct Shell Evacuation (DSE)
PM_{10}	187.54	Baghouse

(a) Sulfur Dioxide (SO_2)
The SO_2 PTE of the meltshop is greater than 100 tons/year. Compliance is assured by the implementation of the Scrap Management Plan (SMP). The annual SO_2 compliance tests were removed and a SO_2 continuous emissions monitoring system (CEMS) will be used to comply with the requirements.

(b) Nitrogen Oxides (NO_x)
The NO_x PTE of the meltshop is greater than 100 tons/year with the operation of the low NO_x burners. Compliance is assured by operating the burners at all times when the electric arc furnaces are in operation and by the use of natural gas as fuel. NO_x compliance tests are required to be performed once a year.

(c) Volatile Organic Compound VOC
The VOC PTE of the meltshop is greater than 100 tons/year after control (direct shell evacuation system) and the implementation of the Scrap Management Plan (SMP). A VOC continuous emissions monitor (CEM) is used to comply with the requirements.

(d) Carbon Monoxide (CO)
The CO PTE of the meltshop (EAFs, LMS, and CC) are greater than 100 tons/year after control (direct shell evacuation). A CO continuous emissions monitor (CEM) is used to comply with the requirements.

(e) Particulate Matter (PM and PM_{10})
The PM and PM_{10} PTE of the meltshop is greater than 100 tons/year after control (baghouse). Compliance is assured by the use of baghouse leak detection system, compliance testing, inspection of the baghouses and record keeping.

Opacity readings from a continuous opacity monitor (COM) are also used as surrogate parameters to assure compliance.

State Rule Applicability Determination

Pursuant to 326 IAC 2-1.1-4 (Federal Provisions), in the case of a conflict between the state rules and a provision of federal law or regulation, the more stringent requirement applies.

(1) 326 IAC 1-7-1 (Stack Height Requirements)
Even prior to this proposed modification, the exhaust stack for the meltshop (EAFs, LMS, and CC) was subject to this requirement. However, the height of the stack, as it is not being physically modified, was less than the Good Engineering Practice (GEP). A dispersion model to determine the significant ambient air impact area was developed and analysis of actual stack height with respect to GEP was again performed. See Appendix B - - Air Quality Analysis, of this technical support document (TSD).

Table 15 - - Stack Dimensions

Stack ID	Outlet Diameter (feet)	Height (feet)	Maximum Outlet Flow Rate (acfm)	Outlet Gas Temperature (^{0}F)
1	20	125	1,116,666	200

(2) 326 IAC 2-1.1-6 (Public Notice)

(a) Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on January 22, 2004. Additional information was received on June 3, 2004; September 3, 2004; and October 15, 2004.

(b) The applicant has provided a copy of the application in the Peabody Public Library, 1160 East Highway 205, Columbia City, IN 46725.

(c) The following officials have been notified of this application:
(1) Mayor, Columbia City, IN
(2) President of County Council, Columbia City, IN and
(3) Chairman of the Board of County Commissioners, Columbia City, IN

(d) A notice of the preliminary findings will be published in the most circulated newspaper in the area. There will be a 30-day comment period.

(3) 326 IAC 2-1.1-8 (Time Periods for Determination on Permit Applications)
Pursuant to 326 IAC 2-1.1-8(a)(1), a final action needs to be issued no later than 270 calendar days from the receipt of the application, taking into account actions that can suspend the time period. The application was received on January 22, 2004.

(4) 326 IAC 2-2 (Prevention of Significant Deterioration (PSD))
Detailed PSD BACT determinations are shown in Appendix A -- PSD BACT Evaluations - - of this document.

(a) 326 IAC 2-2-3 (PSD Control Technology)
Detailed PSD BACT control technology evaluations are shown in Appendix B -- PSD BACT Evaluations - - of this document.

(b) 326 IAC 2-2-4 (PSD Air Quality Analysis)
Detailed air quality analysis is shown in Appendix C -- Air Quality Analysis - - of this document.

(c) 326 IAC 2-2-5 (PSD Air Quality Impact)
SDI, Whitley County, IN is not located within 100 kilometers radius of the closest Federal Class I area. The closest Class I area is the Mammoth Cave, KY. Detailed air quality analysis is shown in Appendix C -- Air Quality Analysis - - of this document.

(d) 326 IAC 2-2-6 (PSD Increment Consumption)
The emissions from this plant are not expected to exceed 80% of the available maximum allowable increment. Detailed increment consumption analysis is shown in Appendix C -- Air Quality Analysis - - of this document.

(e) 326 IAC 2-2-8 (PSD Source Obligation)

(1) Approval to construct shall become invalid if construction is not commenced within 18 months after the receipt of the approval, or if construction is not completed within reasonable time.

(2) Approval for construction does not relieve SDI of the responsibility to comply with applicable provisions of the Indiana implementation plan and any other requirements under local, state, or federal law.

(f) 326 IAC 2-2-9 (PSD Innovative Control Technology)
There is no requirement at the State or Federal level which requires innovative control to be used. Innovative control means a control that has not been demonstrated in a commercial application on similar units, as stated in the U.S. EPA Top-Down BACT Guidance (Section V.A.2):

> "Although not required, innovative controls may also be evaluated and proposed as BACT... Innovative technologies are distinguished from technology transfer BACT candidates in that an innovative technology is still under development and has not been demonstrated in a commercial application on identical or similar emission units."

Innovative controls are normally given a waiver from the BACT requirements due to the uncertainty of actual control efficiency. PSD BACT requires that the applicant install the best available control technology, not create new ones. Based on this, the OAQ will not evaluate or require any innovative controls for this BACT analysis. Only available and proven control technologies are evaluated. A control technology is considered "available" when "there are sufficient data indicating (but not necessarily proving)" the technology "will lead to a demonstrable reduction in emissions of regulated pollutants or will otherwise represent BACT."

(g) 326 IAC 2-2-10 (PSD Source Information)
SDI has submitted the information necessary to perform an analysis or make a determination required under PSD review.

(h) 326 IAC 2-2-11 (PSD Stack Height)
This rule applies to source which commenced construction after December 31, 1970. The stacks heights of the mill are less than the good engineering practice (GEP) stack

heights, thus a dispersion modeling has been performed to analyze air quality impact. Detailed analysis of this is in Appendix C - - Air Quality Analysis- - of this document.

(i) 326 IAC 2-2-12 (PSD Permit Rescission)
The construction permit remains in effect, unless it is rescinded, modified, revoked, or expires.

(j) 326 IAC 2-2-13 (Area Designation and Re-designation)
SDI is not located in any of the listed areas.

(k) 326 IAC 2-2-14 (Additional Requirements Impacting Class I Area).
SDI is not subject to this requirement because it does not impact a Federal Class I area. The nearest Class 1 area is the Mammoth Cave National Park, Edmonson County, KY.

The state of Indiana has no Federal Class I and III areas.

(l) 326 IAC 2-2-15 (Public Participation)
A notice of the preliminary findings will be published in the most circulated newspaper in the area. There will be a 30-day comment period.

(5) 326 IAC 2-3 (Emission Offset)
The Office of Air Quality (OAQ) has the authority to permit an applicant pursuant 326 IAC 2-3 and 40 CFR 51.166 (Nonattainment Rules) only when the source is located in a designated nonattainment area as specified in 40 CFR 81.315.

Whitley County has been designated as attainment area in 40 CFR 81.315. Therefore, the OAQ does not have the authority to require lowest achievable emission rate (LAER).

(6) 326 IAC 2-4.1 (Hazardous Air Pollutants (HAPs))
SDI, after this modification, is still considered a minor source in terms of hazardous air pollutant (HAP) emissions because emissions of each HAP is less than 10 tons/year and the sum of all the HAPs emitted is less than 25 tons/year.

(7) 326 IAC 2-6-1 (Emission Reporting)
Even prior to this proposed modification, SDI was subject to the emission reporting requirement because it has potential to emit greater than 100 tons/year.

(8) 326 IAC 2-7 (Part 70 Program)
The Office of Air Quality (OAQ) received the SDI Part 70 permit application on April 10, 2003.

The Part 70 permit has not yet been issued and is still under review by the OAQ.

(9) 326 IAC 2-8 (FESOP)
This program does not apply because SDI is a Part 70 source.

(10) 326 IAC 3-5-1 (Continuous Monitoring of Emissions)
The existing PSD permits for SDI required the following monitors for the meltshop:
(a) a continuous opacity monitor (COM),
(b) a CO continuous emissions monitor system (CEMS), and
(c) a VOC CEMS.
These monitors will be maintained.

(11) 326 IAC 4-1 (Open Burning)
SDI shall not open burn material except as provided in 326 IAC 4-1-3, 326 IAC 4-1-4, or 326 IAC 4-1-6.

(12) 326 IAC 5-1 (Opacity Limitations)
The opacity shall not exceed 40% based on a 6-minute average period, except otherwise specified under 326 IAC 2-2 PSD.

(13) 326 IAC 6-1 (PM Nonattainment Limitation)
This rule does not apply to SDI because it is not located in any of the counties or areas specified in 326 IAC 6-1-7.

(14) 326 IAC 6-2 (Particulate Emission Limitations for Sources of Indirect Heating)
There are no new boilers involved in this proposed modification.

The LVD Boiler has been permitted under PSD Permit 183-15170-00030, issued on May 31, 2002. This PSD permit has already specified the particulate emission limitation under 326 IAC 6-2.

(15) 326 IAC 6-3 (Particulate emission for manufacturing process)
(a) The EAFs, LMS and CC in this proposed modification are not subject to this rule, because pursuant to 326 IAC 6-3(c)(1), this rule does not apply if PM emissions limitations have been established under 326 IAC 2-2 (PSD).

(b) Combined filterable PM emissions from the crushing, screening, conveyor transfer points, continuous stacking operations:

$E = 55.0P^{0.11}-40$ where E = rate of emission in pounds per hour; and
P = process weight rate in tons per hour.

$E = 55.0(250 \text{ tons/hour})^{0.11}-40$
E = 60.96 lbs/hour

(16) 326 IAC 6-4 and 6-5 (Fugitive dust)
Even prior to this modification, SDI is already subject to these rules. The Fugitive Dust Control Plan (FDCP) submitted by SDI has been considered part of the existing PSD permits. There are no proposed changes in the FDCP.

(17) 326 IAC 7-1 (Sulfuric Dioxide (SO_2) Limitation)
Even prior to this proposed modification, SDI is subject to this rule, however, there is no specific SO_2 limitations that apply to natural gas fueled emission units.

(18) 326 IAC 8-1-6 (Volatile Organic Compounds (VOC))
The VOC major review under 326 IAC 2-2 satisfies the VOC review requirements under 326 IAC 8-1-6.

(19) 326 IAC 9 (Carbon Monoxide (CO) emission rules)
This rule does not apply because there are no applicable requirements specified for electric arc furnaces.

(20) 326 IAC 10 (Nitrogen Oxides (NO_x) rules)
This rule does not apply to SDI because it is not located in Clark County or Floyd County.

(21) 326 IAC 11 (Source Specific limitations)
Steel mill is not one of the operation listed in this rule.

(22) 326 IAC 12 (New Source Performance Standards (NSPS))
This rule incorporates by reference the 40 CFR Part 60. Applicability determinations with this rule have been addressed under the Federal Rules Applicability of this TSD.

(23) 326 IAC 13 (Motor vehicles emissions)
Not applicable.

(24) 326 IAC 14 (Hazardous Air pollutants (HAPs) Emission)
This rule incorporates by reference the 40 CFR Part 61. There are no 40 CFR Part 61 requirements included in the permit for this source.

(25) 326 IAC 15 (Lead Rules)
SDI is not one of the listed sources subject to this rule.

(26) 326 IAC 16 (Environmental Assessment, Activities of State Agencies)
Environmental assessments and environmental impact studies for recommendations or reports on proposals for legislation and other major state actions significantly affecting the quality of the human environment have to be performed. However, 326 IAC 16 and the Indiana Code 13-12-4-8 specifically states that an environmental impact statement is not required under state law for the issuance of a license or permit by any state agency. Therefore, no environmental impact statement under 326 IAC 16 has been performed for this permit. Similar provisions exempt PSD permit actions from the National Environmental Policy Act [15 USC 793(c)(1)].

(27) 326 IAC 17 (Public records)
SDI did not request any information to be treated as confidential information.

(28) 326 IAC 18 (Asbestos Management at School)
Not applicable.

(29) 326 IAC 19 (Mobile Source Rules)
These particular rules are applicable to employees in Lake and Porter Counties only. These are not applicable because SDI is located in Whitley County.

(30) 326 IAC 20 (Hazardous Air Pollutants HAPs)
This rule incorporates by reference the 40 CFR Part 63. Applicability determinations with this rule have been addressed under the Federal Rules Applicability of this TSD.

(31) 326 IAC 21 (Acid Deposition Control)
This rule incorporates by reference the federal Acid Rain Program. There are no acid rain applicable requirements included in the permit for this source.

(32) 326 IAC 22 (Stratospheric Ozone Protection)
This rule incorporates by reference the 40 CFR part 82. There are no specific Stratospheric Ozone Protection applicable requirements included in the permit for this source.

(33) 326 IAC 23 (Lead Based Paint Program)
This rule does not apply because this source will not perform operations using lead-based paints.

Clean Unit

(1) Emission Units Designated as Clean Units
The following emissions units are designated as Clean Units pursuant to 326 IAC 2-2.2 (Clean Unit) because:

- - they have been reviewed under the PSD program (326 IAC 2-2), and

- - they achieved reductions in emissions by using add-on control or implementing work practices.

- - and the owner/operator made an investment to:
  - - install the control technology,
  - - research the application of pollution prevention technique to the emission unit, or
  - - apply a pollution prevention to the emission unit.

(a) EAFs, LMS and CC
The EAFs, LMS and CC will be designated as Clean Units for SO_2, NOx, VOC, CO and PM_{10}.

The initial operation of these emissions units and control devices had been validated on October, 22, 2002. Since the meltshop is being modified under the PSD program in this proposed permit, the Clean Unit designations for the EAFs , LMS and CC will be in effect for 10 years from the issuance date of this permit.

Table 16 - - Electric Arc Furnace, Ladle Metallurgy Station and Continuous Caster

Pollutant	Control technology/Work Practice
SO_2	Scrap Management Plan (SMP)
NO_x	Low NO_x /oxy fuel Burners
VOC	Direct Shell Evacuation (DSE) and Scrap Management Plan (SMP)
CO	Direct Shell Evacuation (DSE)
PM/PM_{10}	Baghouse
Lead	Baghouse
Mercury	Baghouse and Scrap Management Plan (SMP)
Fluoride	Baghouse

(b) New Low NOx natural gas fired ladle dryer
The second ladle dryer will be designated as Clean Unit for NOx. Since this lade dryer has not been constructed, the Clean Unit designation will be in effect for ten (10) years from the initial start up/operation of the dryer.

(c) Slag handling and processing operation
The slag handling and processing operation will be designated as Clean Unit for $PM/PM_{10.}$ Since this specific operation is being modified under this review, the Clean Unit designation will be in effect for ten (10) years from the issuance date of this permit.

(d) Existing Emissions Units Not Being Modified

The following table summarizes the Clean unit designations of the existing emissions units not being modified under this review and have been previously permitted under the PSD program.

The initial start up/operation of these units have been validated on October, 22, 2002. The Clean Unit designations are in effect from September 9, 2004 to October 22, 2012. The Clean Unit designations were based on the approval of the Affidavit of Construction for these units as permitted to be constructed under PSD Permit 193-10097-00030, issued on July 7, 1999 and PSD Permit 183-12692-00030, issued on January 10, 2001.

Table 17- - Clean Units		
Emission Unit/Operation	Control Technology/ Work Practices	Pollutant
4 Ladle preheaters 1 Ladle dryer 2 Tundish preheaters 1 Tundish dryer 1 Tundish nozzle preheater	Low NO_x Burners	NOx
Reheat Furnace	Low NOx Burners	NOx
9 Storage silos	Bin Vent Filter	PM/PM_{10}
Paved roadways and parking lots, unpaved roadways, and unpaved areas around slag storage piles and steel scrap piles	Fugitive Dust Control Plan	PM/PM_{10}

(e) LVD Boiler

The LVD Boiler is designated as Clean Unit for NOx because it was permitted under the PSD Permit 183-15170-00030, issued on May 31, 2002. Its operation has been validated on June 5, 2003. Based on this, the Clean Unit designation for this LVD Boiler is in effect from September 9, 2004 to June 5, 2013.

Table 18- - Clean Units		
Emission Unit/Operation	Control Technology/ Work Practices	Pollutant
LVD Boiler	Low NOx Burners and Fuel Limitation	NOx

(2) Emission Units not classified as Clean Units

The following emissions units are not classified as Clean Units pursuant to 326 IAC 2-2.2 (Clean Unit) because even though they have been reviewed under the PSD program (326 IAC 2-2), they have not achieved reductions in emissions by using add-on control or implementing work practices or made an investment to install the control technology, research the application of pollution prevention technique to the emission unit, or apply a pollution prevention to the emission unit:

(a) 3 Locomotives - for all pollutants
(b) Cooling Tower - for all pollutants
(c) Reheat Furnace, Preheaters, Dryers , LVD Boiler - for all pollutants, except NOx
(d) Silos and Paved roadways and parking lots, unpaved roadways, and unpaved areas around slag storage piles and steel scrap piles - for all pollutants except PM/PM_{10}

Preventive Maintenance Plan (PMP)

Even prior to this proposed modification, SDI was subject to the preventive maintenance plan (PMP) requirements. Detailed evaluation of the applicability of the PMP requirements are shown below.

(1) Authority to Require PMPs

The authority to require a Permittee to develop, implement and maintain PMPs is under the Part 70 program. The Part 70 rules indicate the PMP provisions in:

(a) 326 IAC 2-7-4(c)(4)(9) - - this specific provision requires that the Part 70 application to confirm the existence of an on-site PMP.

(b) 326 IAC 2-7-5(13) - - this specific provision requires the Part 70 operating permit to have a provision requiring a PMP.

SDI is an existing Part 70 source, and thus by the authority specified under 326 IAC 2-7 (Part 70), SDI has to develop, implement, and maintain PMPs.

(2) Facility vs. Control Equipment

Since the State of Indiana already has an existing rule (326 IAC 1-6-3) regarding the content of PMPs, the Part 70 Operating Permit rules refer to this existing rule for the information needed to be included in the PMPs.

This existing rule (326 IAC 1-6-3) applies to any person responsible for operating a facility shall prepare and maintain a PMP including the following information:

(a) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices. [326 IAC 1-6-3(a)(1)]

(b) A description of the items or conditions that will be inspected and the inspection schedule for said items and conditions. [326 IAC 1-6-3(a)(2)]

(c) Identification and quantification of the replacement parts, which will be maintained in inventory for quick replacement. [326 IAC 1-6-3(a)(3)]

326 IAC 1-2-26 defines a Facility as any one structure, piece of equipment, installation, or operation, which emits or has the potential to emit any air contaminant.

Based on this, 326 IAC 1-6-3 applies to any person responsible for operating any one structure, piece of equipment, installation or operation, which emits or has the potential to emit any air contaminant shall prepare and maintain a PMP including the information specified in 326 IAC 1-6-3(a)(1) to (a)(3).

This PMP rule applies to a facility, and by definition, a facility does not necessarily need to have a control equipment to be required to implement a PMP. This rule did not limit the authority to any person responsible for operating a control device to prepare and maintain a PMP. This PMP rule applies to a facility, which may or may not have a control device.

If the facility required to have a PMP has a control device, then the PMP should include the information of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices. [326 IAC 1-6-3(a)(1)]

This rule did not indicate that the PMP is limited to control equipment only, rather the rule indicates that the PMP shall include this specific information for the control device. In the same manner, if the facility required to have a PMP does not have a control device, then the PMP should not include this specific information.

It has to be noted that there are at least 3 sets of information to be included in the PMP.

As the first set of information is limited to the personnel responsible for inspection, maintenance, and repair of the emission control device(s), the other 2 remaining sets of information are not limited for facilities with control devices only.

- - A description of the items or conditions that will be inspected and the inspection schedule for said items and conditions. [326 IAC 1-6-3(a)(2)]

- - Identification and quantification of the replacement parts which will be maintained in inventory for quick replacement. [326 IAC 1-6-3(a)(3)]

(3) <u>Emission Units with PMP</u>

The Permittee is required to maintain and implement PMPs for the following emission units:

(a) meltshop operations (EAFs, LMS and CC),

(b) LVD Boiler,

(c) nine (9) storage silos,

(d) slag handling and processing operations, and

(e) associated control devices.

Site Area Characteristics

SDI is located in Columbia City, Whitley County, Indiana. See Appendix B - - Air Quality Impact Analyses of this document for details

(1) Land Use Classification
Columbia City is classified as rural. This classification was based on USEPA Auer (1978) land-use typing methodology. Rural dispersion coefficients were used in the modeling analyses.

(2) Topography
The topography of the mill site is essentially flat lands.

Air modeling analysis did not consider terrain elevations.

(3) Wind Flow Pattern
The prevailing wind directions are from south to west. Measurements of surface wind flow are from the National Weather Service (NWS) station in Fort Wayne, IN. This data is considered representative of the local meteorology at the mill site (Whitley County).

(4) Air Quality Status
SDI is located in Whitley County, which is considered attainment for all criteria pollutants.

(5) Air Quality Impact on Vegetation
There will be no significant adverse impact on the vegetation around the area because the predicted concentrations of the emissions are below the national air quality standards.

(6) Air Quality Impact on Soil
No significant adverse impact on the soil around the area is anticipated, because the concentrations are below the national air quality standards.

(7) Air Quality Impact on Visibility
(a) The state of Indiana has no Class I and III areas.

(b) The closest Class I area is the Mammoth Cave National Park, Edmonson County, KY.

SDI will not adversely impact the visibility at a Class I area because SDI is not located within 200 kilometers radius of the closest Class 1 area.

(c) SDI is not subject to additional requirements impacting Class I area because it does not impact a Class I area. Additional modeling required for sources affecting Class I area is not is not required.

(8) Construction Impact
Since the proposed modification only involved a ladle dryer as new construction, emissions during the construction period are not expected to cause significant impact.

Endangered Species

The Clean Air Act (CAA) does not contain or express requirement for the applicant or the permitting agency to analyze or consider the impact of hazardous air pollutants on endangered species when applying for or making a decision on a PSD permit. The CAA only requires impacts to endangered species be considered when the US EPA modifies the HAPs list or promulgates a NESHAP. (42 USC 7412). In addition, Indiana's state rules do not require the performance of studies or analyses to determine the effect of toxic emissions from a source on federal or state-listed endangered species in the PSD permitting process. Endangered species are protected under state and federal laws, which prohibit the unlawful taking of an endangered species. IC 14-22-34 and 16 USC 701 et. seq.

The OAQ is not aware of any federally-listed endangered species within the vicinity of this source.

Based on the location of the mill and air quality analysis done, the impact of the modification would not affect habitats of endangered species. Therefore, emissions from this source will not adversely affect any federally-listed endangered species or any state-listed endangered species.

Below is a listing of endangered, threatened, or rare species in Indiana used in this review.

Table 19 - - - Endangered, Threatened or Rare Species in Indiana

Common Name	Type	County	Town Name
White Cat's Paw Pearlymussel	Mollusk	Allen	Fort Wayne, Cedarville, Woodburn, Grabill
		Kosciusko	Burket, Leesburg
Eastern Fanshell Pearlymussel	Mollusk	Wabash	Lagro, Wabash
Clubshell	Mollusk	Allen	Fort Wayne, Woodburn, Grabill, Cedarville
		Kosciusko	South Whitley, Mentone, Burket , Leesburg
		Huntington	Mount Etna
		Wabash	North Manchester
Northern Riffleshell	Mollusk	Allen	Fort Wayne, Grabill, Cedarville
		Kosciusko	Mentone, Burket , Leesburg, North Webster
Peregrine Falcon	Bird	Allen	Fort Wayne
		Kosciusko	North Webster
Indiana Bat Or Social Myotis	Mammal	Kosciusko	Warsaw
		Huntington	Mount Etna
		Wabash	Roann
Prairie White-Fringed Orchid	Plant	Noble	Merriam, Kendallville

Post Construction Ambient Monitoring

(1) Existing Ambient Monitoring Site
The existing PSD permits required that two (2) ambient monitoring sites be operated for at least 24 months from the initial operation of the mill to measure:

(a) ozone,

(b) PM_{10},

(c) wind speed,

(d) wind direction, and

(e) outdoor temperature.

This existing ambient monitoring requirement will be retained.

(2) Monitoring Period
Due to the significant increase in emissions, the monitoring period will be extended to 36 months from the initial start of the proposed modification.

Compliance Determination and Monitoring

The OAQ has evaluated the monitoring methods and options feasible for this source and recommends the following:

(1) Compliance Requirements for EAFs, LMS, and CC
There are no changes in the existing compliance requirements specified in the following permits (see table below), except the requirement to monitor the transformer power usage of the EAFs (Condition D.1.23).

Table 20 - - - Issued Approvals

Permit Number	Issuance Dates
183-10097-00030	July 7, 1999
183-12692-00030	January 10, 2001
183-15170-00030	May 31, 2002

(2) Power Usage
The requirement to monitor the power usage is not necessary because:

- - the EAFs are no longer restricted to operate only one at a time.

- - it was replaced by monitoring and reporting the actual amount of steel charged to the EAFs.

(3) Direct iron (DRI), Charge Carbon, and Injection Carbon Mixture
The existing sulfur content limitations of the direct iron (DRI), charge carbon, and injection carbon added into the EAFs are also maintained.

(a) Original mixture of sulfur content of DRI, charge carbon, and injection carbon:

Raw Material	Sulfur Content (%)
direct reduced iron (DRI)	0.20
charge carbon	0.6
injection carbon	2.5

(b) Alternative mixture of sulfur content of the charge carbon, and injection carbon used. DRI is not used when charging this alternative mixture to the EAF.

Raw Material	Sulfur Content (%)
charge carbon	2.0
injection carbon	4.0

(4) Continuous Emissions Monitoring System (CEMS)
In addition to the existing requirements to install and operate CO and VOC CEMS, a SO_2 CEMS was added to these requirements.

Due to limited applicability and sufficient information of the use of mercury CEMS for this type of operation, at this time, a continuous emission monitor for mercury was not required to be installed. Instead, SDI was required to conduct mercury compliance tests on an annual basis.

(5) Compliance Requirements for EAF dust silos, slag handling, cooling towers, roads, and parking lots
There are no changes in the compliance requirements for the following operations:
(a) EAF dust silos,
(b) slag handling,
(c) cooling towers, and
(d) roads, and parking lots.

Compliance Testing Requirements

(1) Existing Test Requirements
The existing PSD permits required the following compliance testing for the EAFs:

(a) NO_x,
(b) SO_2 ,
(c) filterable and condensible PM/PM_{10},
(d) HAPs listed under Section 112 (b) of the CAA ,
(e) Lead, utilizing EPA approved Method 12,
(f) opacity, and
(g) lead content on the EAF Baghouse dust.

(2) Pollutants Tested

On February 18 to 20, 2003, SDI conducted the following compliance tests for the EAFs:

(a) NO_x,
(b) SO_2,
(c) PM,
(d) PM_{10},
(e) Lead,
(f) Beryllium,
(g) Fluoride,
(h) Manganese,
(i) Hexane,
(j) Benzene,
(k) Toluene,
(l) Naphthalene, and
(m) Formaldehyde

(3) EAFs Non Detectable HAP Emissions

Results of the compliance tests showed that the emissions of the following were not detected:

(a) Beryllium,
(b) Hexane,
(c) Benzene,
(d) Toluene,
(e) Naphthalene, and
(f) Formaldehyde.

Since these emissions were not detected, compliance tests will not be required under this modification. The Part 70 permit for SDI will re-evaluate the frequency of this compliance testing requirement.

(4) Manganese

The EAFs test results of the Manganese emission rate is 90% of the allowable limit. Based on this, no compliance testing for manganese will be required for this modification. The Part 70 permit for SDI will re-evaluate the frequency of this compliance testing requirement.

(5) Mercury and Fluorides

The EAFs test results for Mercury and Fluorides exceeded the allowable limits specified in the original PSD permit. The average operating rate during the Mercury and Fluorides tests were less than 95% of the revised maximum capacity.

Average operating rate during Mercury tests	=	216.9 tons/hour
Average operating rate during Fluorides tests	=	205.7 tons/hour
95% of the revised maximum capacity	=	(0.95)(300 tons/hour)
	=	285 tons/hour

Based on these results and operating parameters during the compliance tests, compliance testing for Mercury and Fluorides will be required under this modification.

(6) NO_x
The NO_x tests for the EAFs were performed at an average operating rate of 167.1 tons/hour. Since this rate is less than the required 95% of the maximum capacity (285 tons/hour), compliance testing for SO_2 and NO_x will be required under this modification.

(7) SO_2
The SO_2 tests for the EAFs were performed at an average operating rate of 167.1 tons/hour. Since a SO2 CEMS will be required to monitor SO2 emissions, compliance testing for SO_2 will not be required under this modification.

(8) PM and PM_{10}
Even though the test results for PM and PM_{10} were significantly lower than the allowable emission rates, additional compliance tests for the EAFs for PM and PM_{10} will be required because of the increase in operating production rate and the use of the same add on controls.

(9) Opacity
Since the continuous opacity monitor (COM) used to verify compliance with the opacity standards have been certified, no addition compliance tests will be required for opacity.

(10) Lead and Dust Lead Content
Lead was tested at an average rate of 205.7 tons/hour and resulted at a rate of 0.0168 lbs/hour. This is equivalent to:

Lead = (0.0168 lbs/hour)/(205.7 tons/hour) = 0.0000817 lbs/ton

Since Lead is undergoing major PSD review under this modification, compliance testing will be required to verify compliance with the BACT limits for the EAFs.

There is no change in the sample and analysis requirement for the lead content of the dust in the EAF Baghouse.

Public Health and Safety

The OAQ has conducted appropriate analysis of the impacts of this proposed facility on human health. State Implementation Plan (SIP) requirements are examples of health-based standards, because the SIP requirements were proposed by the state and approved by the U.S. EPA for the purposes of maintaining the National Ambient Air Quality Standards (NAAQS). These standards are health-based standards and based on the assessment of public health risks associated with certain levels of pollution in the ambient environment. The Clean Air Act (CAA) requires each state to develop air quality plans and outlines how the standards will be met.

U.S. EPA has established ambient levels that are protective of human health. Anticipated emissions can be modeled and the resulting ambient levels compared to the federal standard. If levels are not expected to increase above U.S. EPA's ambient standard, it is appropriate to conclude that the proposed facility will not pose an increased threat to public health.

The scrap management plan (SMP) for SDI specified that any loads of scrap material with radioactive materials or radiation are not to be accepted. The OAQ is not aware that radioactive materials will be used in this process.

Noise, Odor and Zoning

The Office of Air quality (OAQ) does not have jurisdiction over noise pollution, odor, and zoning.

Environmental Justice (EJ)

Based on the 2000 US Census, there are 12.5% of Indiana residents who identified themselves as racial minority. An area is classified as High Racial Minority if it falls between 18.75% to 24.99 %. Whitley County, IN, where SDI is located at, is not showing to be under this classification.

Based on the 1990 US Census, 28% of Indiana residents lived in households that received an income less than or equal to twice the poverty level. This is classified a Low Income Household. Whitley County, IN is not showing to be under this classification.

If the source being reviewed is going to be located in an area considered to be either a High Racial Minority or Low Income Household, the OAQ attempts to published the notice for the public review in a non-English newspaper, and holds public meeting prior to the issuing a final action. Since Whitley County is neither of these classifications, the OAQ will only publish the notice in the most circulated newspaper in the area.

For more information on EJ, please refer to http://www.in.gov/idem/environmetaljustice.

Recommendation and Conclusion

(1) Based on the facts, conditions and evaluations made, the OAQ staff recommends to the IDEM's Commissioner that the PSD/SSM 183-18426-00030 be approved.

(2) The construction and operation of this proposed modification shall be subject to the conditions of the attached proposed PSD/SSM No. 183-18426-00030.

(3) Existing requirements specified in the following PSD permits have been either incorporated as originally stated, revised, or deleted by the proposed permit.

Table 21 - - - PSD Permits

Permit Number	Issuance Dates
183-10097-00030	July 7, 1999
183-12692-00030	January 10, 2001
183-15170-00030	May 31, 2002

IDEM Contact

Questions regarding this proposed permit can be directed to Iryn Calilung at the Indiana Department Environmental Management, Office of Air Quality, 100 North Senate Avenue, P.O. Box 6015, Indianapolis, Indiana 46206-6015 or by telephone at (317) 233-5692 or toll free at 1-800-451-6027 extension 3-5692 or by e-mail at icalilun@dem.state.in.us.

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/guides.

Indiana Department of Environmental Management
Office of Air Quality

Appendix A - - PSD BACT Evaluations
Prevention of Significant Deterioration (PSD) and
Part 70 Significant Source Modification (SSM)

Source Background and Description

Source Name:	Steel Dynamics, Inc. (SDI)
Source Location:	2601 County Road 700 East, Columbia City, IN 46725
Mailing Address:	2601 County Road 700 East, Columbia City, IN 46725
Responsible Official:	Vice President and General Manager
County:	Whitley
SIC Code:	3312 (Steel Mill)
NAICS Code:	331211
Source Categories:	1 of 28 Listed Source Categories Major PSD Source Minor Source under Section 112 of the CAA
Significant Source Modification:	183-18426-00030
Permit Writer:	Iryn Calilung 317/233-5692 icalilun@dem.state.in.us

PSD BACT Overview and General Discussion

The Prevention of Significant Deterioration (PSD) Program (326 IAC 2-2) requires a best available control technology (BACT) review and air quality modeling to be performed on the proposed modification. BACT is a mass emission limitation based on the maximum degree of reduction of each pollutant that is subject to the PSD requirements. BACT analysis takes into account the energy, environmental, and economic impacts on the source. These reductions may be determined through the application of available control techniques, process design, work practices, and operational limitations. Such reductions 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.

The Office of Air Quality (OAQ) makes BACT determinations by following these steps.

(1) The first step is to identify all control technologies.

(2) The second step is to eliminate technically infeasible options.

(3) The third step is to rank the remaining control technologies by effectiveness.

(4) The fourth step is to evaluate the most effective controls and document results.

(5) The last step is to select the BACT control and mass emission limit.

Once the technically feasible control technologies have been identified, they are ranked in order of control effectiveness, with the most effective control alternative on top. The ranked alternatives are reviewed in terms of environmental, energy, and economic impacts specific to the proposed modification. If the analysis determines that the evaluated alternative is not appropriate as BACT due to any of the impacts, then the next most effective is evaluated. This process is repeated until a control alternative is chosen as

BACT. The proposed BACT must provide emission limitations which are at least as stringent as the federally-approved State Implementation Plan (SIP) or the federal New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP).

In going through the feasible controls, there may be several different limits that have been set as BACT for the same control technology. The permitting agency has to choose the most stringent limit as BACT unless the applicant demonstrates in a convincing manner why that limit is not feasible. The final BACT determination would be the technology with the most stringent corresponding limit that is economically feasible.

There is no requirement in the State or Federal regulations to require innovative control to be used as BACT. Innovative control means a control that has not been demonstrated in a commercial application on similar units. Innovative controls are normally given a waiver from the BACT requirements due to the uncertainty of actual control efficiency. PSD BACT requires that the applicant installs the best available control technology, not create new ones. Based on this, the OAQ will not evaluate or require any innovative controls for this BACT analysis. Only available and proven control technologies are evaluated. A control technology is considered available when there are sufficient data indicating that the technology results to a reduction in emissions of regulated pollutants.

The following BACT determinations are based on information obtained from the PSD permit application submitted by SDI, the EPA RACT/BACT/LAER (RBLC) Clearinghouse and electronic data from other permitting agencies websites. The RBLC is a database system that provides emission limit data for industrial processes throughout the United States.

Proposed PSD Modification

Steel Dynamics, Inc. (SDI) owns and operates a mini mill that produces a variety of carbon and low alloy structural steel products. The mill is located in Whitley County, IN, which is designated as attainment or unclassifiable for all criteria pollutants.

On July 7, 1999, SDI was approved under PSD permit 183-10097-00030 to construct two (2) electric arc furnaces (EAFs). However, the permit restricted the operation of the EAFs such that only one could operate at a time at a maximum capacity of 200 tons of steel per hour. The proposed modification is to be able to operate the EAFs simultaneously at a maximum combined capacity of 300 tons of steel per hour.

On January 21, 2004, SDI submitted an application for the following:

(1) To be able to operate the two (2) electric arc furnaces (EAFs) simultaneously at an increased combined rate of 300 tons of steel per hour. Each EAF has a maximum capacity of 200 tons of steel per hour.

(2) Add a natural gas fueled ladle dryer, rated at 10 million (MM) Btu/hour. This is in addition to the existing natural gas fueled ladle dryer, also rated 10 MMBtu/hour.

(3) Include a fourth fan in the EAF Baghouse.

(4) Increase the slag production from 150 tons/hour to 250 tons/hour.

(5) Increase the total annual slag production from 262,800 tons/year to 438,000 tons/year.

(6) Revise the emission rates for Lead, Mercury, and Fluorides based on the performance stack tests conducted by SDI in February 2003. Based on the stack test results, SDI exceeded the PSD Significant thresholds for Mercury, Lead, and Fluoride. Thus, PSD major review is required for these pollutants, regardless of the other above mentioned proposals.

The initial emissions limits of Lead, Mercury, and Fluorides were specified such that the limited potential to emit of these criteria pollutants were less than the PSD significant levels.

The table below shows the comparison between the existing and proposed production rates.

Table 1	Change in Operation			
Operation	Previous Permitted Capacity		Proposed Capacity	
EAFs	200	tons/hour, each	200	tons/hour, each
	200	tons/hour, total	300	tons/hour, total
LMS	200	tons/hour	300	tons/hour
Caster	200	tons/hour	300	tons/hour
Slag Processing	150	tons/hour	250	tons/hour
	262,800	tons/year	438,000	tons/year
Ladle Dryer	10	MMBtu/hour	20	MMBtu/hour

Pollutants Subject to PSD Major Review

Based upon the emissions calculations (see Emissions Calculations and PSD Applicability Determination portions of the TSD), the proposed modification exceeds the PSD significant threshold levels stated in 326 IAC 2-2-1 for:

- PM,
- PM_{10},
- NO_x,
- CO,
- SO_2 ,
- VOC,
- Lead,
- Mercury, and
- Fluoride.

Therefore, these pollutants were reviewed under the PSD Program (326 IAC 2-2).

The following BACT determinations are based on information obtained from the PSD permit application submitted by SDI on January 21, 2004, the EPA RACT/BACT/LAER (RBLC) Clearinghouse, and electronic versions of permits available at the websites of permitting agencies. In addition, in the latter part of 2003, the OAQ issued two (2) PSD permits for steel mills located in Indiana. The two (2) recently issued PSD permits (Nucor Steel and SDI- Bar Products Division) will be referenced often during the review process.

EAF, LMS, and CC BACT Analysis

Steel Dynamics, Inc. (SDI) is proposing a change in operation by removing the operating restriction that only one (1) electric arc furnace (EAF) should operate at a time at a maximum rate of 200 tons of steel produced per hour. The batch mode EAFs utilize 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 EAFs are equipped with either natural gas fired Low NO_x burners or oxy-fuel burners. There are no roof monitors in the meltshop area. In addition to the EAFs, the ladle metallurgical station (LMS) and continuous caster (CC) exhaust to the same common EAF Baghouse and common stack. Based on this arrangement, the BACT limits applicable to the common EAF Baghouse encompasses the limits for the EAF, LMS, and continuous caster. There will be no separate BACT analysis for the LMS.

The table below summarizes the existing and proposed PSD BACT limits. Detailed evaluations are in the subsequent pages.

Table 2	EAF, LMS and CC BACT Limits	
Pollutant	Existing PSD BACT/Limit	Proposed PSD BACT/Limit
Operation	Operate only one EAF at a time	Ability to simultaneously operate the 2 EAFs
Capacity	200 tons/hour, each EAF 200 tons/hour, total limit	200 tons/hour, each EAF 300 tons/hour, total limit
NO_x	0.35 pounds/ton 70 pounds/hour Low NO_x /Oxy Fuel Burners	0.35 pounds/ton 105 pounds/hour Low NO_x /Oxy Fuel Burners
SO_2	0.25 pounds/ton* 50 pounds/hour Scrap Management Plan (SMP)	0.25 pounds/ton 75 pounds/hour Scrap Management Plan (SMP)
VOC	0.09 pounds/ton* 18 pounds/hour Direct Shell Evacuation (DSE) Scrap Management Plan (SMP) Thermal Oxidation	0.09 pounds/ton 27 pounds/hour Direct Shell Evacuation (DSE) Scrap Management Plan (SMP) Thermal Oxidation
CO	2 pounds/ton 400 pounds/hour Direct Shell Evacuation (DSE)	2 pounds/ton 600 pounds/hour Direct Shell Evacuation (DSE)
PM and PM_{10}	(Filterable only) PM = 0.0018 gr/dscf (Filterable & Condensible) PM_{10} = 0.0052 gr/dscf Baghouse	(Filterable only) PM = 0.0018 gr/dscf 14.4 pounds/hour (Filterable & Condensible) PM_{10} = 0.0052 gr/dscf 41.6 pounds/hour Baghouse

Table 2	EAF, LMS and CC BACT Limits	
Pollutant	Existing PSD BACT/Limit	Proposed PSD BACT/Limit
Lead	0.114 pounds/hour ** 0.5% lead content of baghouse dust	0.00048 pounds/ton 0.144 pounds/hour 5% lead content of baghouse dust Baghouse Scrap Management Plan (SMP)
Mercury	0.02 pounds/hour **	0.00052 pounds/ton 0.1563 pounds/hour Baghouse Scrap Management Plan (SMP)
Fluorides	0.68 pounds/hour **	0.00697 pounds/ton 2.091 pounds/hour Baghouse Scrap Management Plan (SMP)
Opacity	3% from the EAF Baghouse stack There is no Meltshop roof monitor	3% from the EAF Baghouse stack There is no Meltshop roof monitor
Fugitive	3% Roof canopies	3% Roof canopies

* The existing PSD permit specifies the limits in terms of pounds/hour only.
The lbs/ton are derived from the following equation:
Limit = (BACT limit lbs/hour)/(200 tons/hour) = lbs/ton

** These rates were specified to assure that the mill is a minor source for HAPs emissions.

Summary of Existing EAF PSD BACT Limits

The table below summarizes the existing BACT limits for EAFs that are listed in the EPA RACT/BACT/LAER (RBLC) Clearinghouse database and other resources, such as hard copies of existing permits and the permitting agencies websites.

Sources are listed in alphabetical order.

Table 3	EAF BACT Limits					
Source Name	NO_x (lbs/ton)	SO_2 (lbs/ton)	VOC (lbs/ton)	CO (lbs/ton)	PM/PM_{10} (gr/dscf)	Lead (lbs/hour)
Alton Steel, IL	0.5	0.7	0.15	2.0	- -	0.0034 lbs/ton
Ameristeel, FL	0.33	- -	*0.0295*	3.0	0.0034	0.7
Ameristeel, NC	6.0	- -	- -	6.0	- -	- -
Arkansas Steel, AR	1.0	0.7	0.35	6.0	0.0052	0.4
Beta Steel, IN	0.22 0.45	*0.047* 0.25	0.13 0.15	8.17	0.0052	- -
Birmingham Steel (Nucor Steel), IL	0.26	- -	- -	2.01	- -	- -
Calumet Steel, IL	*0.2*	0.07	0.35	- -	- -	- -
Chaparral Steel, TX	0.7	0.7	0.35	4.0	0.0018	0.023 0.045 0.077 0.34
Charter Steel, WI	0.51	- -	*0.06*	3.5	*0.0015*	0.008
Gallatin Steel, KY	0.51	0.49	0.13	2.0	0.0018	0.162
IPSCO, IA	0.27 0.8	0.06 0.7	0.18	*0.91* 1.93	0.0052	0.09 0.11 0.13 0.38
IPSCO, AL	0.4	0.7	0.35	2.0	0.0033	- -
Kentucky Steel, KY	- -	- -	- -	- -	0.0052	0.486
Keystone Steel, IL	0.65 0.51	0.2	0.13	1.34	0.0018	0.005 lbs/ton
Mac Steel, AR	0.51	0.54 1.05	0.13	4.9	0.0018	0.3
Mac Steel, MI	0.55	0.35	0.30	6.5	0.0052	0.44
North Star Steel, MI	0.25	0.09	0.22	2.40	0.0024	0.38
Nucor Steel, AL	0.35 0.4 0.5	0.09 0.5 0.6	0.20	2.0	0.0032	- -
Nucor Steel, AR	0.51	0.2 0.84	0.09	- -	0.0018	0.66
Nucor Steel, IN	0.35	0.25	0.09	2.0	0.0018 0.0052	0.134 0.136
Nucor Steel, SC	0.35	0.2 0.35	0.13	2.0 2.76	0.0052	0.184 1.7
Nucor Steel, UT	0.33 0.73	0.31	- -	5.87 14.97	0.0020 0.0033	- -

Table 3	EAF BACT Limits					
Source Name	NO_x (lbs/ton)	SO_2 (lbs/ton)	VOC (lbs/ton)	CO (lbs/ton)	PM/PM_{10} (gr/dscf)	Lead (lbs/hour)
Nucor Steel, NC	0.27 0.51	0.22	0.13	1.82 4.0	0.0018	- -
Nucor-Yamato, AR	0.38	0.15	0.13	2.0	0.0018	0.6
Qualitech, IN	0.5	0.25 0.52 1.04	0.15	4.7	0.0032	0.07
Republic Technologies, OH	0.35	0.07	0.35	4.0	0.0032	- -
Roanoke Steel, VA	0.378	0.17	0.3	1.37 2.4	0.0034	0.3 0.84
SDI, Dekalb, IN	0.51	0.2	0.13	2.0	0.0032	- -
SDI, Hendricks, IN	0.35	0.25 1.5 1.8	0.09	2.0	0.0018 0.0052	0.134
SDI, Whitley, IN	0.35	0.25	0.09	2.0	0.0018 0.0052	0.114
SMI Steel, SC	0.51	0.35	- -	2.0	0.0020	- -
Stafford Steel, AR	0.52	0.07	0.09	2.0	0.0018	- -
Sterling Steel, IL	0.9 0.73	0.7 0.65	0.35 0.34	7.4 4.7	- -	0.005 lbs/ton
Timken Faircrest, OH	*0.2*	0.15	0.1	4.8	0.0032	0.26
Tuscaloosa Steel, AL	0.35	0.62	0.13	2.0	0.00325	- -

Based on this summary table, the most stringent levels of BACT limits for EAF are:

NO_x = 0.2 lbs/ton
SO_2 = 0.047 lbs/ton
PM/PM_{10} = 0.0018 gr/dscf
VOC = 0.0295 lbs/ton
CO = 0.91 lbs/ton

However, BACT analyses take into account several factors in evaluating and deciding what should be the BACT limits. Some of these factors to consider, in no particular order, are: attainment status of the source location, energy impacts, environmental impacts, economic impacts, issuance date of the permit, compliance with the BACT limits, design of the operation, pollution control technologies, pending revisions of existing BACT limits, products produced, raw materials used, construction or operation status of the source, public interests and participation, and economic climate.

Based on these contributing factors, further research, communication, and documentation are required in performing BACT review.

In the next pages, BACT analysis for each pollutant is explained.

NO_x Control Technology Technical Feasibility Study - - EAF

The following control alternatives were evaluated to control NO_x from the EAFs:

(1) Combustion Controls - - technically feasible

There is an entire family of combustion controls for NO_x reduction from various combustion units:
- - low excess air (LEA),
- - low-NO_x burners
- - oxy-fuel burners,
- - overfire air (OFA),
- - burners out of service (BOOS),
- - reduced combustion air temperature,
- - load reduction, and
- - flue gas re-circulation (FGR).

Among these, low-NO_x/oxyfuel burners are considered technically feasible for controlling NO_x emissions from EAFs. LEA and OFA generally create more CO emissions due to low primary air resulting to incomplete combustion. Such conditions can result in inefficient scrap melting and unacceptable increases in tap-to-tap time. NO_x reductions using these technologies are also very minimal (i.e., 10% - 20%). BOOS, reduced combustion air temperature, and load reduction all result in an inefficient scrap melting and unacceptable increases in tap-to-tap time. FGR alters the distribution heat, resulting in cold spots, and lowers the efficiency of the EAF.

(2) Selective Catalytic Reduction (SCR) - - not technically feasible

SCR is a technology that uses a catalyst and ammonia injection to promote the removal of NO_x at certain exhaust stream parameters such as inlet NO_x concentration, volumetric flow, and temperature range. SCR operates best when inlet NO_x concentrations and exhaust temperatures are constant and in the range specified for the particular catalyst. Other parameter that can affect the performance of the catalyst is poisoning due to certain metals or chemicals in the exhaust stream and fouling or masking due to particulate matter plugging or covering the catalyst. In selective catalytic reduction (SCR) systems, ammonia, usually diluted with air or steam, is injected through a grid system into the exhaust gas stream upstream of a catalyst bed. On the catalyst surface, the ammonia reacts with NO_x to form molecular nitrogen and water. The function of the catalyst is to effectively lower the activation energy of the NO_x decomposition reactions.

In order for a SCR system to effectively reduce NO_x emissions, the exhaust gas stream should have relatively stable gas flow rates, NO_x concentrations, and temperature - steady-state system. The EAF operation is a highly transient process and is a batch operation. The temperature of the EAF exhaust gas will vary widely over the melt cycle, and the gas flow rates and NO_x concentrations will exhibit wide amplitude.

SCR systems are highly susceptible to catalyst poisoning due to contamination of the catalyst by reactive materials entrained in the EAF gas stream. Other problems with catalysts are their propensities to fouling and masking. Fouling occurs when the catalyst's cell openings are plugged with a solid material. Masking occurs when the catalyst surfaces are covered with residues, which prevent their contact with the flue gas. The problems with catalyst poisoning, fouling, and masking would, at a minimum, require the placement of the SCR unit downstream of the particulate control device (baghouse). SCR catalysts require high gas stream temperatures (500 to 1,100 ^{o}F), thus the gas stream would have to be reheated from approximately 200 ^{o}F to the proper operating

temperature for the catalyst. This would require substantial energy expenditure (natural gas combustion) and result in additional NO_x emissions, not to mention CO emissions. SCR catalyst suppliers and manufacturers that were contacted confirm the above problems. Therefore, SCR is considered technically infeasible.

The OAQ is not aware of any situation where a SCR system has been properly operated to control NO_x emissions from an EAF.

(3) Non-Selective Catalytic Reduction (NSCR) - - not technically feasible

A non-selective catalytic reduction (NSCR) system is a post combustion add-on exhaust gas treatment system. It is often referred to as three-way conversion catalyst since it reduces NO_x, unburdened hydrocarbons (UBH), and CO simultaneously. In order to operate properly, the combustion process must be near-stoichiometric. Under this condition, in the presence of a catalyst, NO_x is reduced by CO, resulting in nitrogen and carbon dioxide. Steel making in an EAF is not considered a combustion process. Although combustion of CO and hydrocarbons occurs in the EAF and DEC ductwork, the process is not steady state with respect to available fuel (CO) and hydrocarbons and combustion air. Steady-state near-stoichiometric combustion conditions do not exist in the DEC ductwork. Other potential problems with NSCR systems include catalyst poisoning by additives such as phosphorous and zinc which may be present in the steel scrap charge into the EAF. Therefore, NSCR is considered technically infeasible.

The OAQ is not aware of a steel mill where an NSCR system has been operated to control NO_x emissions from an EAF.

(4) Selective Non-Catalytic Reduction (SNCR) options – Exxon's Thermal $DeNO_x$® and Nalco Fuel Tech's NO_xOUT® - - not technically feasible

The two (2) commercially available selective non-catalytic reduction (SNCR) systems are:
- - *Exxon's Thermal $DeNO_x$® system* and
- - *Nalco Fuel Tech's NO_xOUT® system*.

In order for the Thermal $DeNO_x$® system and NO_xOUT® system to effectively reduce NO_x emissions, the exhaust gas stream should have relatively stable gas flow rates, ensuring the requisite residence time and temperature requirements. The temperature of the EAF exhaust gas varies widely over the melt cycle, and does not remain in the desired temperature window during all phases of the EAF operation. Similarly, the gas flow rates do not remain stable during the EAF operation, precluding the possibility of adequate residence time. Therefore, these SNCR technologies are considered technically infeasible.

The OAQ is not aware of a steel mill where either type of SNCR system has been properly operated to control NO_x emissions from an EAF.

NO_x Existing BACT Emission Limitations - - EAFs

The EPA RACT/BACT/LAER (RBLC) Clearinghouse indicates that all steel mills listed do not have add-on control devices to control NO_x emissions from EAFs. Instead, either low-NO_x burners, oxyfuel burners, or a combination of low-NO_x and oxyfuel burners has been required as combustion controls. The RBLC also indicates a wide range of NO_x emission limitations (0.2 lbs/ton - 1.0 lbs/ton). It has to be noted that in this review, LMS is interchangeably used with ladle metallurgical furnace (LMF).

The table below lists the NO_x BACT limits of EAFs. Limits are arranged in an ascending order.

Table 4		EAF NO_x BACT Limits of Other Similar Sources			
Source Name		NO_x Limit (lbs/ton)	Source Name		NO_x Limit (lbs/ton)
Calumet Steel, IL	(1996)	0.2	Beta Steel, IN	(2003)	0.45
Timken Faircrest, OH	(2003)	0.2	Alton Steel, IL		0.5
Beta Steel, IN	(1992)	0.22	Nucor (Trico Steel), AL	(2002)	0.50
North Star Steel, MI	(1994)	0.25	Qualitech, IN	(1996)	0.50
Birmingham Steel (Nucor), IL	(1993)	0.26	Charter Steel, WI	(2000)	0.51
IPSCO, IA	(1996)	0.27	Keystone Steel, IL	(2000)	0.51
Nucor Steel, NC	(2002)	0.27	SDI, Dekalb, IN	(1994)	0.51
Ameristeel (Florida Steel), FL	(1999)	0.33	SMI Steel, SC	(2001)	0.51
Nucor Steel, UT	(1994)	0.33	Mac Steel, AR	(1998)	0.51
Beta Steel	(2003)	0.35	Nucor Steel, AR	(1991)	0.51
Tuscaloosa Steel, AL	(1995)	0.35	Nucor Steel, NC	(1999)	0.51
Republic Technologies, OH	(1999)	0.35	Nucor Steel, IN	(1996)	0.51
Nucor Steel, SC	(1996)	0.35	Gallatin Steel, KY	(1998)	0.51
SDI, Whitley, IN	(1999)	0.35	Stafford Railsteel, AR	(1993)	0.52
Nucor (Trico Steel), AL	(2002)	0.35	Mac Steel, IL	(1998)	0.55
SDI, Hendricks, IN	(2003)	0.35	Chaparral Steel, TX	(1998)	0.70
Nucor Steel, IN	(2003)	0.35	Sterling Steel, IL	(2000)	0.73
SDI, Whitley, IN	*(proposed)*	0.35	Nucor Steel, UT	(1997)	0.73
Roanoke Electric, VA	(1998)	0.378	IPSCO, IA	(2002)	0.80
Nucor Yamato, AR	(2001)	0.38	Sterling Steel, IL	(2000)	0.9
Nucor (Trico Steel), AL	(2002)	0.40	Arkansas Steel, AR	(1998)	1.0
IPSCO Steel, AL	(1998)	0.40			

The following details are additional information and explanation on each source used for the BACT determination.

(1) <u>NOx = 0.2 lbs/ton</u>

(a) The emission limitations for Calumet Steel, IL are not available in the EPA RACT/BACT/LAER (RBLC) Clearinghouse. This emission rate was specified in the Title V permit issued for the plant. The Title V permit indicated that the NOx emission rate was based on a test performed by JACA Corporation, 1986. The NO_x BACT limit for Calumet Steel, IL encompasses the emissions from the EAF only, thus it is not an accurate comparison that this limit and the proposed SDI limits are compared. Based on this, the NOx emission rate (0.2 lbs/ton) will not be considered as BACT.

(b) The emissions limitations for Timken Faircrest, OH were not available in the EPA

RACT/BACT/LAER (RBLC) Clearinghouse until 2003. The permit was for an increase in production of the electric arc furnace (EAF). The EAF was permitted at 200 tons of steel per hour and allowed to emit 43.8 pounds of NOx per hour.

Based on this information, the NOx emission rate should be 0.219 lbs/ton, which is different from the NOx limit (0.2 lbs/ton) specified in the RBLC.
NOx = (43.8 lbs/hour)/200 tons/hour = 0.219 lbs/ton

(2) NOx = 0.22 lbs/ton
Beta Steel, IN is listed twice in the above table.

Beta Steel, IN was permitted the most stringent limit of 0.22 lbs/ton. The limit was given at that time based on an AP-42 emission factor with an "E rating (lowest rating of accuracy). A recently issued permit revises the NO_x limit to 0.35 lbs/ton for the EAF, and 0.45 lbs/ton to the combination of EAF, LMF, and Caster.

The BACT limit (0.22 lbs/ton) will not be use in the evaluation because it has been revised.

The BACT limit (0.45 lbs/ton) will not be use in the evaluation because it is less stringent than what has been proposed by SDI.

(3) NOx = 0.25 lbs/ton
The NO_x BACT limit for North Star Steel, MI encompasses the emissions from the EAF only, thus it is not an accurate comparison if this limit and the proposed SDI limits are compared.

Due to differences in meltshop operations and arrangements and steel products produced, this NO_x BACT limit (0.25 lbs/ton) will not be consider as BACT for this evaluation.

(4) NOx = 0.26 lbs/ton
Birmingham Steel, Kankakee, IL plant (now Nucor Steel), IL was bought by Nucor Steel in 2002 and is still in operation, producing billets. This NO_x limit is one of the earliest BACT limits established (1993), however, it was not entered in the EPA RACT/BACT/LAER (RBLC) Clearinghouse until 1998. The Title V permit issued in July 2002 also indicated the NO_x limit in terms of lbs/hour rate, in addition to the lbs/ton rate. No compliance testing or monitoring was required for the NO_x limit. The NO_x BACT limit encompasses the emissions from the EAF only. Birmingham Steel, IL does not have an LMS,

Due to differences in meltshop operations and arrangements and steel products produced, this NO_x BACT limit (0.26 lbs/ton) will not be consider as BACT for this evaluation.

It is also not an accurate comparison if this EAF only NO_x BACT limit is combined with LMF only NO_x BACT limits of other sources due to differences in operations and production.

(5) NOx = 0.27 lbs/ton
(a) IPSCO, IA is listed twice in the table above.

The 0.27 lbs/ton NO_x limit was specified in 1996, however, IPSCO cannot comply with it. In July, 2002, the NO_x limit was revised to 0.8 lbs/ton. This new limit was not considered as BACT because the IOWA DNR admits that they did not have the time to extensively perform a BACT analysis, and US EPA has provided significant comments to the proposed limit. The permit was issued even with the significant comments. IOWA is SIP approved in terms of PSD program.

Based on this information, both the old (0.27 lbs/ton) and new (0.8 lbs/ton) NO_x limits will not be use in this BACT evaluation.

(b) Nucor Steel, NC is listed twice in the above table.

Nucor Steel, NC (the only steel mill in this area) was initially permitted at 0.51 lbs/ton NO_x in 1999. The permit has a provision that provides an opportunity to re-open the BACT review based on testing data that the existing limit can be revised. The NO_x limit was changed to 0.27 lbs/ton in December, 2002.

Nucor Steel, NC manufactures plate steel/slabs, while SDI, Whitley, IN ,manufactures structural steel. Due to difference in steel products, and one of the 2 sources with this limit has shown non-compliance, the NO_x limit (0.27 lbs/ton) will not be use in this evaluation.

(6) NOx = 0.33 lbs/ton

(a) Ameristeel, FL was formerly the Florida Steel. This mill produced steel reinforcing bars and steel rods. A permit was issued in 1999, but the information was not put in the EPA RACT/BACT/LAER (RBLC) Clearinghouse until 2001. This permit is to increase the steel production from 600,000 tons/year to 720,000 tons/year and to install a new LMF. The NO_x limit was not revised with this modification. The NO_x limit (0.33 lbs/ton) was established when the mill did not have a LMF in its operations. NO_x compliance testing was required in the Title V permit issued in 2000, however, a NO_x CEM was not.

The NO_x BACT limit (0.33 lbs/ton) is for the EAF only and does not take into account the emissions from an LMF, an accurate comparison of the BACT limits is not being made, and thus this limit will not be use in this evaluation.

If the LMF emissions (found in the RBLC) are taken into account and added to the EAF emissions rate of 0.33 lbs/ton, majority of the total emission rates are comparable to the proposed NO_x limit (0.35 lbs/ton) of SDI, Whitley, IN, that encompasses both the EAF and LMF emissions, as shown below.

Table 5	LMF Only NO_x BACT Limits of Other Similar Sources		
Source	LMF NO_x Limit (lbs/ton)	Ameristeel, FL EAF NO_x Limit (lbs/ton)	EAF and LMF Limit (lbs/ton)
Nucor Steel, IN	0.0176	add 0.33	0.3476
Nucor Steel (Trico), AL	0.02		0.35
Nucor-Yamato, AR	0.02		0.35
SDI, Dekalb, IN	0.025		0.355
Roanoke Steel, VA	0.06		0.39

(b) Nucor Steel, UT is listed twice in the above table.

The permit for Nucor Steel, UT was issued in 1994, but the information was not put in the EPA RACT/BACT/LAER (RBLC) Clearinghouse until 2001. The permit limits the steel production to 1.4 million ton/year of scrap fed to the source's 2 EAFs. The NO_x BACT limit was specified in lbs/hour rate. The NO_x BACT limit (0.33 lbs/ton) indicated in the above table was determined based on the maximum capacity of each EAF at 65 ton/hour. No additional information can be found to supplement this information found in the EPA RACT/BACT/LAER (RBLC) Clearinghouse.

The RBLC is also showing another permit issued in 1997 for Nucor Steel, UT. The NO_x

BACT limit was specified in lbs/hour rate. The NO_x BACT limit (0.73 lbs/ton) indicated in the above table was determined based on the maximum capacity of each EAF at 65 ton/hour. No additional information can be found to supplement this information found in the RBLC.

The NO_x BACT limits (0.33 lbs/ton and 0.73 lbs/ton) will not be used in the evaluation because the limits are in terms of lbs/hour and the source is not required to comply with the lbs/ton rates.

(7) NOx = 0.35 lbs/ton

(a) There are 8 sources with NO_x limits of 0.35 lbs/ton.

(b) The NO_x (0.35 lbs/ton) limit for Tuscaloosa Steel, AL has not been revised. Tuscaloosa Steel, AL is showing in the EPA RACT/BACT/LAER (RBLC) Clearinghouse to be in compliance with their 0.35 lbs/ton NO_x BACT limit by using conventional burners. The state of Alabama is SIP approved for the PSD program.

Since compliance has been verified with the NO_x BACT limit of 0.35 lbs/ton, this limit will be considered as BACT.

(c) The EAF No. 9 of Republic Technologies, OH has a maximum capacity of 165 ton/hour. The NO_x limit was specified in both terms of lbs/ton (primary limit) and lbs/hour (secondary limit). However, if calculation is made, the emission rates do not coincide.

NO_x = (0.35 lbs/ton)(165 tons/hr) = 57.75 lbs/hr.

RBLC indicates the NO_x limit to be 33 lbs/hr and to arrive to this lbs/hr rate, the NO_x limit should have been 0.2 lbs/ton.

NO_x = (33 lbs/hour)/(165 tons/hour) = 0.2 lbs/ton.

No additional information can be found to supplement this information found in the RBLC.

The NO_x rate (0.2 lbs/ton) will not be consider in this BACT evaluation because it is inconsistent with the lbs/hour emission rate.

(d) The NO_x BACT limit for Nucor Steel, SC was set at 0.35 lbs/ton and uses low NO_x burners. The NO_x limit encompasses the EAF and LMF because both of them exhaust to the EAF baghouse. Nucor Steel, SC is showing in the RBLC to be in compliance with their 0.35 lbs/ton NOx BACT NO_x limit and this was confirmed by the South Carolina Department of Health and Environment.

Since compliance has been verified with the NO_x BACT limit of 0.35 lbs/ton, this limit will be considered as BACT.

(e) SDI, Whitley, IN was provided a limit of 0.51 lbs/ton for a transition period of 540 days, and then the limit becomes 0.35 lbs/ton. This mill was tested in February, 2003 for compliance. Based on preliminary review of the test results, SDI, Whitley, IN complied at 0.17 lbs/ton. The NO_x limit encompasses the emissions from the EAF, LMS, and CC.

Since compliance has been verified with the NO_x BACT limit of 0.35 lbs/ton, this limit will be considered as BACT.

SDI is proposing to maintain the same NOx BACT limit for the increased production.

(f) Nucor Steel, AL (formerly Trico Steel) is listed 3 times in the above table.

Nucor Steel, AL (formerly Trico Steel) was initially permitted at 0.35 lbs/ton of NO_x. The NO_x limit was changed in November, 2002. Nucor Steel, AL was given a limit of 0.4 lbs/ton when the production is equal to or greater than 352 tons/hr and 0.5 lbs/ton when the production is less than 352 tons/hour. The state of Alabama is SIP approved for the PSD program.

These BACT limits (0.4 lbs/ton and 0.5 lbs/ton) will not be considered because they are less stringent.

(g) A PSD permit was issued to SDI, Hendricks, IN (formerly, Qualitech, IN)on August 29, 2003. NOx BACT limit was determined to be 0.35 lbs/ton. This superseded the NOx BACT limit formerly specified for Qualitech IN.

(h) Nucor Steel, IN is listed twice in the above table.

A PSD permit was issued to Nucor Steel, IN on November 21, 2003. The NOx BACT limit has been revised from 0.51 lbs/ton to 0.35 lbs/ton.

This BACT limit (0.51 lbs/ton) will not be consider because it is less stringent and has been revised to the same NOx limit that SDI is proposing to maintain.

(8) <u>NOx = 0.378 lbs/ton to 1.1 lbs/ton</u>
NOx BACT limits ranging from 0.378 lbs/ton to 1.10 lbs/ton will not be considered because they are less stringent than the proposed BACT limit.

Proposed NO_x BACT for EAFs - - SDI, Whitley, IN

Based on the information provided above, the NO_x BACT standards and mass emissions limitations for the EAFs are as follows:

(1) Add-on control devices are not technically feasible in controlling NO_x emissions from EAFs.

(2) The NO_x BACT mass emission limit for the EAFs is 0.35 pounds per ton of steel produced, which is equivalent to 105 pounds of NOx per hour, based on a 3-hour block average.

NOx limit = (0.35 lbs/ton)*(300 tons/hour) = 105 pounds/hour

This is the same NO_x emission rate for the EAFs prior to the increase in production. This NOx limit is also comparable to existing NO_x limits of the same meltshop arrangement (EAF, LMS, and CC exhausting to a common baghouse/stack).

(3) The EAFs shall be equipped with natural gas fueled Low NOx/oxy fuel burners.

SO_2 Control Technology Technical Feasibility Study - - EAF

The following control alternatives were evaluated to control SO_2 from the EAFs:

(1) Charge substitution - - not technically feasible

Sulfur dioxide (SO_2) emissions are directly related to the amount of sulfur being charged to the EAF. Scrap, direct reduced Iron (DRI), pig iron, injection carbon, charge carbon, and pet coke all have varying amounts of sulfur that will end up in the steel, slag or exhaust air. Sulfur content can vary from 0.2 % for DRI, 2.5 % (injection carbon) to 3% (pet coke). The sulfur that enters the exhaust stream may be oxidized to SO_2 when contacted with extreme heat and oxygen present in the ambient air. The amount of SO_2 present in the exhaust air will not be great enough to allow for any control technology to remove. One other factor that affects the SO_2 emissions is the sulfur content of the metal being charged to the furnace. Scrap metal inherently has low sulfur content (0.03-0.07% sulfur).

Charge substitution with lower sulfur-bearing raw materials is considered technically infeasible. Therefore, requiring scrap with lower sulfur content is not a probable solution and the OAQ is not aware of any other means to assure low sulfur content in the scrap besides a scrap management plan. The scrap management plan required is consistent with the best scrap management plans at other PSD sources.

(2) Flue Gas Desulfurization (FGD) options - - not technically feasible

FGD options - wet scrubbing, spray dryer absorption (SDA), and dry sorbent injection.
FGD systems currently in use for SO_2 abatement can be classified as wet and dry systems. FGD options have been applied to utility boilers and other steel mill blast furnaces.

(a) Wet scrubbers are regenerative processes, which are designed to maximize contact between the exhaust gas and the absorbing liquid. The exhaust gas is scrubbed with a 5% - 15% slurry, comprised of lime or limestone in suspension. The SO_2 in the exhaust gas reacts with the lime or limestone to form calcium sulfite and calcium sulfate. The scrubbing liquor is continuously recycled to the scrubbing tower after fresh lime or limestone has been added.

The types of scrubbers, which can adequately disperse the scrubbing liquid, include packed towers, plat or tray towers, spray chambers, and venturi scrubbers. In addition to lime and limestone, numerous other absorbents are available including sodium solutions and ammonia-based solutions.

The main technical problem associated with the operation of wet scrubbers is the presence of high particulate loading in the EAF exhaust gas. Particulates are not acceptable in the operation of wet scrubbers because they would plug spray nozzles, packing, plates, and trays. However, locating the wet scrubber downstream of the EAF particulate control device would make operation of the wet scrubber technically feasible. However, due to the expected low concentration of SO_2 in the exhaust gas stream, <u>any</u> add-on control device would be considered technically infeasible and economically infeasible.

The OAQ is not aware of a steel mill where a wet scrubber has been operated to control SO_2 emissions from an EAF.

(b) As in wet scrubbing, spray dryer absorption (SDA), also known as dry scrubbing, the gas phase SO_2 is removed by intimate contact with a suitable absorbing solution. Typically, this may be a solution of sodium carbonate or slaked lime. In SDA systems, the solution is pumped to rotary atomizers, which create a spray of very fine droplets. The droplets mix with incoming SO_2-laden exhaust gas in a very large chamber and subsequent absorption leads to the formation of sulfites and sulfates within the droplets. Almost simultaneously, the sensible heat of the 200 ^oF exhaust gas, which enters the chamber, evaporates the water in the droplets, forming a dry powder before the gas leaves the spray dryer.

Unlike wet scrubbing, the presence of high particulate loading in the EAF exhaust gas is not much of a problem. Hence, it can be operated prior to a particulate control device, especially baghouses employing teflon-coated fiberglass bags to minimize bag corrosion. This arrangement would also make the particulate control device capture the precipitated particulates from the spray dryer. Like wet scrubbing, due to the expected low concentration of SO_2 in the exhaust gas stream, any add-on control device would be considered technically infeasible and economically infeasible.

The OAQ is not aware of a steel mill where a spray dryer absorption unit has been operated to control SO_2 emissions from an EAF.

(c) Dry sorbent injection typically involves the injection of dry powders into either the furnace or post-furnace region of utility-sized boilers. This process was developed as a lower cost option to conventional FGD technology. Since the sorbent is injected directly into the exhaust gas stream, the mixing offered by the dry scrubber tower is not realized. Unlike wet scrubbing, the presence of high particulate loading in the EAF exhaust gas is not much of a problem. Like wet scrubbing, due to the expected low concentration of SO_2 in the exhaust gas stream, any add-on control device would be considered technically infeasible and economically infeasible.

The OAQ is not aware of a steel mill where dry sorbent injection has been operated to control SO_2 emissions from an EAF.

Adsorption and absorption control technologies have not been designed to control exhaust gas stream from an EAF with concentrations of 5 ppm and below because:

(a) The only control technologies proven to remove SO_2 emissions from industrial processes with exhaust gas streams similar to an EAF were wet/dry scrubbers using lime, limestone, or alkali metal scrubbing agents and lime spray dryers. This is supported by every BACT determination that the IDEM, OAQ has seen from other states.

(b) Although several different absorption and adsorption processes exist which may use different chemical reactions for removal, they all must have the same basic operating properties, which are sufficient contact between the SO_2 and scrubbing agent, sufficient residence time, and the necessary equilibrium in the exhaust.

(c) For an exhaust with a concentration of 5 ppm or less and 1.3 million cubic feet per minute exhaust, an unreasonable amount of reagent would be necessary to provide sufficient contact between the SO_2 and reagent, and even if absorbed or adsorbed in the tower, almost certainly the proper equilibrium would not exist to maintain the reduction.

SO_2 Existing BACT Emission Limitations - - EAF

The table below lists the SO_2 BACT limits of similar sources. Limits are arranged in an ascending order.

The EPA RACT/BACT/LAER (RBLC) Clearinghouse indicates that all steel mills listed do not have add-on control devices to control SO_2 emissions from EAFs. The RBLC indicates a wide range of SO_2 limits from 0.047 to 1.8 lbs/ton.

Table 6 EAF SO_2 BACT Limits of Other Similar Sources

Source Name		SO_2 Limit (lbs/ton)	Source Name		SO_2 Limit (lbs/ton)
Beta Steel, IN	(1992)	0.047	Beta Steel, IN	(2003)	0.33
IPSCO, IA	(1996)	0.06	Mac Steel, MI	(1998)	0.35
Republic Technologies, OH	(1999)	0.07	SMI Steel, SC	(2001)	0.35
Stafford Railsteel, AR	(1993)	0.07	Nucor Steel, SC	(1996)	0.35
Calumet Steel, IL	(1996)	0.07	Gallatin Steel, KY	(1998)	0.49
Roanoke Electric Steel, VA	(1998)	0.075	Nucor (Trico Steel), AL	(2002)	0.50
Nucor (Trico Steel), AL	(1996)	0.09	Qualitech, IN	(1996)	0.52
North Star Steel, MI	(1994)	0.09	Mac Steel, AR	(1993)	0.54
Nucor, Yamato Steel, AR	(2001)	0.15	Nucor (Trico Steel) AL	(2002)	0.60
Timken Faircrest, OH	(2003)	0.15	Tuscaloosa Steel, AL	(2003)	0.62
Nucor Steel, AR	(1992)	0.20	Sterling Steel, IL	(2000)	0.65
Nucor Steel, SC	(1995)	0.20	Chaparral Steel, TX	(1998)	0.70
Keystone Steel, IL	(2000)	0.20	IPSCO, IA	(2002)	0.70
Nucor Steel, IN	(1996)	0.20	IPSCO Steel, AL	(1998)	0.70
SDI, Dekalb, IN	(1997)	0.20	Arkansas Steel, AR	(1998)	0.70
Nucor Steel, NC	(2002)	0.22	Alton Steel, IL		0.7
SDI, Whitley, IN	(1999)	0.25	Sterling Steel, IL	(2000)	0.7
SDI, Hendricks, IN	(2003)	0.25	Nucor Steel, AR	(1991)	0.84
Beta Steel, IN	(2003)	0.25	Qualitech, IN	(1996)	1.04
Qualitech, IN	(1996)	0.25	Mac Steel, AR	(1998)	1.05
Nucor Steel, IN	(2003)	0.25	SDI, Hendricks, IN	(2003)	1.5
SDI, Whitley, IN	*(proposed)*	0.25	SDI, Hendricks, IN	(2003)	1.8
Nucor Steel, UT	(1997)	0.31			

The following details are additional information and explanation for each source used for the BACT determination.

(1) <u>SO_2 = 0.047 lbs/ton</u>

Beta Steel, IN is listed 3 times in the table above. Beta Steel, IN was initially permitted at 0.047 lbs/ton SO_2. A recently issued permit revises SO_2 limit from 0.047 lbs/ton to 0.25 lbs/ton for the EAF. Since the EAF exhausts in a common baghouse together with the LMF and Caster, the SO_2 limit for the combination is set at 0.33 lbs/ton.

The SO_2 limit (0.047 lbs/ton) will not be relied upon in this BACT evaluation, because it has been revised.

The revised SO_2 limit (0.25 lbs/ton) is the same limit as the proposed BACT limit for SDI, IN.

The SO_2 limit (0.33 lbs/ton) will not be considered in this evaluation because it is less stringent that the proposed limit by SDI, IN.

(2) SO_2 = 0.06 lbs/ton

IPSCO, IA is listed twice in the table above. The 0.06 lbs/ton SO_2 limit of IPSCO, IA was specified in 1996, however, IPSCO cannot comply with it. In July, 2002, the SO_2 limit was revised to 0.7 lbs/ton. This new limit was not considered as BACT, even though it is already lower than the test result (0.85 lbs/ton), because the IOWA DNR admitted that they did not have time to extensively perform a BACT analysis, and US EPA has provided significant comments on the limit. The permit was issued even with the comments. IOWA is SIP approved in terms of PSD program.

Since the old SO_2 limit (0.06 lbs/ton) is not being complied with and the new SO_2 limit (0.7 lbs/ton) is not considered as BACT, both limits will not be considered in this BACT evaluation.

(3) SO_2 = 0.07 lbs/ton

(a) The SO_2 limit for the EAF No. 7 of Republic Technologies, OH was specified in terms of lbs/hour. The SO_2 limit (0.07 lbs/ton) indicated in the above table was converted based on the maximum capacity of the EAF at 85 tons/hour. The lbs/ton rate was not listed in the EPA RACT/BACT/LAER (RBLC) Clearinghouse.

Since the limit is specified in lbs/hour rate, the equivalent rate in lbs/ton (0.07 lbs/ton) will not be used in this evaluation.

(b) Previous PSD reviews indicated that the Stafford Steel, AR was never built. Based on this, compliance has not been established.

This BACT limit (0.07 lbs/ton) will not be considered in this BACT evaluation.

(c) The emission limitations for Calumet Steel, IL are not available in the EPA RACT/BACT/LAER (RBLC) Clearinghouse. This emission rate can be found in the Title V permit issued for the plant. The SO_2 BACT limit for Calumet Steel, IL encompasses the emissions from the EAF only, thus it is not an accurate comparison that this limit and the proposed SDI limits are compared. Based on this, the SO_2 emission rate (0.07 lbs/ton) will not be considered as BACT.

(4) SO_2 = 0.075 lbs/ton

Roanoke Steel, VA mill applied for a modification in 1998, to increase the maximum capacity of their EAF from 70 tons/hour to 100 tons/hour. The SO_2 limits were specified in terms of lbs/hour and tons/year rates. The SO_2 lbs/ton rate (0.075 lbs/ton) was converted using the 100 tons/hour maximum capacity of the EAF.

The SO_2 rate (0.075 lbs/ton) will not be use in this evaluation, because the mill is not required comply with a lbs/ton BACT limit.

(5) SO_2 = 0.09 lbs/ton

(a) Nucor Steel, AL is listed 3 times in the above table. The state of Alabama is SIP approved for the PSD program. SO_2 limits range from 0.5 to 0.7 lbs/ton in the State of Alabama. Nucor Steel, AL (formerly Trico Steel) was initially permitted at 0.09 lbs/ton of SO_2, due to Class I area impact. The SO_2 limit was changed in November, 2002 because of the high cost and scarcity of injection carbon. Nucor Steel, AL was given new limits of 0.5 lbs/ton when the production is equal to or greater than 352 tons/hour and 0.6 lbs/ton when the production is less than 352 tons/hour.

The OAQ will not rely on these SO_2 existing (0.09 lbs/ton) limit and new (0.5 lbs/ton and 0.6 lbs/ton) limits as BACT because the ADEM admitted that the decisions were simply based on the fact that the limits are within the range of existing limits.

(b) The SO_2 BACT limit for North Star Steel, MI encompasses the emissions from the EAF only, thus it is not an accurate comparison if this limit and the proposed SDI limits are compared.

Due to differences in meltshop operations and arrangements and steel products produced, this SO_2 BACT limit (0.09 lbs/ton) will not be consider as BACT for this evaluation.

(6) SO_2 = 0.15 lbs/ton

(a) Nucor Steel-Yamato, AR was permitted at 0.15 lbs/ton SO_2 for their EAF rated at 450 tons/hour. This mill produces steel beams. The SO_2 limit is for the EAF only and uses a low sulfur injection carbon. To make an accurate comparison between the SO_2 PSD BACT limits for Nucor-Yamato, AR and SDI, IN, the EAF limit (0.15 lbs/ton) is added to the LMF limit (0.36 lbs/ton), resulting to 0.51 lbs/ton, which is less stringent than the proposed SO_2 limit (0.25 lbs/ton), as shown below.

Based on this, the SO_2 limit (0.15 lbs/ton) will not be consider in this evaluation.

Table 7	SO_2 BACT Comparison - - EAFs		
Source Name	SO_2 EAF (lbs/ton)	SO_2 LMF (lbs/ton)	SO_2 Total (lbs/ton)
Nucor-Yamato, AR	0.15	0.36	0.51
SDI, Whitley, IN			0.25

(b) The emissions limitations for Timken Faircrest, OH were not available in the EPA RACT/BACT/LAER (RBLC) Clearinghouse until 2003. The permit was for an increase in production of the electric arc furnace (EAF). The EAF was permitted at 200 tons of steel per hour.

Since Timken Faircrest, OH manufactures significantly different steel products (ball bearings) than SDI Whitley, IN (steel beams) this SO_2 limit (0.15 lbs/ton) will not be considered as BACT.

(7) SO_2 = 0.20 lbs/ton

(a) Nucor Steel, AR is listed twice in the table above.

The EPA RACT/BACT/LAER (RBLC) Clearinghouse is showing a permit issued in 1992, which specified the SO_2 limit in terms of lbs/hour. This is equivalent to 0.2 lbs/ton based on the 300 tons/hour maximum capacity of the EAF. However, another permit issued to Nucor Steel, AR in 1991 specified a SO_2 limit in terms of lbs/hr, and based on the maximum capacity of 300 tons/hour, it is converted to the 0.84 lbs/ton rate, listed in the table above.

No additional information can be found to supplement this information found in the RBLC.

Since both permits indicated the SO_2 BACT limit in terms of lbs/hour, the equivalent SO_2 rates (0.2 lbs/ton and 0.84 lbs/ton) will not be use in this evaluation.

(b) Nucor Steel, SC is listed twice in the above table.

The SO_2 BACT limit for Nucor Steel, SC was set at 0.20 lbs/ton. This limit is for the EAF only at 165 tons/hour capacity. Nucor Steel, SC initially had problems in complying with the SO_2 limit, however, their scrap management plan was revised to wash the oil from the scrap. Nucor Steel, SC is now complying with the limit. EPA RACT/BACT/LAER (RBLC) Clearinghouse is indicating another SO_2 limit (0.35 lbs/ton) for the Meltshop no. 3, which encompasses the emissions from the EAF, LMF, and caster. This meltshop no. 3 has a capacity of 150 tons/hour. The SO_2 limit was also specified in terms of lbs/hour rate and the equivalent rate (0.35 lbs/ton) was based on the maximum capacity of the EAF.

The SO_2 limit (0.2 lbs/ton) will not be consider as BACT in this evaluation because it only encompasses the emissions from the EAF. SDI, Whitley, IN has the EAF, LMF, and Caster exhausting to the same stack.

The SO_2 limit (0.35 lbs/ton) will not be consider in this evaluation because it is less stringent that what is being proposed by SDI.

(c) The permit issued in 2000 for Keystone Steel, IL was for an increase in production to 1.2 million tons/year. The mill is going to use low sulfur injection coke (0.65% or less). It can not be confirmed if the expansion has been constructed.

The SO_2 limit encompasses the emissions from the EAF and LMF. The SO_2 BACT limit of 0.2 lbs/tons is not considered as BACT because compliance can not be confirmed.

(d) Nucor Steel, IN is listed twice in the above table.

The SO_2 BACT limit (0.2 lbs/ton) has been revised to 0.25 lbs/ton, based on a recently issued PSD permit. The SO_2 limit (0.2 lbs/ton) will not be consider in this evaluation because it has been revised.

(e) In 1998, a permit issued to SDI, Dekalb, IN specified a SO_2 limit of 0.20 lbs/ton for the combined emissions of EAF and LMF. This was the same limit issued in 1997.

The 0.2 lbs/ton will not be considered as BACT for the SDI, Whitley, IN plant because of the difference in products manufactured. SDI, Dekalb, IN and other steel mills with this 0.2 lbs/ton SO_2 limit manufacture slabs or sheets and SDI, Whitley, IN will manufacture structural steel.

(8) SO_2 = 0.22 lbs/ton
The SO_2 limit of Nucor Steel, NC has been revised in December, 2002, to 0.22 lbs/ton, based on testing data. This is the only steel mill that its existing limit has been changed to a more stringent one. However, it is still not the most stringent SO_2 BACT limit documented in the EPA RACT/BACT/LAER (RBLC) Clearinghouse.

(9) SO_2 = 0.25 lbs/ton
(a) There are 5 sources with SO_2 limits of 0.25 lbs/ton.

(b) SDI, Whitley, IN was issued a PSD permit with SO_2 BACT limit of 50 lbs/hour, which is equivalent to 0.25 lbs/ton at 200 tons/hour production rate. This mill was recently tested on February, 2003 for compliance. The average operating rate during the SO_2 compliance test was 167.1 tons/hour and the emission rate was 20.5 pounds/hour. Based on this, the SO_2 emission rate was equivalent to 0.123 lbs/ton and demonstrated compliance with the SO_2 BACT limit. The SO_2 limit encompasses the emissions from the EAF and LMF.

The SO_2 limit (0.25 lbs/ton) will be considered as BACT, because compliance has been shown. SDI is proposing to maintain the same SO_2 BACT limit.

(c) SDI, Hendricks, IN (formerly, Qualitech, IN) is listed 3 times in the above table. This plant is the same plant previously owned by Qualitech. Qualitech, IN is listed 3 times in the above table.

On August 29, 2003, IDEM issued a PSD permit to SDI, Hendricks, IN with a SO_2 BACT limit of 0.25 lbs/ton. This superseded the SO_2 BACT limit previously specified for Qualitech, IN.

(10) SO_2 = 0.31 lbs/ton to 1.8 lbs/ton

SO_2 BACT limits ranging from 0.31 lbs/ton to 1.8 lbs/ton will not be considered as BACT because they are less stringent than the proposed BACT limit.

Proposed SO_2 BACT Limit for EAFs - - SDI Whitley, IN

Based on the information provided above, the BACT standards and mass emissions limitations are as follows:

(1) Add-on control devices are not technically feasible in controlling SO_2 emissions from EAFs.

(2) SO_2 emissions are reduced through the implementation of the Scrap Management Plan (SMP).

(3) The SO_2 BACT mass emission limit for the EAFs is 0.25 pounds per ton of steel produced, which is equivalent to 75 pounds of SO_2 per hour, based on a 3-hour block average.

SO_2 limit = (0.25 lbs/ton)*(300 tons/hour) = 75 pounds/hour

This is the same SO_2 emission rate for the EAFs prior to the increase in production. This SO_2 limit is comparable to the existing SO_2 limits in the EPA RACT/BACT/LAER (RBLC) Clearinghouse.

VOC Control Technology Technical Feasibility Study and Existing BACT Emission Limitations - - EAF

VOC emissions from the EAF will be generated due to the volatilization of organic compounds (e.g., oils and paints) present in the scrap metal during charging of the scrap into the furnace.

The EPA RACT/BACT/LAER (RBLC) Clearinghouse indicates a wide range of VOC BACT emission limits for EAFs (0.06 lbs/ton - 0.35 lbs/ton). A majority of the steel mills have a direct shell evacuation (DSE) system and are implementing a scrap management plan (SMP) as VOC BACT. Catalytic or thermal oxidation and degreasing of scrap before processing have been eliminated as control alternatives. The best available control technology (BACT) will be the implementation of the Scrap management Plan (SMP) which eliminates the purchase of excessive oily scrap steel or scrap items containing oil.

Table 8 EAF VOC BACT Limits of Other Similar Sources

Source Name		VOC Limit (lbs/ton)	Source Name		VOC Limit (lbs/ton)
Charter Steel, WI	(2003)	0.06	Qualitech, IN	(1996)	0.15
SDI, Whitley, IN	(1999)	0.09	Beta Steel, IN	(2003)	0.15
Stafford Railsteel, AR	(1993)	0.09	Alton Steel, IL		0.15
Nucor Steel, AR	(1991)	0.09	IPSCO Steel, IA	(2002)	0.18
SDI, Hendricks, IN	(2003)	0.09	Nucor (Trico Steel), AL	(2002)	0.20
Nucor Steel, IN	(2003)	0.09	North Star Steel, MI	(1994)	0.22
SDI, Whitley, IN	*(proposed)*	0.09	Ameristeel, FL	(1995)	0.295
Timken Faircrest, OH	(2003)	0.10	Mac Steel, MI	(1998)	0.30
Nucor Steel, IN	(1996)	0.13	Roanoke Steel, VA	(1998)	0.30
Nucor- Yamato Steel, AR	(2001)	0.13	Sterling Steel, IL	(2000)	0.34
Nucor Steel, NC	(2002)	0.13	Republic Tech, OH	(1999)	0.35
Nucor Steel, SC	(1996)	0.13	IPSCO, AL	(1998)	0.35
Beta Steel, IN	(1992)	0.13	Chaparral Steel, TX	(1998)	0.35
Gallatin Steel, KY	(1998)	0.13	Arkansas Steel, AR	(1998)	0.35
SDI, Dekalb, IN	(1997)	0.13	Calumet Steel, IL	(1996)	0.35
Tuscaloosa Steel, AL	(2002)	0.13	Sterling Steel, IL	(2000)	0.35
Keystone Steel, IL	(2000)	0.13			

The following are additional information and explanation for each source used in the BACT determination.

(1) <u>VOC = 0.6 lbs/ton</u>

Charter Steel, WI was issued a modification in 2000. The VOC limit of 0.06 lbs/ton was a source self imposed limit to avoid LAER and Class I federal requirements, because the source is located in an ozone nonattainment area. This mill operates at higher quality strict scrap and raw materials (containing the minimum possible oils and other non metallic materials) to comply with this VOC limit. In addition to using higher quality scrap, the mill produces different carbon steel products (high quality grade automotive market). SDI, Whitley, IN manufactures structural steel.

However, Charter Steel, WI has a higher NO_x BACT limit than that was being proposed for SDI, IN. Since, NO_x is a more significant contributor of emissions than VOC for this type of operation, it is appropriate to not require SDI to further reduce the VOC emissions.

Table 9 VOC and NO_x BACT Comparison - - EAF		
Source Name	VOC (lbs/ton)	NO_x (lbs/ton)
Charter, WI	0.06	0.51
SDI, Whitley, IN	0.09	0.35

Charter Steel, WI has a pending application for a different EAF and has requested a higher VOC limit because of different products (stainless steel) to be produced.

This VOC limit (0.06 lbs/ton) will not be used in this BACT evaluation due to differences in scrap used and products produced.

(2) VOC = 0.09 lbs/ton
There are five (5) sources with VOC BACT limits of 0.09 lbs/ton. SDI, Whitley, IN is proposing to maintain the existing VOC BACT limit of 0.09 lbs/ton.

(3) VOC = 0.1 lbs/ton to 0.35 lbs/ton
VOC BACT limits ranging from 0.1 lbs/ton to 0.35 lbs/ton will not be considered as BACT because they are less stringent than the proposed BACT limit.

Proposed VOC BACT Limit for EAFs - - SDI, Whitley, IN

Based on the information provided above, the VOC BACT standards and mass emissions limitations for the EAFs are as follows:

(1) VOC emissions are controlled by the use of direct shell evacuation system (DSE), implementation of the Scrap Management Plan (SMP) and performing good working practices.

(2) The VOC BACT mass emission limit of the EAF is 0.09 pounds per ton of steel produced, which is equivalent to 27 pounds of VOC per hour, based on a 3-hour block average.

VOC = (0.09 lbs/ton)*(300 tons/hour) = 27 lbs/hour

This mass emission limit is comparable to existing VOC BACT limits in the EPA RACT/BACT/LAER (RBLC) Clearinghouse.

CO Control Technology Technical Feasibility Study - - EAF

The following alternatives were evaluated to control CO from the EAFs:

(1) Direct Shell Evacuation (DSE) Control - - technically feasible

In the steel industry, DSE systems (i.e., fourth hole furnace control system) continue to be the primary control technology for controlling CO emissions from EAFs. A DSE system consists of a water-cooled duct connected to the EAF through the furnace roof's "fourth hole". This duct is connected to the melt shop canopy collector system. During melting and refining, a slight negative pressure is maintained within the furnace to withdraw exhaust gases through the DSE duct. At the point where the DSE duct meets the "fourth hole", there is an adjustable gap that allows combustion air to enter, providing oxygen to oxidize the CO, which is present. The DSE system allows excellent process emissions capture and combustion of CO, and requires the lowest air volume of other EAF capture devices. Therefore, DSE system control is considered technically feasible.

(2) Post Combustion Reaction Chamber - - technically feasible, not economically feasible and not environmentally feasible

Post combustion reaction chambers, another form of thermal oxidation, has been a proven technology in controlling CO emissions from furnaces but not EAFs. Like flaring, this technology can successfully oxidize up to 99% of the CO emissions, especially at a relatively high temperature and residence time. This technology also works more efficiently without the presence of particulate matter in the exhaust gas stream, which can foul the burners. Due to the high particulate loading of the EAF exhaust gases, it would be necessary to operate a baghouse for particulate control prior to the thermal oxidizer. However, baghouses cannot handle the high temperatures associated with thermal oxidation of CO and the exhaust gas must be cooled to a minimum of 350 ^{o}F prior to entering the baghouse. After the gas leaves the baghouse, it would need to undergo extreme heating to bring the temperature back up to the required thermal oxidation temperature. This would necessitate using a considerable amount of auxiliary fuel, which would in turn create more emissions. Based on the above discussion, a post combustion reaction chamber is considered technically feasible; however, this technology is not considered as economically and environmentally feasible because of the additional cost of fuel usage and increase in emissions from this fuel usage. In addition, the OAQ is not aware of a proven oxygen injection or oxyfuel injection system in a post combustion chamber or exhaust ductwork that has achieved lower emissions than what is proposed in this permit.

The OAQ is aware of one (1) case where post combustion reaction chamber has been determined as BACT for EAFs. IPSCO Steel, IA was issued a PSD permit on April 1996 (Project No. 95-314) which required installing a post combustion chamber in addition to DSE system. IPSCO Steel was initially specified a CO limit of 0.91 pound per ton. However, in 2002, the CO limit was changed to 1.93 lbs/ton. This limit was based on test results performed in the source.

Tuscaloosa Steel, AL has employed oxyfuel burners in the post combustion chamber to promote oxidation of CO. However, this system was not required as part of their BACT analysis, but has been used in trials to determine a means to meet their current BACT limitation of 2.0 lbs/ton. These burners have been removed due to continual maintenance because of particulate plugging.

(3) Operating Practice Modification - - not technically feasible

Due to marketplace demands on the type of products produced and the required product quality, any additional operating practice modifications that will alter CO emissions from the proposed EAF is technically infeasible. Additional operating practice modifications means the use of less carbon in the raw materials to reduce CO formation.

(4) Flaring of CO emissions - - not technically feasible

Flaring is a form of thermal oxidation and has been a proven technology in controlling CO emissions from furnaces but not EAFs. This technology can successfully oxidize up to 99% of the CO emissions, especially if an exhaust gas temperature of 1,300 of - 1,800 ^{o}F, depending on the residence time, is maintained. The exhaust gas stream will be approximately 875,000 acf/min at 200 ^{o}F. Due to the relatively large gas volumetric flow at a substantial temperature differential, this would necessitate using a considerable amount of auxiliary fuel, which would in turn create more emissions. Therefore, flaring is considered technically infeasible.

The OAQ is not aware of a steel mill where flaring has been used to control CO emissions from an EAF.

(5) CO Oxidation Catalysts - - not technically feasible and
(6) Catalytic Incineration - - not technically feasible

Catalytic oxidizers and catalytic incineration use the same principle as thermal oxidation with the addition of catalyst to reduce the oxidation temperature. The optimal working temperature range for CO oxidation catalysts is approximately 850 ^{o}F - 1,100 ^{o}F with a minimum exhaust gas stream temperature of 500 ^{o}F for minimally acceptable CO control. The optimal working temperature range for catalytic incineration is approximately 500 ^{o}F - 600 ^{o}F. Exhaust gases from the EAF will undergo rapid cooling as they are ducted from the furnace. Thus, the temperature will be far below the minimum 500 ^{o}F threshold for effective operation of either type of control technology. Additionally, the particulate loading in the exhaust gas stream is expected to be too high for efficient operation of the catalyst. Plugging and coating of the catalyst surface would significantly degrade the performance of the catalyst. Therefore, catalytic oxidizers and catalytic incineration are considered technically infeasible.

The OAQ is not aware of a steel mill where these technologies have been used to control CO emissions from an EAF.

(7) Oxygen Injection - - not technically feasible

Oxygen injection is not a proven technology in controlling CO emissions from EAFs. One can only speculate how much additional reduction of CO it would contribute, especially if a DSE system is also used. Oxygen would be injected at the entrance of the DSE ductwork to increase oxidation of the available CO to CO_2.

(8) Expert Furnace System Optimization Process (EFSOP) - - not technically feasible

The Expert Furnace System Optimization Process (EFSOP) designed by Goodfellows Technologies, Inc. (GTI) was designed to allow companies to optimize the energy requirements of their EAFs. Carbon monoxide produced in the EAF can be a valuable source of energy. When oxidized to CO_2, the reaction gives off heat, which can be used to melt the steel. By monitoring CO, CO_2, H_2, and O_2 they can determine whether additional fuel or oxygen is necessary to

promote the oxidation of CO in the furnace shell. By operating the furnace at optimum levels, it is thought that CO emissions at the exhaust may be lessened. In addition, GTI contends that although more heat is generated at the furnace shell, NO_x emissions may decrease as well because fuel consumption may be optimized.

Because the plants using these optimization systems are located outside of the United States, they have no CO emissions limitations at the stack. The companies are not required to have a post combustion chamber or any other technology to destruct CO emissions. It is likely that if this type of system is added to an uncontrolled EAF, there would be reductions in CO emissions. However, when a control device is already in place to oxidize the CO emissions escaping the furnace, there is no data to support a claim that greater CO emissions reductions would be realized with the addition of an optimization system. GTI does not guarantee any emissions reduction with the use of EFSOP.

Based on the above control technology review, the DSE system is considered BACT for CO.

CO Existing BACT Emission Limitations - - EAF

The table below summarizes the CO limits for EAF. Limits are arranged in ascending order.

The EPA RACT/BACT/LAER (RBLC) Clearinghouse indicates a wide range of CO emission limitations (1.34 lbs/ton - 14.97 lbs/ton) for this type of control technology.

Table 10 EAF CO BACT of Other Similar Sources

Source Name	CO Limit (lbs/ton)	Source Name	CO Limit (lbs/ton)
IPSCO, IA	0.91	Nucor Steel (Birmingham), IL	2.01
Keystone Steel, IL	1.34	Roanoke Electric Steel, VA	2.4
Roanoke Steel, VA	1.37	North Star Steel, MI	2.4
Nucor Steel, NC	1.82	Nucor Steel, SC	2.76
IPSCO, IA	1.93	Ameristeel, FL	3.0
SDI, Whitley, IN	2.0	Charter Steel, WI	3.5
Nucor (Trico Steel), AL	2.0	Republic Technologies, OH	4.0
SMI Steel, SC	2.0	Chaparral Steel, TX	4.0
Stafford Railsteel, AR	2.0	Sterling Steel, IL	4.7
IPSCO Steel, AL	2.0	Qualitech, IN	4.7
Nucor Steel, IN	2.0	Timken Faircrest, OH	4.8
Nucor-Yamato Steel, AR	2.0	Mac Steel, AK	4.9
Nucor Steel, SC	2.0	Nucor Steel, UT	5.87
SDI, Dekalb, IN	2.0	Ameristeel, NC	6.0
Tuscaloosa Steel, AL	2.0	Arkansas Steel, AR	6.0
SDI, Hendricks, IN	2.0	Mac Steel, MI	6.5
Gallatin Steel, KY	2.0	Sterling Steel, IL	7.4
Alton Steel, IL	2.0	Beta Steel, IN	8.17
SDI, Whitley, IN (proposed)	2.0	Nucor Steel, UT	14.97

The following are additional information and explanation for each source used in the BACT determination.

(1) <u>CO = 0.91 lbs/ton</u>
IPSCO, IA is listed twice in the above table.

The CO limit for IPSCO was originally specified in terms of lbs/hour rate and the equivalent rate is 0.91 lbs/ton. Another permit was issued in 1995, which specifies the CO limit in terms of ppm. It was revised to 1.93 lbs/ton in July 2002. This limit was based on test results performed in the source.

Stack test results at IPSCO, IA also show that IPSCO did not comply with its NO_x limit. The NO_x was revised to a less stringent limit (from 0.27 lbs/ton to 0.8 lbs/ton). The post combustion chamber could have contributed to the increase in NO_x emissions. Since NO_x emissions are more of a concern due to it being a precursor in the formation of ozone, it is appropriate to not require SDI to install a post combustion chamber to further control CO emissions from the EAF. SDI will be specified a more stringent NO_x BACT limit (0.35 lbs/ton) than IPSCO, IA.

Table 11	CO and NO_x Comparison - - EAF	
Source Name	CO (lbs/ton)	NO_x (lbs/ton)
IPSCO, IA	0.91	0.8
SDI, IN	2.0	0.35

(2) <u>CO = 1.34 lbs/ton</u>
The permit for Keystone Steel, IL was issued in 2000 for an increase in capacity to 1.2 million tons/year. It can not be confirmed if the expansion has been constructed. There is no information available to verify the CO limit prior to the increase modification. Keystone Steel, IL has a lower CO limit because in addition to the DSE, it has post combustion chamber to control the CO emissions. However, the mill has a higher NO_x limit.

The post combustion chamber could have contributed to the increase in NO_x emissions. Since NO_x emissions are more of a concern due to it being a precursor in the formation of ozone, it is appropriate to not require SDI to install a post combustion chamber to further control CO emissions from the EAF.

Table 12	CO and NO_x BACT Comparison - - EAF	
Pollutant	Keystone Steel, IL	SDI, Whitley, IN
CO	1.34 lbs/ton	2.0 lbs/ton
NO_x	0.51 lbs/ton	0.35 lbs/ton

Based on the above comparison, the CO BACT (1.34 lbs/ton) will not be considered as BACT for this evaluation.

(3) <u>CO = 1.37 lbs/ton</u>
Roanoke Steel, VA is listed twice in the above table.

Roanoke Steel, VA applied for a modification to increase the maximum capacity of their EAF from 70 tons/hour to 100 tons/hour. The CO limit was changed from 1.37 lbs/ton to 2.4 lbs/ton. This is based on stack test done on the plant.

The CO limit (1.37 lbs/ton) will not be considered as BACT because it has been revised due to non-compliance.

The CO limit (2.4 lbs/ton) will not be considered as BACT, because it is less stringent than the limit proposed by SDI (2 lbs/ton).

(4) <u>CO = 1.82 lbs/ton</u>

Nucor Steel, NC was initially permitted at 4 lbs/ton CO in 1999. The permit has a provision that provides an opportunity to re-open the BACT review that based on testing data the existing limit can be revised. The CO limit was changed to 1.82 lbs/ton in December, 2002. This is the only steel mill that OAQ is aware of that the existing limit has been changed to a more stringent one. Nucor Steel, NC manufactures slabs, while SDI, IN manufactures structural steel.

Nucor Steel, NC is permitted for an EAF with maximum capacity of 250 tons/hour, using DSE and post combustion chamber for CO control.

Due to difference in steel products manufactured, the CO BACT (1.82 lbs/ton) will not be considering as BACT in this evaluation.

(5) <u>CO = 1.93 lbs/ton</u>
IPSCO, IA is listed twice in the above table.

The CO limit for IPSCO was originally specified in terms of lbs/hour rate and the equivalent rate is 0.91 lbs/ton. Another permit was issued in 1995, which specifies the CO limit in terms of ppm. It was revised to 1.93 lbs/ton in July 2002. This limit was based on test results performed in the source.

Stack test results at IPSCO, IA also show that IPSCO did not comply with its NO_x limit. The NO_x was revised to a less stringent limit (from 0.27 lbs/ton to 0.8 lbs/ton). The post combustion chamber could have contributed to the increase in NO_x emissions. Since NO_x emissions is more of a concern due to it being a precursor in the formation of ozone, it is appropriate to not require SDI to install a post combustion chamber to further control CO emissions from the EAF. SDI will be specified a more stringent NO_x BACT limit (0.35 lbs/ton) than IPSCO, IA.

(6) <u>CO = 2.0 lbs/ton</u>

(a) There are at least thirteen (13) steel mills given a CO BACT limit of 2.0 lbs/ton. Three of the four steel mills in Indiana (as listed above) have CO BACT limit of 2 lbs/ton.

(b) SDI, Hendricks, IN (formerly, Qualitech, IN) was recently issued a PSD permit on August 23, 2003 with a CO BACT limit of 2 lbs/hour. This was a revision of the CO limit from 4.7 lbs/ton when the plant was previously owned by Qualitech.

(c) EPA RACT/BACT/LAER (RBLC) Clearinghouse indicates the CO BACT limit for Nucor Steel (formerly Birmingham Steel), IL to be 2.01 lbs/ton, however, the Title V permit recently issued to the source indicates the CO limit to be 2.0 lbs/ton.

(7) <u>CO = 2.01 lbs/ton to 14.97 lbs/ton</u>
CO BACT limits ranging from 2.01 lbs/ton to 14.97 lbs/ton will not be considered as BACT because they are less stringent than the proposed BACT limit.

Proposed CO BACT Limit for EAFs - - SDI, Whitley, IN

Based on the information provided above, the CO BACT standards and mass emissions limitations for the EAFs are as follows:

(1) CO emissions are controlled by a direct shell evacuation (DSE) system and performing good combustion practices.

(2) The CO BACT mass emission limit for the EAFs is 2.0 pounds per ton of steel produced, which is equivalent to 600 pounds of CO per hour, based on a 3-hour block average.

CO = (2 lbs/hour)*(300 tons/hour) = 600 lbs/hour

This mass emission limit is comparable to existing CO BACT limits in the EPA RACT/BACT/LAER (RBLC) Clearinghouse.

PM and PM_{10} Control Technology Technical Feasibility Study - - EAF

The following available technologies were evaluated to control particulate emissions from EAFs:

(1) Fabric Filters (i.e., baghouses) - - technically feasible

Fabric filters or baghouses are technically feasible for collecting fine particulate matter emissions associated with metals from EAFs or other types of furnaces that have high particulate emissions. They can also achieve the highest control efficiency, among other particulate control devices, as applied to EAFs.

Positive pressure baghouses or negative pressure baghouses have been used in the steel making industry. Positive pressure baghouses operate at internal pressures greater than the atmospheric pressure. Typically, the fans are located before the fabric filters. This allows the fans to pull air from the EAF and push the dust laden air through the fabric filters and into the ambient air via a continuous ridge vent (old design) rather than a stack. The discharge area of a ridge vent is on the order of four times that of a single stack. Negative pressure baghouses operate at internal pressure less than atmospheric. The fans are located after the fabric filters. This allows the fans to pull the gas-laden air from the EAF, through the fabric filters, then push the air up through a central stack.

(2) High Efficiency Cyclones - - technically feasible

Particulate removal in cyclone collectors is achieved through the action of inertial forces, especially centrifugal. As the gas stream enters the top of the cyclone, a vortex is induced as it is forced to travel a circular path. Centrifugal forces cause the heavier particles to concentrate near the outer wall of the cyclone and particle of lesser mass to remain closer to the center of the vortex. Frictional and gravitational forces then act on the particles closest to the wall, causing them to fall toward the bottom of the cyclone, where they are collected in a hopper. Within the lower segment of the cyclone, the direction of the gas-flow vortex is reversed, and an inner ascending vortex is formed. The inner vortex consists of comparatively particulate-free air, which is collected through an outlet duct at the top of the cyclone.

Cyclone collectors are considered technically feasible. However, they achieve the lowest particulate removal efficiencies (less than 90%) of all particulate control devices, especially for submicron particulates that will be emitted from the EAF.

The OAQ is not aware of a steel mill where a cyclone collector has been operated to effectively control particulate emissions from an EAF.

(3) High Energy Scrubbers - - technically feasible

High energy wet scrubbers are technically feasible and can achieve a high particulate collection efficiency (90% or better), but at the expense of a punitive pressure drop (ranging from 6 - 20 inches of water), higher operational utilities, generation of large quantities of sludge along with the associated problem of sludge handling, de-watering, and disposal.

The OAQ is not aware of a steel mill where a high energy wet scrubber has been operated to control particulate emissions from an EAF.

(4) Electrostatic Precipitator (ESP) - - not technically feasible

ESPs use an electrostatic field to charge particulate matter contained in the gas stream, then attract, and collect the particles on a collection surface of opposite charge. While ESPs have a very high removal efficiency (99% or better) for many sources of particulate, they have been proven as unsuitable for applications involving particulate with a high concentration of iron

compounds such as those emitted from EAFs. Due to the electromagnetic properties of small charged particles of iron compounds in an electric field, the particles adhere very strongly to the collection plates of an ESP and are extremely difficult to dislodge, resulting in an ineffective operation of the ESP. In addition, the exhaust gas stream from an EAF contains high levels of zinc (10% - 20%) and other metal compounds which can foul ESP electrodes. Thereby, making the ESP ineffective. Therefore, ESP is considered technically infeasible for controlling particulate emissions from EAFs.

The OAQ is not aware of a steel mill where an ESP has been operated to control particulate emissions from an EAF.

PM and PM_{10} Existing BACT Emission Limitations - - EAF

SDI has chosen fabric filter as the particulate control technology. Evaluation of the limits in the EPA RACT/BACT/LAER (RBLC) Clearinghouse indicates that 0.0032 grains per dry standard cubic feet has been considered BACT for negative pressure baghouses compared to 0.0018 grains per dry standard cubic feet for positive pressure baghouses. Although there was this distinction, baghouse manufacturer's claim that there is no difference in filtering capability between these types of baghouses. The OAQ determines that the achievable control technology and emission limitation should be used to determine the best available control technology for a baghouse instead of a specific type of bag that can be used. The limitation of 0.0018 gr/dscf is the most stringent filterable PM limitation applied to an EAF baghouse and should be considered BACT regardless of what type of bags the Permittee uses. Therefore, either type of baghouse should meet 0.0018 grains per dry standard cubic feet (gr/dscf) for filterable PM. It is the applicant's responsibility to construct a control device, which meets these stringent limitations.

Table 13 EAF PM and PM_{10} BACT Limits of Other Similar Sources

Source Name	PM/PM_{10} Limit (gr/dscf)	Source Name	PM/PM_{10} Limit (gr/dscf)
Charter Steel, WI	0.0015	Timken Faircrest, OH (PM_{10})	0.0032
Chaparral Steel, TX	0.0018	Nucor Steel, UT (PM)	0.0033
Stafford Railsteel, AR	0.0018	IPSCO, AL	0.0033
Nucor-Yamato, AR	0.0018	Roanoke Electric Steel, VA	0.0034
Nucor Steel, AR	0.0018	Ameristeel Corp FL	0.0034
SDI, Whitley, IN (PM)	0.0018	Tuscaloosa Steel, AL	0.0035
Nucor Steel, NC	0.0018	Atlantic Steel, GA	0.0036
Keystone Steel, IL	0.0018	Ameristeel Corp, FL	0.0042
Nucor Steel, IN (PM)	0.0018	Florida Steel, TN (PM_{10})	0.0052
MacSteel, AR	0.0018	Nucor Steel, IN (PM_{10})	0.0052
SDI, Hendricks, IN (PM)	0.0018	IPSCO, IA	0.0052
Gallatin Steel, KY (PM)	0.0018	Florida Steel, FL	0.0052
SDI, Whitley, IN (PM)	0.0018	*SDI, Whitley, IN* (PM_{10})	0.0052
Bethlehem Steel, PA	0.0020	SDI, Hendricks, IN (PM_{10})	0.0052
SMI Steel, SC (PM_{10})	0.0020	SDI, Whitley, IN (PM_{10})	0.0052
North Star Steel, MI (PM)	0.0024	Nucor Steel, SC	0.0052
Nucor Steel, UT (PM_{10})	0.0026	Cascade Steel, OR	0.0052
Co-Steel Raritan, NJ	0.0030	Armco Steel, MD	0.0052
Qualitech, IN	0.0032	Beta Steel, IN	0.0052
SDI, Dekalb, IN	0.0032	Nucor Steel, SC	0.0052
Republic Tech, OH	0.0032	Arkansas Steel, AR (PM_{10})	0.0052
Trico Steel, AL	0.0032	Mac Steel, MI	0.0052

The following details are additional information and explanation for each source used for the BACT determination.

(1) Charter Steel, WI

Charter Steel, WI has the lowest BACT limit in terms of grain loading, however, the grain loading limit is considered the secondary PSD BACT limit. The primary limit is in terms of lbs/hour, which is 6.5 lbs/hour at 550,000 tons/year capacity of the mill. The opacity limit is set at 20%. This grain loading will not be considered in the BACT analysis because the lbs/hour is not comparable with other mills with bigger capacity. In addition, most steel mills have 3% as opacity BACT limit.

Charter Steel, WI has PM BACT limit of 6.05 lbs/hour at 550,000 ton/year capacity, while SDI, IN will emit 14.4 lbs/hour at 2,528,000 tons/year capacity. Even at a lower grain loading, Charter Steel, WI has a higher emission rate (lbs of PM per ton of steel) than SDI, IN.

Table 14	PM BACT Comparison - - EAF	
Source Name	PM (lbs/hour)	Maximum Capacity (ton/year)
Charter, WI	6.05	550,000
SDI, IN	14.4	2,528,000

(2) Nucor Steel, NC

Nucor Steel, NC was initially permitted at 0.0032 gr/dscf for filterable PM in 1999. The permit has a provision that provides an opportunity to re-open the BACT review based on testing data that the existing limit can be revised. The PM limit was changed in December, 2002, to 0.0018 gr/dscf for filterable PM and 0.0052 gr/dscf for filterable and condensible PM_{10}.

It was confirmed that most of the permits do not clearly distinguished a BACT limit for filterable PM and Filterable and Condensible PM_{10}. The particulate limits indicated in this table are specified for filterable PM and PM_{10} only, except for IPSCO Steel, IA where the limit applies to the total PM_{10} (filterable and condensible portions combined). SDI, Whitley, IN is also one of the few sources with a separate limit for filterable and condensible particulates.

In February 2003, SDI Whitley, IN performed particulate testing. The results were in compliance with the PSD BACT limits:

Table 15	PM Stack Test Results - - EAF	
Pollutant	Test Result (gr/dscf)	PSD BACT Limit (gr/dscf)
PM	0.00068	0.0018
PM10	0.0089	0.0052

There are 10 steel mill sources that have 0.0018 gr/dscf as BACT limits. SDI, Whitley, IN is one of these sources. SDI is proposing to maintain the same limit for the increase in production. There are 10 steel mills with 0.0052 gr/dscf as BACT limits, 3 of these specified that it is for PM_{10} only.

The limitation of 0.0018 gr/dscf is the most stringent filterable PM limitation applied to any source and should be considered BACT. The 0.0052 grain/dscf will be considered as BACT for the filterable and condensible PM_{10}.

Proposed PM/PM_{10} BACT Limit for EAF - - SDI, Whitley, IN

Based on the information provided above, the PM and PM_{10} BACT standards and mass emissions limitations for the EAFs are as follows:

(1) The filterable PM BACT for the EAFs is the use of a baghouse with a limit of 0.0018 grains per dry standard cubic feet. This is equivalent to 14.4 pounds of filterable particulate per hour based on a 3-hour block average.

PM = (0.0018 grain loading grain/dscf)*(933,333 flow rate dscf/min)*(1 lb/7,000 grains)*(60 min/hr) = 14.4 lbs/hour

(2) The filterable and condensible PM_{10} BACT for the EAFs is the use of a baghouse with a limit of 0.0052 grains per dry standard cubic feet. This is equivalent to 41.6 pounds of filterable and condensible particulate per hour based on a 3-hour block average.

PM_{10} = (0.0052 grain loading grain/dscf)*(933,333 flow rate dscf/min)*(1 lb/7,000 grains) *(60 min/hr) = 41.6 lbs/hour

(3) The visible emissions from the common EAF Baghouse stack shall not exceed 3%.

Lead, Mercury, and Fluoride Emissions Limits - - EAF

The table below shows the existing and proposed limits for Lead, Mercury, and Fluorides for SDI's EAFs.

Table 16 EAF, LMS and CC Limits - - SDI, Whitley, IN

Pollutant	Existing Limit		Proposed Limit
Lead	0.114 pounds/hour	(0.00057 lbs/ton*)	0.00048 pounds/ton
Lead Content	0.5% weight **		5% weight **
Mercury	0.02 pounds/hour	(0.0001 lbs/ton*)	0.00052 pounds/ton
Fluorides	0.68 pounds/hour	(0.0034 lbs/ton*)	0.00697 pounds/ton

The existing rates (in lbs/hour) were specified to assure that the mill is minor in terms of HAPs emissions. No limits were specified in the permit in terms of lbs/ton rates.

* The lbs/ton equivalent limits are derived from the following methodology, based on the permitted capacity of 200 tons/hour:
Limit = (Emission rate lbs/hour)/(200 tons/hour) = lbs/ton

** Lead Fugitive Emissions = (1-Capture Efficiency %)*(Fugitive Emission Factor lb/ton)*(Maximum annual production tons/year)*(Lead content in the EAF dust)*(1 ton/2000 lbs)

where:

Existing and New Capture Efficiency = 99%
Existing and new Fugitive Emission Factor = 2 lbs/ton
Existing Maximum Annual Production = 200 tons/hour * 8760 hours/year = 1,752,000 tons/year
New Maximum Annual Production = 300 tons/hour * 8760 hours/year = 2,628,000 tons/year
Existing Lead content in the EAF dust = 0.5%
New Lead content in the EAF dust = 5%

Existing Lead Fugitive Emissions = (1-0.99)*(2)*(1,752,000)*(0.005)*(1/2000) = 0.0876 tons/year
Fugitive Emissions = (1-0.99)*(2)*(2,628,000)*(0.05)*(1/2000) = 1.31 tons/year

EAF Lead BACT Limits of Other Similar Sources

The EPA RACT/BACT/LAER (RBLC) Clearinghouse indicates a wide range of Lead BACT emission limits (0.008 lbs/hour - 1.9 lbs/hour) for EAFs. The Lead emission limits were established for meltshop operations (which encompassed the emissions from the EAFs, LMSs, and CCs). This is the same arrangement as the meltshop operations in SDI, Whitley, IN.

All the sources in this table utilized Direct Shell Evacuation System, Canopy Hood and the Meltshop baghouse to control the Lead emissions from EAFs.

Sources are arranged in ascending order in terms of Lead limits (lbs/hour). This unit (lbs/hour) is the most commonly used to expressed the Lead limits. There are few Lead limits in terms of pounds per ton of steel.

Table 17 EAF Lead BACT Limits of Other Similar Sources - - pounds/hour

Source Name		Lead Limit (lbs/hour)	Source Name		Lead Limit (lbs/hour)
Charter Steel, WI	(1996)	0.008	Nucor Steel, SC	(1995)	0.184
Chaparral Steel, TX	(2000)	0.023	Timken Faircrest, OH	(2003)	0.26
Chaparral Steel, TX	(2000)	0.045	Mac Steel, AR	(1997)	0.3
Qualitech Steel, IN	(1996)	0.07	Roanoke Steel, VA	(1998)	0.3
Chaparral Steel, TX	(2000)	0.077	Chaparall Steel, TX	(1998)	0.34
IPSCO Steel, IA	(1996)	0.09	North Star Steel, MI	(1994)	0.34
IPSCO Steel, IA	(1996)	0.11	IPSCO, IA	(1995)	0.38
SDI, Whitley, IN	(2001)	0.114	Arkansas Steel, AR	(2001)	0.4
SDI Whitley, IN	*(proposed)*	0.12	Mac Steel, MI	(1998)	0.44
IPSCO Steel, IA	(1996)	0.13	Nucor Steel, AR		0.6
SDI, Hendricks, IN	(2003)	0.134	Nucor Steel, AR	(1991)	0.66
Nucor Steel, IN	(2003)	0.134	Ameristeel Corp, FL	(1999)	0.7
Nucor Steel, IN	(2001)	0.136	Roanoke Electric, VA	(1994)	0.84
Gallatin Steel, KY	(1997)	0.162	Nucor Steel , SC	(1998)	1.9

Table 18 EAF Lead Emission Rates of Other Similar Sources - - pounds/ton

Source Name	Lead Limit (lbs/ton)		Source Name	Lead Limit (lbs/ton)	
Charter Steel, WI	0.000005	*	Nucor Steel, IN	0.001	
Republic Steel, OH	0.00004	*	J & L Specialty, PA	0.0011	*
SDI, Whitley, IN	0.0000817	*	Timken Faircrest, OH	0.0013	
Cascade Steel, OR	0.000089	*	SDI, Hendricks, IN	0.00172	
Gallatin Steel, KY	0.00009	*	North Star Steel, MI	0.0023	
Structural Metals, TX	0.00012	*	Roanoke Steel, VA	0.003	
Nucor Steel, SC	0.00022	*	Chaparral Steel, TX	0.0034	
Nucor Steel, SC	0.00024	*	Alton Steel, IL	0.0034	**
Nucor Steel, IN	0.000267		Mac Steel, AR	0.0035	
Nucor Steel, SC	0.0003675	**	North Start Steel, LA	0.0039	*
SDI, Hendricks, IN	0.00039		Nucor Steel, SC	0.0041	*
Qualitech, IN	0.00044	*	Sterling Steel, IL	0.005	**
SDI, Whitley, IN *(proposed)*	0.00048		Keystone Steel, IL	0.005	**
Qualitech Steel, IN	0.000518		Arkansas Steel, AR	0.0064	*

IPSCO Steel, IA	0.000549		Florida Steel, NC	0.0075	*
IPSCO Steel, IA	0.00055		Birmingham Steel, AL	0.0072	*
IPSCO, IA	0.00056		Nucor Steel, UT	0.0072	*
SDI, Whitley, IN	0.00057		Arkansas Steel, AR	0.008	
Gallatin Steel, KY	0.00081	**	Florida Steel, FL	0.0080	*
IPSCO, IA	0.00096	*	Nucor Steel , SC	0.0119	
New Jersey Steel, NJ	0.0010	*	Nucor Steel, TX	0.0123	*

* These rates were taken from the supporting documents for SDI, Whitley, IN Permit Modification 183-10097-00030 used in the evaluation of the lead potential to emit. These were taken from a Research Triangle Institute report based on tests results submitted by the companies.

** Permits specified the lead emissions limits in pounds/ton.

Lead emissions rates without asterisks were determined by calculations based on the lbs/hour rate and capacity of the meltshop (tons/hour steel).

SDI Lead = (0.00048 lbs/ton)*(300 tons/hour) = 0.144 lbs/hour = 0.631 tons/year

The following are additional information and explanation for each source used for the BACT determination.

(1) Charter Steel, WI

(a) Charter Steel, WI is a non-stainless steel plant.

(b) The lead emission limit for Charter Steel is the most stringent limit that can be found in the EPA RACT/BACT/LAER (RBLC) Clearinghouse. However, this rate was specified to assure that the modification was PSD minor in terms of Lead emissions to avoid major review. The maximum capacity of the meltshop was 450,000 tons/year of steel. A modification was issued in 2000, to increase the capacity to 550,000 tons/year. There was no indication that the Lead limit was revised.

(c) There was no lead limit expressed in lbs/ton in the permit. It is not possible to determine the lead emission rate in lbs/ton based on the available information.

(2) Republic Steel, OH

Republic Steel, OH is a stainless steel plant. No lead data can be found in the EPA RACT/BACT/LAER (RBLC) Clearinghouse. The emission rate (0.00004 lbs/ton) was taken from the supporting documents used in the remand of SDI Whitley, IN.

(3) SDI, Whitley, IN

(a) The lead emission limit specified for SDI, Whitley, IN was established in an Environmental Appeals Board (EAB) remand. As a resolution of the remand, the lead emissions from the meltshop were restricted to 0.114 lbs/hour and that the lead content of the dust in the meltshop baghouse shall not exceed 0.5% by weight.

(b) There was no limit expressed in lbs/ton in the permit. Based on the allowed capacity of the meltshop, the lead emission rates are:
Lead = (0.114 lbs/hour)/(200 tons/hour) = 0.00057 lbs/ton

(c) In February 2003, SDI Whitley, IN performed lead testing. The results were 0.0168 lbs/hour at 205.7 tons/hour steel. Based on this information, the lead emissions are:
Lead = (0.0168 lbs/hour)/(205.7 tons/hour) = 0.0000817 lbs/ton

(d) SDI is proposing a lead BACT limit of 0.144 lbs/hour
PTE Based on old limit = 0.114 lbs/hour = 0.499 tons/year
PTE based on the new limit = 0.12 lbs/hour = 0.5256 tons/year
Increase = 0.0266 tons/year

(e) SDI is proposing to revise the lead content of the EAF Baghouse dust from 0.5% to 5% by weight.

(4) Cascade Steel, OR

(a) Cascade Steel, OR is a non-stainless steel plant.

(b) No lead data can be found in the EPA RACT/BACT/LAER (RBLC) Clearinghouse.

(5) Gallatin Steel, KY

(a) In addition to the lbs/hour limit (0.162 lbs/hour), the lead limit for Gallatin, KY was also expressed in lbs/ton. The limit was 0.00081 lbs/ton.

(b) The test performed by Gallatin, KY in 1998 resulted a rate of 0.000091 lbs/ton.
Lead = (0.014 lbs/hour)/(154 tons/hour) = 0.000091 lbs/ton

(6) Structural Metal, TX

(a) Structural Metal, TX is a non-stainless steel plant.

(b) No lead data can be found in the EPA RACT/BACT/LAER (RBLC) Clearinghouse.

(7) Nucor Steel SC

(a) The permit issued in 1995 for Nucor Steel, SC also specified the lead limitation in terms of lbs/ton. The limit was 0.0003675 lbs/ton.

(a) The 1998 permit issued to Nucor Steel, SC was for meltshop operations rated at 160 tons/hour. Based on this information, the lead emissions are:
Lead = (1.9 lbs/hour)/(160 tons/hour) = 0.0119 lbs/ton

(8) Nucor Steel, IN

(a) The lead limit (0.134 lbs/hour) specified for Nucor Steel in 2003 was established to assure that the latest modification of the meltshop operations is a PSD minor modification in terms of Lead emissions.

(b) There was no lead limit expressed in lbs/ton in the permit. Based on the maximum capacity of the meltshop, the lead emissions are:
Lead (0.134 lbs/hour)/(502 tons/hour) = 0.000267 lbs/ton

(c) The lead limit (0.136 lbs/hour) specified for Nucor Steel in 2001 was established for the Strip Caster project to assure that the new operation is a PSD minor modification in terms of Lead emissions.

(d) There was no lead limit expressed in lbs/ton in the permit. Based on the maximum capacity of the Strip Caster, the lead emissions are:
Lead = (0.136 lbs/hour)/(135 tons/hour) = 0.001 lbs/ton

(e) Nucor Steel, IN performed lead compliance testing for their Strip Caster line in November 2003. The test results are under review.

(9) SDI, Hendricks, IN

(a) The mill owned by SDI is the same plant previously owned by Qualitech. The lead limit specified for SDI was established to assure that the lead emissions are less than the PSD Significant threshold. SDI was permitted at the maximum rate of 125 tons of steel per hour.

(b) There was no lead limit expressed in lbs/ton in the permit. Based on the maximum capacity of the plant, the lead emissions are:
Lead = (0.134 lbs/hour)/(125 tons/hour) = 0.001072 lbs/ton

(c) The Lead PTE for SDI, Hendricks was based at the rate of 0.00039 lbs/ton. This was taken from the PSD application submitted by SDI and it was the basis of the lead potential to emit. A compliance test was required for lead under the permit issued in 2003. No test data yet.

(10) Qualitech, IN

(a) The mill previously owned by Qualitech is now owned and permitted under SDI, Hendricks, IN. The Lead limit under Qualitech was also expressed in tons/year (0.31 tons/year).

(b) There was no lead limit expressed in lbs/ton in the permit. The Lead limit was based on the EAF's capacity of 135 tons/hour. Based on this the lbs/ton rate is:
Lead = (0.07 lbs/hour)/(135 tons/hour) = 0.000518 lbs/ton

(c) The tests performed by Qualitech in 1999 resulted a rate of 0.00044 lbs/ton. The test was done at a much lower capacity (approximately 70 tons/hour of steel).

(11) IPSCO, IA

(a) IPSCO, IA has 3 different limits at different steel rates. There were no lead limits expressed in lbs/ton in the permit.
Limit 1: 0.09 lbs/hour and 0.38 tons/year at 164 tons/hour steel
Limit 2: 0.11 lbs/hour and 0.49 tons/year at 200 tons/hour steel
Limit 3: 0.13 lbs/hour and 0.55 tons/year at 230 tons/hour steel

(b) There are no lead limits expressed in terms of lbs/ton in the permit. Based on the available information, the lead emissions rates are:
Lead = (0.09 lbs/hour)/(164 tons/hour) = 0.000549 lbs/ton
Lead = (0.11 lbs/hour)/(200 tons/hour) = 0.00055 lbs/ton
Lead = (0.13 lbs/hour)/(230 tons/hour) = 0.00056 lbs/ton

(c) The tests performed by IPSCO, IA in 1998 resulted a rate of 0.00037 lbs/ton at 120 tons/year steel.

(12) Mac Steel, AR

(a) There was no lead limit expressed in lbs/ton in the permit. Based on the maximum capacity of meltshop operations, the lead emissions are:
Lead = (0.3 lbs/hour)/(86 tons/year) = 0.0035 lbs/ton

(b) No test information is available.

(13) Roanoke Steel, VA

(a) There was no lead limit expressed in lbs/ton in the permit. The meltshop operations have a rating on 100 tons/year for this 1998 permit. Based on this information, the lead

emissions are:
Lead = (0.3 lbs/hour)/(100 tons/year) = 0.003 lbs/ton

(b) Earlier permit (1994) specified the lead limit to be 0.84 lbs/hour, at the capacity of 500,000 tons/year.

(c) No test information is available.

(14) Chaparall Steel, TX
There was no lead limit expressed in lbs/ton in the permit. Chaparral Steel, TX was permitted in 1998 for meltshop operations rated at 215 tons of steel per hour. Based on this information, the lead emissions are:
Lead = (0.34 lbs/hour)/(100 tons/year) = 0.0034 lbs/ton

(15) Timken Faircrest, OH
(a) The lead emission specified for Timken, OH was based on NSPS. The permit issued in 2003 was for a meltshop operations rated at 200 tons/hour.

(b) There was no lead limit expressed in lbs/ton in the permit. Based on the maximum capacity of the plant, the lead emissions are:
Lead = (0.26 lbs/hour)/(200 tons/hour) = 0.0013 lbs/ton

(c) No test data available because the permit was just issued in 2003.

(16) Arkansas Steel, AR
(a) The permit issued in 2001 for Arkansas Steel, AR was for the modification of the meltshop operations rated at 50 tons of steel per hour. There was no lead limit expressed in lbs/ton in the permit. Based on the maximum capacity of the meltshop operations, the lead emissions are:
Lead = (0.4 lbs/hour)/(50 tons/hour) = 0.008 lbs/ton

(b) No test information is available.

(17) Ameristeel, FL
The permit issued in 1999 was for meltshop operations rated at 720,000 tons of steel per year. There was no lead limit expressed in lbs/ton in the permit.

Based on the additional information mentioned above, the PSD BACT evaluation was limited to sources with lead emission rates in lbs/ton rate implicitly written in their permits as PSD BACT.

Table 19 EAF Lead Emission Rates of Other Similar Sources - - pounds/ton

Source Name	Lead Limit (lbs/ton)	
Nucor Steel, SC	0.0003675	These are the sources with Lead emission rates specified in lbs/ton in their permits.
SDI, Whitley, IN *(proposed)*	0.00048	
Gallatin Steel, KY	0.00081	
Alton Steel, IL	0.0034	
Sterling Steel, IL	0.005	
Keystone Steel, IL	0.005	

These rates were compared with the test results of similar sources.

Table 20 EAF Lead Test Results of Other Similar Sources - - pounds/ton	
Source Name	Lead Limit (lbs/ton)
Charter Steel, WI	0.000005
Republic Steel, OH	0.00004
SDI, Whitley, IN	0.0000817
Cascade Steel, OR	0.000089
Gallatin Steel, KY	0.00009
Structural Metals, TX	0.00012
Nucor Steel, SC	0.00022
Nucor Steel, SC	0.00024
Qualitech, IN	0.00044
IPSCO, IA	0.00096
New Jersey Steel, NJ	0.0010
J & L Specialty, PA	0.0011
North Start Steel, LA	0.0039
Nucor Steel, SC	0.0041
Arkansas Steel, AR	0.0064
Florida Steel, NC	0.0075
Birmingham Steel, AL	0.0072
Nucor Steel, UT	0.0072
Florida Steel, FL	0.0080
Nucor Steel, TX	0.0123
Average of the data = $\frac{\text{Sum of all data}}{\text{number of data}}$	0.0030493
Standard deviation = $\frac{\sqrt{\sum xi-x)_2}}{\sqrt{m}}$	0.003739
n = number of data	20
m = degrees of freedom = (n-1)	19
t = Student t-distribution	2.539
$t/\sqrt{n} = \frac{2.539}{\sqrt{20}}$ at 99% confidence	0.538
Mean = Average + (Standard deviation* $t/\sqrt{n}$)	0.00517
The BACT limit proposed by SDI is more stringent than the mean of the test data .	

Proposed Lead BACT Limits for EAFs - - SDI, Whitley, IN

Based on the information provided above, the Lead BACT standards and mass emissions limits for the EAFs are as follows:

(1) Lead emissions are controlled by the EAF Baghouse.

(2) The Lead BACT mass emission limit for the EAFs is 0.00048 pounds per ton of steel produced, which is equivalent to 0.144 pounds of lead per hour, based on a 3-hour block average.

Lead = (0.00048 lbs/ton)*(300 tons/hour) = 0.144 lbs/hour

(3) The lead content of the EAFs baghouse dust shall not exceed 5% by weight.

Mercury (Hg) Control Technology Technical Feasibility Study - - EAF

The following available technologies were evaluated to control mercury from EAFs:

(1) Baghouse - - technically feasible

Baghouse has been determined to be technically and economically feasible as control technology for controlling mercury emissions from EAFs. The existing baghouse used for particulate emissions control will be used for mercury emissions reductions.

(2) Scrap Management Plan (SMP) - - technically feasible

Since the mercury emissions emitted from the EAFs are from the mercury switches used by the automobile industry, SDI will inform automotive scrap dealers that mercury switches shall be removed from scrap wherever possible. Unless specifically allowed, all grades of scrap used by SDI will be essentially free of materials containing excessive amounts of volatile organic compounds, or hazardous material such as mercury switches, or radioactive material. SDI will remove and dispose of mercury switches removed from the scrap prior to processing.

(3) Carbon Injection and Carbon Bed Absorption - - not technically feasible

Add on controls such as Carbon Injection and Carbon Bed Absorption have not been determined to be BACT alternatives to a steel mini-mill because:

(a) The mercury emission levels vary throughout an EAF's batch cycle, creating a constantly changing set of exhaust characteristics. A carbon injection system would not have the ability to follow the widely variable gas characteristics. The high gas temperatures and the need for residence time to allow adsorption are expected to create carbon burning problems and generate additional SO_2 emissions since the injected carbon has sulfur in it.

(b) Chlorides, which are present in exhaust gases from sources, such as municipal solid waste and medical waste incinerators, combine with mercury to form a more easily collected compound. However, EAF exhaust gases do not contain any sufficient quantities of chlorides, making mercury control from an EAF far more problematic.

An add-on control technology is not transferable from one industry to another where the flue gas characteristics are not similar (such as comparing a coal fired boiler or municipal waste incinerator versus a mini steel mill). This information demonstrates that an add-on mercury control device is not technically feasible for a steel mini-mill.

Due to differences in scrap used and characteristics of the gas stream, and the additional significant costs of the disposal injected carbon, add on control is not technically and economically feasible to control mercury emissions from the EAFs.

EAF Mercury (Hg) Limits of Other Similar Sources

(1) The table below summarizes the mercury limits in pounds/hour for similar sources (steel mills). This information is either taken from the EPA RACT/BACT/LAER (RBLC) Clearinghouse or from existing permits. Sources were arranged in terms of Hg limits (lbs/hour) in ascending order.

Table 21 EAF Mercury (Hg) BACT Limits of Other Similar Sources - - pounds per hour			
Source Name	Hg Limit (lbs/hour)	Capacity (tons/hour)	Hg Limit (lbs/ton)
Qualitech, IN	0.0017	135	0.0000126
Timken Faircrest, OH	0.0037	200	0.0000185
SDI, Whitley, IN	0.020	200	0.0001
SDI, Hendricks, IN	0.023	125	0.000184
Nucor Steel, IN	0.023	502	0.0000458
Nucor Yamato, AR	0.03	450	0.000067
Chaparral Steel, TX	0.1131	215	0.000526
SDI Dekalb, IN	0.19	400	0.000475
North Star Steel, MI	0.42	162	0.0026
SDI Whitley, IN *(proposed)*	--	300	0.000521
Inland Steel, IN	- -	130	- -
Harrison Steel, IN	- -	10	- -
Beta Steel, IN	- -	151	- -
Hg = (Hg limit lbs/hour)/(Capacity tons/hour) = lbs/ton			

It has to be noted that there are no Hg limits specified in terms of pounds/ton for any of these sources. These Hg emission rates (lbs/ton) are all based on calculations.

Some of the sources in Indiana do not have mercury limits specified because their potential to emit calculations resulted in minor PSD significant level.

(2) Based on the above table, the sources have been re-arranged in terms of Hg limits (lbs/ton) in ascending order.

Table 22 EAF Mercury (Hg) BACT Limits of Other Similar Sources	
Source Name	Hg Limit (lbs/ton)
Qualitech, IN	0.0000126
Timken Faircrest, OH	0.0000185
Nucor Steel, IN	0.0000458
Nucor Yamato, AR	0.000067
SDI Whitley, IN	0.0001
SDI Hendricks, IN	0.000184
SDI Dekalb, IN	0.000475
SDI Whitley, IN *(proposed)*	0.000521
Chaparral Steel, TX	0.000526
North Star Steel, MI	0.0026

(3) PSD Minor Limit
The mercury limits (lbs/hour) for the following sources were specified such that mercury emissions are not subject to PSD major review. These sources were not considered for this PSD BACT evaluation.

- - Qualitech, IN; - - Nucor Steel, IN; - - Nucor Yamato, AR;
- - SDI Whitley, IN; - - SDI Hendricks, IN; - - SDI Dekalb, IN; and
- - North Star Steel, MI.

(4) Upon further evaluation of the remaining sources, there are only 2 remaining steel mills with mercury mass emission limits.

Table 23 EAF Mercury (Hg) BACT Limits of Other Similar Sources		
Source Name	lbs/ton	lbs/hour
Timken Faircrest, OH	0.0000185	0.0037
SDI Whitley, IN *(proposed)*	0.000521	0.1563
Chaparral Steel, TX	0.000526	0.11

(a) Timken Faircrest, OH
The mercury mass emission limit for Timken Faircrest, OH is specified in lbs/hour. This source is not required to comply with a lb/ton mass emission rate. The RBLC Clearinghouse also indicates that the mercury mass emission limit for Timken Faircrest was not based on the PSD regulation.

Timken Faircrest, OH produces ball bearings and uses a unique mixture of scrap, while SDI, Whitley, IN produces structural steel. Due to difference in steel products manufactured, the mercury BACT (0.0000185 lbs/ton) will not be considered as BACT in this evaluation.

(b) Chaparral Steel, TX
The mercury mass emission limit for Chaparral Steel, TX is specified in lbs/hour. In addition, proposed mercury limit under this review is more stringent than the theoretical emission rate in lbs/ton determined for Chaparral Steel, TX. Therefore, this mass emission rate will not be considered as BACT for this evaluation.

(5) The OAQ is not aware of a steel mill using carbon injection, carbon beds, or other control technologies (except baghouses) to control mercury emissions from EAFs.

(6) Since there is not sufficient information to make a comprehensive comparison, IDEM concurs with the proposed mercury PSD BACT limit, which was based on actual tests conducted by SDI.

In addition, the original Scrap Management Plan (SMP) of SDI was updated to incorporate visible inspections for mercury switches and removal of such switches.

Proposed Mercury BACT Limits for EAFs - - SDI, Whitley, IN

Based on the information provided above, the mercury BACT standards and mass emissions limits for the EAFs are as follows:

(1) Mercury emissions are controlled by the EAF Baghouse and minimized by the implementation of the Scrap Management Plan (SMP).

(2) The Mercury BACT mass emission limit for the EAFs is 5.21 $x10^{-4}$ pounds per ton of steel produced, which is equivalent to 0.1563 pounds of mercury per hour, based on a 3-hour block average.

Mercury = (5.21 $x10^{-4}$ lbs/ton)*(300 tons/hour) = 0.1563 lbs/hour = 0.68 tons/year

EAF Fluorides Limits of Other Similar Sources

A search of the EPA RACT/BACT/LAER (RBLC) Clearinghouse resulted in this list of sources with limits specified for Fluorides:

Table 24 Sources With Fluorides Limits	
Company Name	Operations
Alumax of South Carolina, SC	Anode Bake Plant
American Video Glass, PA	Glass Melting For Picture Tube Panels
Archer Daniels, IA	Coal Fired Boiler
Cargill Fertilizer, FL	Phosphoric Acid Production
Energy Bedford, MA	Fluidized Bed Boiler
Johns Manville, OH	Insulation And Building Products
Minergy Detroit, MI	Sludge Incinerator
Roanoke Cement, VA	Cement Kiln
SF Phosphates Limited, WY	Phosphate Fertilizer Production
Steel Dynamics (SDI), Whitley, IN	Electric Arc Furnace
Timken Faircrest, OH	Electric Arc Furnace
US Agri-Chemicals, FL	Phosphate Fertilizer Production
White Springs Agricultural	Phosphate Fertilizer Production

All of the above sources, except SDI, IN and Timken, OH, are operations that are not similar to EAFs. Therefore, the fluoride mass emission limits for these sources were not considered for BACT determination.

The following table summarized the Fluorides mass emission limits of similar sources. Limits are arranged in ascending order.

Table 25 Fluorides BACT Limits of Other Similar Sources - - pounds per hour			
Source Name	Fluorides Limit (lbs/hour)	Capacity (tons/hour)	Fluorides Limit (lbs/ton)
SDI, Whitley, IN *(existing)*	0.68	200	0.0034
SDI, Hendricks, IN	0.68	125	0.00544
SDI Whitley, IN *(proposed)*	2.091	300	0.00697
Timken Faircrest, OH	1.4	200	0.007
Fluorides = (Fluorides limit lbs/hour)/(Capacity tons/hour) = lbs/ton			

(1) The existing emissions rates for the sources listed in the above table were expressed in lbs/hour rate.

(2) The emission rates in terms of lbs/ton were not in the permit. These rates were based on calculations.

(3) The existing limits for SDI Hendricks IN, and SDI Whitley, IN were minor PSD mass emission limits for Fluorides emissions. The equivalent Fluoride emissions rates in lbs/ton are not going to be considered in the BACT evaluation because the sources were not required to comply with them.

(4) In February 2003, SDI Whitley, IN performed Fluoride testing. The results were 11.29 lbs/hour at 216.9 tons/hour steel. Based on this information, SDI did not comply with the existing fluoride limit.

(5) The proposed Fluorides BACT limit for SDI Whitley, IN was compared to the only one existing BACT limit in the EPA RACT/BACT/LAER (RBLC) Clearinghouse (Timken Faircrest, OH). The proposed BACT limit is comparable to the BACT limit.

Table 26	Fluorides BACT Limits of Other Similar Sources - - pounds per hour	
Source Name	Capacity (tons/hour)	Fluorides Limit (lbs/ton)
SDI Whitley, IN *(proposed)*	300	0.00697
Timken Faircrest, OH	200	0.007

Proposed Fluorides BACT Limits for EAFs - - SDI, Whitley, IN

Based on the information provided above, the BACT standards and mass emissions limits are as follows:

The Fluorides BACT mass emission limit for the EAFs is 0.00697 pounds per ton of steel produced, which is equivalent to 2.091 pounds of fluorides per hour, based on a 3-hour block average.

Fluorides = (0.0697 lbs/ton)*(300 tons/hour) = 2.091 lbs/hour

Natural Gas Fueled Ladle/Tundish Dryer - - 10 MMBtu/hour

SDI is proposing to install an additional ladle dryer, rated at 10 MMBtu/hour. This is in addition to the one existing ladle dryer, also rated at 10 MMBtu/hour.

All emissions are by-products of combustion (see table below).

Add-on control is considered infeasible due to the PTE, capacity, and size of the burners, and lack of exhaust gas capture systems.

Table 27	Natural Gas Ladle Dryer (10.0 MMBtu/hr)	
Pollutant	Emission Factor (EF) (lbs/MMBtu)	PTE (tons/year)
SO_2	0.0006	0.03
NO_x	0.050	2.19
VOC	0.0055	0.24
CO	0.084	3.68
PM	0.0019	0.083
PM_{10}	0.0076	0.33
Lead	0.0005	0.0219

The OAQ is not aware of a steel mill using any add-on control technology to control combustion-related emissions from tundish preheater/dryers.

The table below summarizes the most recent PSD permits issued by IDEM for similar units. Sources are arranged in alphabetical order with limits in ascending order.

Table 28		PSD BACT Limits - - Ladle Dryer						
Company Name	Permit Issuance Date	Rating (MMBtu/hour)	SO_2	NO_x	VOC	CO	PM	PM_{10}
			lbs/MMBtu					
SDI Hendricks	August 2003	7.5	0.0006	0.050	0.0055	0.084	0.0019	0.0076
SDI Whitley	*proposed*	10	0.0006	0.050	0.0055	0.084	0.0019	0.0076
	July 1999	10	- -	0.10	- -	- -	- -	- -
Nucor Steel	January 2001	15	- -	0.10	- -	- -	- -	- -

In August 29, 2003, IDEM issued a PSD for SDI, Hendricks County, IN that covered among other units, five (5) ladle preheaters/dryers, each rated at 7.5 MMBtu/hour. Since this PSD was issued less than a year ago, and the ladle dryer will use the same fuel and with in the same rating range, the BACT will be the same for the proposed ladle dryer.

The BACT for the Ladle Dryer is the use of pipeline natural gas and low-NO_x burners, and perform good operating practices with emissions rates as indicated in the table below. These limits are based on the most recent PSD permit issued by IDEM for similar emission units.

Table 29	PSD BACT Limits - - Ladle Dryer	
Pollutant	lbs/MMBtu	lbs/hour
SO_2	0.0006	0.006
NO_x	0.05	0.5
VOC	0.0055	0.055
CO	0.084	0.84
PM	0.0019	0.019
PM_{10}	0.0076	0.076

PTE (combustion) = (Nominal Heat Input 10 MMBtu/hour)*(EF lb/MMBtu) = lbs/hour

Slag Handling and Other Related Processing BACT Analysis

Slag will be generated from the EAF and LMF operations. Slag from these operations will be transported to the slag processing area. The slag processing and handling has a nominal rate of 250 tons/hour.

The table below shows the existing and proposed PSD BACT limits for the slag handling and related processing activities in the plant. Detailed BACT determinations are shown in the subsequent pages.

Table 30	Slag Handling and Related processing BACT Limits	
Operation	Existing PSD BACT/Limit	Proposed PSD BACT/Limit
Production	262,800 tons of slag/year	438,000 tons of slag/year
Transferring of skull slag to slag pot	10 % opacity	10 % opacity
Pouring of liquid slag from EAF or LMF to slag pots	3% opacity	3% opacity
Dumping of liquid slag from slag pot to slag pit and cooling	3 % opacity	3 % opacity
Transferring of skull slag from slag pot to skull pit	5 % opacity	5 % opacity
Digging skull slag pits	5 % opacity	5 % opacity
Digging slag pits	3 % opacity	3 % opacity
Stockpiling of slag adjacent to the grizzly feeder	3 % opacity	3 % opacity
Wind erosion of stockpiles	3 % opacity	3 % opacity
Crushing	3 % opacity	3 % opacity
Screening	3 % opacity	3 % opacity
Conveyor transfer points	3 % opacity	3 % opacity
Continuous stacking of processed slag to stockpiles	3 % opacity	3 % opacity
Loadout of processed slag from stockpiles to haul trucks for shipment	3 % opacity	3 % opacity
Inplant hauling of slag pots (filled) and processed slag (this does not include activities covered under section D.8.	3 % opacity	3 % opacity
Paved and Unpaved Roads	10% opacity	10% opacity
BACT Control Measures	Water sprays, minimizing drop heights, performing good practices	
	Fugitive Dust Control Plan (FDCP)	

Existing PM and PM_{10} Emission Limitation

The following table summarizes the Control Methods and Opacity limits of similar sources.

Previous BACT limitations established for slag processing in Indiana require any visible emissions (0% opacity). Sources subject to this limitation found it to be unattainable within the required safety and product quality standards and have been revised.

Table 31	BACT Slag Handling and Related Processing of Similar Sources		
Source Name	Operation	Control Method	Opacity (%)
Arkansas Steel, AR	Paved and Unpaved Roads	Water Application	- -
	Slag Processing	Water Application	- -
Beta Steel, IN	Vehicular Traffic, Material Handling, Paved Roads	Wet Sweeping	3
Chaparral Steel , TX	Scrap Shredder with Cascade Separator	Intrinsically Wet Process, Work Practices	- -
	Unpaved Roads, Storage Piles, Material Transfer	Dust Management Plan, Work Practices	- -
Georgia Pacific, VA	Paved Roads	- -	10
IPSCO Steel, IA	Caster Slab Hand Scarfing	Baghouse	- -
	Plant Roadways	Hard Surface Pavement, Mechanical Sweeping	0
	Tundish Dumping	--	10
	Steel Scrap Cutting	--	- -
	Slag Hauling Roadways	Crushed Stone and Emulsion Spraying	0
Mac Steel, AR	Slag Processing	Water Sprays on Transfer Points	- -
Marathon Ashland, LA	Unpaved Roads	Wetting by Applying 0.01 Inch of Water	- -
Nucor Steel, AR	Slag Processing	Wet Suppression	- -
Nucor Yamato, AR	Slag Processing	Wet Suppression	- -
Nucor Steel, IN	Dumping Storage and Transfer	Watering Piles	see table below
	Road Transportation	Speed Limit, Vacuuming Sweeping, Dust Suppressant	
	EAF Slag Pit, Digout Operation	Contained Within Building	
	Unpaved Roads	Asphalt Application	
	Open Aggregates Piles	Water spraying	
	Slag Process	Water Application	
	Outdoor Scrap Cutting	- -	
Nucor Steel, NC	Slag Processing	Water Sprays and Slag Pots	10
Nucor Steel, UT	Paved Roads	Sweeping , Water Flushing	10
	Unpaved Roads	Water Spraying Chemical Treatment	20
	Stock Piles, Transfer Points	Fabric Filter	10
	Conveyor Transfer/Drop Points	Water Sprays	10
Nucor Steel, SC	Slag Processing	Use of Slag Pots and water sprays	10
SDI, Hendricks, IN	Slag Processing	Water Application	see below table
	Storage Piles	Water Application	
	Unpaved Road	Water Application, Dust Suppressant	
	Paved Roads	Sweeping	

Table 31	BACT Slag Handling and Related Processing of Similar Sources		
Source Name	Operation	Control Method	Opacity (%)
	Raw Material Silo	Bin Vent	
	EAF Dust Silo	Bin Vent	
Steel Stone, ME	Aggregate Handling	Wet Suppression	- -
	Roads	Wet Suppression	- -
Tuscaloosa Steel, Al	Roads	Paved, Vacuum or Flush	- -
	DRI Material Handling	Scrubber and Cyclone	- -

Proposed PM/PM_{10} BACT Limit for Slag Handling/Processing Operation - - SDI, Whitley, IN

Based on the evaluation of the information derived from the EPA RACT/BACT/LAER (RBLC) Clearinghouse, the BACT for the slag processing is the use of water sprays, minimizing drop heights, performing good practices. In addition to these measures, a slag production limitation will be specified at 438,000 tons per year.

The BACT control and limits for the other related operations are as follows. These opacity limits are comparable to other slag processing opacity limits.

Table 32	Proposed Opacity Limits
Slag Handling/Processing Operation	Opacity (%)
Transferring of skull slag to slag pot	10
Pouring of liquid slag from EAF or LMF to slag pots	3
Dumping of liquid slag from slag pot to slag pit and cooling	3
Transferring of skull slag from slag pot to skull pit	5
Digging skull slag pits	5
Digging slag pits	3
Stockpiling of slag adjacent to the grizzly feeder	3
Wind erosion of stockpiles	3
Crushing	3
Screening	3
Conveyor transfer points	3
Continuous stacking of processed slag to stockpiles	3
Loadout of processed slag from stockpiles to haul trucks for shipment	3
Inplant hauling of slag pots (filled) and processed slag	3
Paved and unpaved roads	3

Indiana Department of Environmental Management
Office of Air Quality

Appendix B - - Air Quality Analysis
Prevention of Significant Deterioration (PSD) and
Part 70 Significant Source Modification (SSM)

Source Background and Description

Source Name:	Steel Dynamics, Inc. (SDI)
Source Location:	2601 County Road 700 East, Columbia City, IN 46725
Mailing Address:	2601 County Road 700 East, Columbia City, IN 46725
Responsible Official:	Vice President and General Manager
County:	Whitley
SIC Code:	3312 (Steel Mill)
NAICS Code:	331211
Source Categories:	1 of 28 Listed Source Categories
	Major PSD Source
	Minor source under Section 112 of the CAA
Permit Number:	PSD/SSM 183-18426-00030
Air Modeler:	Jeffrey Stoakes

Introduction

Steel Dynamics, Incorporated (SDI) has applied for a Prevention of Significant Deterioration (PSD) permit to construct and operate a steel mini-mill facility in Columbia City in Whitley County, Indiana. The site is located at Universal Transverse Mercator (UTM) coordinates 638619.0 East and 4553221.3 North. The facility consists of electric arc furnaces (EAFs), a fourth EAF baghouse fan and increased capacity for slag processing, LMF and caster operations.

Whitley County is designated as attainment for the National Ambient Air Quality Standards. These standards for Nitrogen Dioxide (NO_2), Sulfur Dioxide (SO_2), Carbon Monoxide (CO) and Particulate Matter less than 10 microns (PM_{10}) are set by the United States Environmental Protection Agency (U.S. EPA) to protect the public health and welfare.

Keramida Environmental prepared the PSD permit application for SDI. The permit application was received by the Office of Air Quality (OAQ) on January 22, 2004 and modeling received on February 9, 2004.

This document provides OAQ's Air Quality Modeling Section's review of the PSD permit application including an air quality analysis performed by the OAQ.

Air Quality Analysis Objectives

The OAQ's review of the air quality impact analysis portion of the permit application will accomplish the following objectives:

(1) Establish which pollutants require an air quality analysis based on source emissions.

(2) Determine the ambient air concentrations of the source's emissions and provide analysis of actual stack height with respect to Good Engineering Practice (GEP).

(3) Demonstrate that the source will not cause or contribute to a violation of the National Ambient Air Quality Standard (NAAQS) or Prevention of Significant Deterioration (PSD) increment.

(4) Perform an analysis of any air toxic compound for the health risk factor on the general population.

(5) Perform a brief qualitative analysis of the source's impact on general growth, soils, vegetation, endangered species 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 which is 460 kilometers from the SDI site in Whitley County, Indiana.

Summary

SDI has applied for a PSD construction permit to construct and operate a steel mini mill facility, in Columbia City in Whitley County, Indiana. The PSD application was prepared by Keramida Environmental of Indianapolis. Whitley County is currently designated as attainment for all criteria pollutants. Emission rates of seven pollutants (Nitrogen Dioxide (NO_2), Sulfur Dioxide (SO_2), Carbon Monoxide (CO), Particulate Matter less than 10 microns (PM_{10})), Lead (Pb), Mercury (Hg) and Fluorides(F) associated with the facility exceeded significant emission rates established in state and federal law, thus requiring air quality modeling.

Modeling results taken from the Industrial Source Complex Short Term (ISCST3) model showed pollutant impacts for PM_{10} were predicted to be greater than the significant impact levels for purposes of a National Ambient Air Quality Standards analysis.

Refined modeling for Lead and PM_{10} showed no violations of the NAAQS. Analysis for PSD increment consumption was necessary for PM_{10}. Results from the PSD increment analysis of the SDI showed increment consumption below 80% of the available PSD increment for PM_{10}.

OAQ conducted Hazardous Air Pollutant (HAPs) modeling and all HAP 8-hour maximum concentrations modeled below 0.5% of each Permissible Exposure Limit (PEL). Manganese was above the one in a million cancer risk but below the one in ten thousand cancer risk considered a level of concern.

There was no impact review conducted for the nearest Class I area, which is Mammoth Cave National Park in Kentucky. No Class I analysis is required if a source is located more than 100 kilometers (61 miles) from the nearest Class I area.

An additional impact analysis on the surrounding area was conducted and no significant impact on economic growth, soils, vegetation, federal and state endangered species or visibility from the SDI was expected.

Pollutants Analyzed for Air Quality Impact

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

CO, NO_x, SO_2, PM_{10}, Lead, Mercury and Fluorides will be emitted from SDI and an air quality analysis is required for CO, NO_x, SO_2, PM_{10}, Lead, Mercury and Fluorides all of which exceeded their significant emission rates as shown in Table 1. It should be noted that all emissions are based on the Best Available Control Technology (BACT) determination and other limitations resulting from the OAQ review of the application.

TABLE 1 - SDI Significant Emission Rates (tons/yr)

Pollutant	Maximum Allowable Emissions	Significant Emission Rate
CO	2631.68	100.0
NO_x	462.09	40.0
SO_2	328.53	40.0
PM_{10}	209.18	15.0
Fluorides	9.24	3
Lead	1.96	0.6
Mercury	0.686	0.1

Significant emission rates are established to determine whether a source is required to conduct an air quality analysis. If a source exceeds the significant emission rate for a pollutant, air dispersion modeling is required for that specific pollutant. A modeling analysis for each pollutant is conducted to determine whether the source modeled concentrations would exceed significant impact levels. Modeled concentrations below significant impact levels are not required to conduct further air quality modeling. Modeled concentrations exceeding the significant impact level would be required to conduct more refined modeling which would include source inventories and background data. These procedures are defined in "Guidelines for Air Quality Maintenance Planning and Analysis, Volume 10, Procedures for Evaluating Air Quality Impacts of New Stationary Sources" October 1977, U.S. EPA Office of Air Quality Planning and Standards (OAQPS).

Significant Impact Analysis

An air quality analysis, including air dispersion modeling, was performed to determine the maximum concentrations of the source emissions on receptors outside of the facility property lines. A worst-case approach for emission estimates has been taken due to the nature of the operational capability of the facility.

Model Description

The Office of Air Quality review used the Industrial Source Complex Short Term (ISCST3) model, Version 3, dated June 4, 1999 to determine maximum off-property concentrations or impacts for each pollutant. All regulatory default options were utilized in the United States Environmental Protection Agency (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 referred to determine the land use in a 3 kilometer (1.9 miles) radius from the source.

The area is considered primarily agricultural; therefore a rural classification was used. The model also utilized the Schulman-Scire algorithm to account for building downwash effects.

Stacks associated with the proposed electric arc furnace are below the Good Engineering Practice (GEP) formula for stack heights. This indicates wind flow over and around surrounding buildings can influence the dispersion of concentrations coming from the stacks. 326 IAC 1-7-3 requires a study to demonstrate that excessive modeled concentrations will not result from stacks with heights less than the GEP stack height formula. These aerodynamic downwash parameters were calculated using U.S. EPA's Building Profile Input Program (BPIP).

Meteorological Data

The meteorological data used in the ISCST3 model consisted of the latest five years of available surface data from the Fort Wayne, IN National Weather Service station merged with the mixing heights from Dayton, OH Airport National Weather Service station. The 1990-1994 meteorological data was purchased through the National Oceanic and Atmospheric Administration (NOAA) and National Climatic Data Center (NCDC) and preprocessed into ISCST3-ready format with a version of U.S. EPA's PCRAMMET.

Receptor Grid

Ground-level points (receptors) surrounding the source are input into the model to determine the maximum modeled concentrations that would occur at each point. OAQ modeling utilized receptor grids out to 20 kilometers (12.4 miles) for all pollutants.

Dense receptor grids surround the property with receptors spaced every 100 meters (328 feet) out to 2 kilometers (1.25 miles), receptors spaced every 200 meters (656 feet) from 2 kilometers to 4 kilometers (2.5 miles), receptors spaced every 500 meters (1640 feet) from 4 kilometers to 10 kilometers (6.2 miles) and 1000 meters (3280 feet) from 10 kilometers to 20 kilometers.

Discrete receptors were placed 100 meters or 328 feet apart on SDI property lines.

Modeled Emissions Data

The modeling used the emission rates listed in Table 4-1, 2 and 3 of the application and was reviewed and revised by OAQ. The modeling results reflect these emissions and are considered the controlling results for this air quality analysis.

Modeled Results

Maximum modeled concentrations for each pollutant over its significant emission rate are listed below in Table 2 and are compared to each pollutant's significant impact increment for Class II areas, as specified by U.S. EPA in the Federal Register, Volume 43, No. 118, pg 26398 (Monday, June 19, 1978).

TABLE 2 - Summary of OAQ Significant Impact Analysis (ug/m3)

Pollutant	Year	Time-Averaging Period	SDI Maximum Modeled Impacts	Significant Impact Levels	Significant Monitoring Levels
CO	1992	1-hour	168.9	2000.0	[a]
CO	1992	8-hour	41.5	500.0	575.0
NO_2	1990	Annual - 8760 hrs/yr	0.42	1.0	14.0
SO_2	1990	3-hour	9.36	25.0	[a]
SO_2	1992	24-hour	2.45	5.0	13.0
SO_2	1990	Annual - 8760 hrs/yr	0.297	1.0	[a]
Lead	1994	Quarterly	0172	[a]	0.1
Fluorides	1992	8-hour	0.057	[a]	0.25
PM_{10}	1993	24-hour	19.4	5.0	10.0
PM_{10}	1993	Annual - 8760 hrs/yr	2.09	1.0	[a]

[a] No limit exists for this time-averaged period

Background Concentrations

Modeling results indicate that of the pollutants which exceeded significant emission rates, PM_{10} and Lead impacts were above pre-construction monitoring de minimis levels specified in 326 IAC 2-2.

SDI has calculated the background concentration using PM_{10} monitoring data, considered representative of the area, from the SDI upwind west site, approximately 6 kilometers from the center of the facility. The background concentration for Lead was from Muncie, approximately 100 kilometers south of the site. The Muncie site is the nearest site to SDI and also the highest monitored value in the state.

Background concentrations for use in the NAAQS analysis were required since the results of the modeling for PM_{10} and Lead concentrations exceeded their significant impact levels. The background concentrations are listed below in Table 3.

TABLE 3 - Background Concentrations (ug/m3)			
Pollutant	Monitor Location	Time-Averaging Period	Monitored Concentrations
PM_{10}	SDI Upwind Site	2nd highest 24-hour	45.3
Lead	2601 W. Mt. Pleasant Blvd, Muncie, IN	Quarterly	0.53

Analysis of Source Impact on NAAQS and PSD Increment

Emission inventories of PM_{10} sources in Indiana within a 50 kilometer radius of SDI, taken from the OAQ emission statement database as required by 326 IAC 2-6, were supplied to the consultants.

EPA and OAQ have approved a screening method, using the ISCST3 model, to eliminate Lead and PM_{10} NAAQS sources and PM_{10} PSD sources from the inventory that have no significant impact in the source significant impact area for each pollutant. This method modeled all Lead and PM_{10} NAAQS and PSD sources in the 50 kilometer radius from the site.

Any source that has modeled concentrations less than the significant impact level in the significant impact area of SDI was removed from the NAAQS and PSD inventories.

Sources which did not screen out of the NAAQS and PSD inventories were included in Lead and PM_{10} refined air quality modeling.

A summary of the screening results are listed in the permit application.

NAAQS modeling was conducted to compare to each pollutant's respective NAAQS limits.

OAQ modeling results are shown in Table 4.

All maximum concentrations of PM_{10} for every time-averaged period were below their respective NAAQS limit and further modeling was not required.

TABLE 4 - National Ambient Air Quality Standards Analysis (ug/m3)						
Pollutant	Year	Time-Averaging Period	Modeled Source Impacts	Background	Total	NAAQS Limits
Lead	1990	Quarterly	0.17	0.53	0.70	1.5
PM_{10}	1991	Highest 2nd high 24-hour	17.3	45.3	62.6	150.0
PM_{10}	1990	Annual	3.4	28	31.4	50.0

Analysis and Results of Source Impact on PSD Increment

Maximum allowable increases (PSD increments) are established by 326 IAC 2-2 for NO_2, SO_2 and PM_{10}. This rule limits a source to no more than 80 percent of the available PSD increment to allow for future growth.

Since the impacts for PM_{10} from the SDI were modeled above significant impact levels, a PSD increment analysis for the existing major sources in Whitley County and its surrounding counties was required.

The PSD minor source baseline date in Whitley County for PM_{10} was established on January 9, 1978. All PSD sources in Whitley County and surrounding counties from SDI were screened.

TABLE 5 - Prevention of Significant Deterioration Analysis (ug/m3)

Pollutant	Year	Time-Averaging Period	Modeled Concentrations	PSD Increment	Impact on PSD Increments
PM_{10}	1991	Highest 2nd high 24-hour	17.3	30.0	57.7%

326 IAC 2-2-6 describes the availability of PSD increment and maximum allowable increases as "increased emissions caused by the proposed major PSD source ... will not exceed 80% of the available maximum allowable increases over the baseline concentrations for sulfur dioxide, particulate matter and nitrogen dioxide...". The baseline concentrations are determined from modeling the existing PSD sources that impact SDI significant impact area. Table 5 shows the results of the PSD increment analysis for PM_{10}.

No violations of 80 percent of the PSD increment for PM_{10} occurred and no further modeling was required.

Hazardous Air Pollutant Analysis and Results

As part of the air quality analysis, OAQ requests data concerning the emission of 188 Hazardous Air Pollutants (HAPs) listed in the 1990 Clean Air Act Amendments which are either carcinogenic or otherwise considered toxic. These substances are listed as air toxic compounds on the State of Indiana, Department of Environmental Management, Office of Air Management's construction permit application Form Y. Any HAP emitted from a source will be subject to toxic modeling analysis. The modeled emissions for each HAP are the total emissions, based on assumed operation of 8760 hours per year.

Major PSD sources emitting 10 tons/year for one HAP or combined HAPs over 25 tons/year will trigger a Cumulative Exposure Project (CEP) health benchmark analysis by IDEM. These CEP benchmarks, developed by U. S. EPA, represent an estimated HAP concentration that might cause 1 case of cancer if 1 million people were in constant contact with the HAP for 24 hours a day for 70 years.

OAQ performed toxic modeling using the ISCST3 model for all HAPs. Maximum 8-hour concentrations were determined and the concentrations were recorded as a percentage of each HAP Permissible Exposure Limit (PEL). The PELs were established by the Occupational Safety and Health Administration (OSHA) and represent a worker's exposure to a pollutant over an 8-hour work day or a 40-hour work week.

In Table 6 below, the results of the HAP analysis with the emission rates, modeled concentrations, CEP benchmarks 0.5% of the PEL for each HAP are listed.

All HAPs concentrations were modeled below 0.5% of their respective PELs. The 0.5% of the PEL represents a safety factor of 200 taken into account when determining the health risk of the general population.

Manganese was above the one in a million cancer risk but below the one in ten thousand cancer risk considered a level of concern.

TABLE 6 - Hazardous Air Pollutant Analysis					
Hazardous Air Pollutants	Total HAP Emissions	Maximum 8-hour concentrations	0.5% of PEL	Maximum Annual concentrations	NATA/CEP Benchmarks
	(tons/year)	(ug/m3)	(ug/m3)	(ug/m3)	(ug/m3)
Benzene	0.0036	0.0026	16	0.0036	0.13
Dichlorobenzene	0.002	0.0015	225	0.0001	0.091
Formaldehyde	0.127	0.092	4.65	0.0075	0.077
Hexane	2.38	1.41	9000	0.14	200
Hydrogen Fluoride	9.23	5.69	10	---	---
Naphthalene	0.001	0.0007	250	0.00006	3
Toluene	0.0044	0.0027	375	0.0002	400
Metallic Hazardous Air Pollutants					
Antimony	0.055	0.065	2.5	---	---
Arsenic	0.041	0.00077	0.05	0.00005	0.00023
Beryllium	0.0005	0.0004	0.01	0.00002	0.00042
Cadmium	0.198	0.0034	0.025	0.00023	0.00056
Chromium	0.19	0.163	2.5	---	---
Cobalt	0.038	0.032	0.5	0.0019	0.005
Manganese	1.94	1.656	25	0.1855	0.05
Mercury	0.686	0.00866	0.05	---	---
Nickel	0.085	0.073	0.5	0.00088	0.0038
Selenium	0.055	0..047	1.0	0.0027	20

[a] No OSHA PEL for 8-hour exposure exists at this time

Additional Impact Analysis

PSD regulations require additional impact analysis be conducted to show that impacts associated with the facility would not adversely affect the surrounding area.

The SDI PSD permit application provided an additional impact analysis performed by Keramida Environmental. This analysis included an impact on economic growth, soils, vegetation and visibility and is listed in Section 7 of their application.

Economic Growth and Impact of Construction Analysis

The construction of the second EAF has already been approved and little additional construction will be necessary.

Little growth impact is expected on the local and regional area once the facility is operational. Secondary emissions are not expected to significantly impact the area as all roadways will be paved.

Industrial and residential growth is predicted to have negligible impact in the area since it will be dispersed over a large area and new home construction is not expected to significantly increase.

Any commercial growth, as a result of the proposed facility, will occur at a gradual rate and will be accounted for in the background concentration measurements from air quality monitors. A minimal number of support facilities will be needed.

There will be no adverse impact in the area due to industrial, residential or commercial growth.

Soils Analysis

Secondary NAAQS limits were established to protect general welfare, which includes soils, vegetation, animals and crops.

Soil types in Whitley County are of the Blount, Morley, Pewamo Association of which is predominately clayey glacial till (Soil Survey of Whitley County, U.S. Department of Agriculture).

The general landscape consists of Tipton Till Plain or flat to gently rolling terrain (1816-1966 Natural Features of Indiana - Indiana Academy of Science).

According to the insignificant modeled concentrations CO, NO_2, SO_2, PM_{10} and the HAPs analysis, the soils will not be adversely affected by the facility.

Vegetation Analysis

Due to the agricultural nature of the land, crops in the Whitley County area consist mainly of corn, wheat, oats, soybeans and hay (1997 Agricultural Census for Whitley County).

The maximum modeled concentrations of SDI for CO, NO_2, SO_2, PM_{10} and the HAPs analysis are well below the threshold limits necessary to have adverse impacts on surrounding vegetation such as autumn

bent, nimblewill, barnyard grass, bishopscap and horsetail milkweed (Flora of Indiana - Charles Deam). Livestock in the county consist mainly of hogs, beef and milk cows, sheep and chickens (1997 Agricultural Census for Whitley County) and will not be adversely impacted from the modification.

Trees in the area are mainly Beech, Maple, Oak and Hickory. These are hardy trees and due to the insignificant modeled concentrations, no significant adverse impacts are expected.

Federal and State Endangered Species Analysis

Federally endangered or threatened species as listed in the U.S. Fish and Wildlife Service, Division of Endangered Species for Indiana include 12 species of mussels, 4 species of birds, 2 species of bat and butterflies and 1 species of snake. The mussels and birds listed are commonly found along major rivers and lakes while the bats are found near caves.

The agricultural nature of the land overall has disturbed the habitats of the butterflies and snake and the proposed facility is not expected to impact the area.

Federally endangered or threatened plants as listed in the U.S. Fish and Wildlife Service, Division of Endangered Species for Indiana list two threatened and one endangered species of plants. The endangered plant is found along the sand dunes in northern Indiana while the two threatened species do not thrive on cultivated or grazing land. The proposed facility is not expected to impact the area.

The state of Indiana's list of endangered, special concern and extirpated nongame species, as listed in the Department of Natural Resources, Division of Fish and Wildlife, contains species of birds, amphibians, fish, mammals, mollusks and reptiles which may be found in the area of SDI. However, the impacts are not expected to have any additional adverse effects on the habitats of the species than what has already occurred from the agricultural activity in the area.

Additional Analysis Conclusions

The nearest Class I area to the facility is the Mammoth Cave National Park located approximately 460 km southwest in Kentucky. Operation of the proposed facility will not adversely affect the visibility at this Class I area. SDI is located well beyond 100 kilometers (61 miles) from Mammoth Cave National Park and will not have significant impact on the Class I area.

The results of the additional impact analysis conclude SDI's facility will have no adverse impact on economic growth, soils, vegetation, endangered or threatened species or visibility on any Class I area.

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD)
Prevention of Significant Deterioration (PSD) and
Part 70 Significant Source Modification (SSM)

Source Background and Description

Source Name:	Steel Dynamics, Inc. (SDI)
Source Location:	2601 County Road 700 East, Columbia City, IN 46725
Mailing Address:	2601 County Road 700 East, Columbia City, IN 46725
Responsible Official:	General Manager or designee pursuant to 326 IAC 2-7-1(34)
County:	Whitley
SIC Code:	3312 (Steel Mill)
NAICS Code:	331111
Source Categories:	1 of 28 Listed Source Categories Major PSD Source Minor source under Section 112 of the CAA Clean Units
Permit Number:	PSD/SSM 183-19849-00030
Permit Writer:	Iryn Calilung 317/233-5692 icalilun@dem.state.in.us

Description of the Proposed Expansion

Steel Dynamics, Inc. (SDI) owns and operates a mini mill that produces a variety of carbon and low alloy structural steel products. The mini mill is located in Whitley County, which is designated as attainment or unclassifiable for all criteria pollutants. The existing mini mill consists of two (2) electric arc furnaces, one (1) continuous caster, one (1) reheat furnace and a rolling mill.

On December 17, 2004, the Office of Air Quality (OAQ) received an application from SDI to expand the mini mill by constructing and operating the following:

(a) One (1) continuous caster, identified as ID# 42a, with a nominal casting rate of 200 tons of steel per hour. This is in addition to the mini mill's existing continuous caster. The two (2) continuous casters are limited to a maximum combined casting capacity of 300 tons of steel per hour.

The particulate emissions from this second continuous caster are collected by the overhead roof exhaust system and exhaust through the common electric arc furnace baghouse stack (Stack 1).

There are no roof monitors in the meltshop.

Opacity is measured with a continuous opacity monitor (COM).

(b) One (1) natural gas-fired low NO_x burners reheat furnace, identified as ID# 41, with a nominal heat input rate of 260 million Btu per hour. Combustion and process emissions from this reheat furnace exhaust through a stack, identified as Stack 41.

This reheat furnace is in addition to the mini mill's existing reheat furnace.

(c) Caster

(1) One (1) natural gas-fired Tundish Nozzle Preheater, identified as ID# 3m, nominally rated at 10 million Btu per hour.

(2) One (1) natural gas-fired Tundish Preheater, identified as ID# 3n, nominally rated at 10 million Btu per hour.

(3) One (1) natural gas-fired Tundish Dryer, identified as ID# 3o, nominally rated at 5 million Btu per hour.

These preheaters and dryer are in addition to the mini mill's existing preheaters and dryers.

Emissions Calculations

The following tables summarize the potential to emit (PTE) of the new units involved in this proposed expansion.

Table 1 - - - Second Continuous Caster (200 tons/hour)		
Pollutant	Emission Factor (EF) (lbs/ton)	PTE (tons/year)
PM and PM_{10}	0.07	0.007
PTE = (Maximum capacity 200 tons/hour)*(EF lbs/ton)*(8,760 hours/year) *(1 ton/2000 lbs) = tons/year		

Table 2 - - - Second Reheat Furnace (260 MMBtu/hour)		
Pollutant	Emission Factor (EF) (lbs/MMBtu)	PTE (tons/year)
SO_2	0.0006	0.68
NO_x	0.080	91.10
VOC	0.0055	6.26
CO	0.030	34.16
PM/PM_{10}	0.0076	8.65
Lead	0.0005	0.57
Mercury	0.00026	0.30
Fluoride	0.0000028	0.00
PTE = (Nominal Heat Input 260 MMBtu/hour)*(EF lb/MMBtu)*(8760 hours/year)*(1 ton/2000 lbs) = tons/year		

Table 3 - - - Tundish Preheaters and Dryer (25 MMBtu/hour)		
Pollutant	Emission Factor (EF) (lbs/MMBtu)	PTE (tons/year)
SO_2	0.0006	0.07
NO_x	0.050	5.48
VOC	0.0055	0.60
CO	0.084	9.20
PM/PM_{10}	0.0076	0.83
Lead	0.0005	0.05
Mercury	0.00026	0.03
Fluoride	0.0000028	0.00
Total Nominal Heat Input of the Tundish Preheaters and Dryer = 25 million Btu per hour PTE = (Nominal Heat Input 25 MMBtu/hour)*(EF lbs/MMBtu)*(8760 hours/year)*(1 ton/2000 lbs) = tons/year		

Total Potential to Emit (PTE) of the Expansion

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as "the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U.S. EPA."

Total PTE of the Proposed Expansion = (Table 1) + (Table 2) + (Table 3)

Table 4 - - - Total PTE of the Proposed Modification			
Pollutant	Total PTE (tons/year)	PSD Significant Level (tons/year)	Subject to PSD Review * (Yes/No)
SO_2	0.75	40	Yes
NO_x	96.58	40	Yes
VOC	6.86	40	Yes
CO	43.36	100	Yes
PM/PM_{10}	9.49	25/15	Yes
Lead	0.62	0.6	Yes
Mercury	0.33	0.1	Yes
Fluoride	- -	3.0	Yes

***** This proposed expansion of the mini mill was evaluated as part of the modification under PSD application (PSD 183-18426-00036).

Permitting and PSD Applicability Determination

(1) Significant Source Modification
This modification is considered a significant source modification (SSM) under 326 IAC 2-7-10.5 to the existing Part 70 source because the potential to emit after control is greater than 25 tons/year, (see Table 4).

(2) Prevention of Significant Deterioration (PSD) Major Modification
(a) This proposed modification is PSD major modification for NO_x, lead and mercury because their potential to emit exceeds the PSD significant levels.

(b) Even though the SO_2, VOC, CO, PM/PM_{10} and Fluoride potential to emit of the new emission units involved in this specific review are less than the significant PSD significant levels, these pollutants were reviewed under 326 IAC 2-2 because this proposed expansion was considered part of the project under PSD permit 183-18426-00036.

(3) Fugitive Emissions
Since this type of operation is one of the 28 listed source categories under 326 IAC 2-2-1(gg)(1), the fugitive emissions are counted toward determination of PSD applicability.

Source Status

(1) Prevention of Significant Deterioration (PSD) Major Source
Steel Dynamics, Inc. (SDI) is an existing major stationary source because one or more attainment regulated pollutants are emitted at a rate of 100 tons per year or more.

(2) 1 of 28 Listed Source Categories
SDI is one of the 28 listed source categories under 326 IAC 2-2-1(gg)(1).

(3) Part 70 Source
SDI is a Part 70 source. SDI submitted their Part 70 permit application on April 10, 2003.
The Part 70 permit is still under review by the Office of Air Quality (OAQ).

(4) Hazardous Air Pollutants (HAPs) Minor Source
SDI is an existing minor source for HAPs because emissions of each HAP is less than 10 tons per year and the sum of all the HAPs emitted is less than 25 tons per year.

County Attainment Status

Steel Dynamics, Inc. (SDI) is located in Columbia City, Whitley County, Indiana.

Table 5 - - - Whitley County	
Pollutant	Status
PM_{10}	Attainment
$PM_{2.5}$	Attainment
SO_2	Attainment
NO_2	Attainment
1-Hour Ozone	Attainment
8-Hour Ozone	Attainment
CO	Attainment
Lead	Attainment

(1) Volatile organic compounds (VOC) and Nitrogen Oxides (NO_x)
VOC and NOx are regulated under the Clean Air Act for the purposes of attaining and maintaining the National Ambient Air quality Standards (NAAQS) for ozone. Therefore, VOC and NOx emissions are considered when evaluating the rule applicability relating to the ozone standards. Whitley County has been designated as attainment or unclassifiable for the 1-hour and 8-hour ozone. Therefore, VOC emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD) 326 IAC 2-2.

(2) Criteria Pollutants
Whitley County has been classified as attainment or unclassifiable for all the other pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

Federal Rule Applicability Determination

(1) New Source Performance Standards (NSPS) 40 CFR Part 60
There are no New Source Performance Standards (NSPS) included in the permit for the caster, reheat furnace and tundish preheaters and dryer.

(2) National Emission Standards for Hazardous Air Pollutants (NESHAP)
40 CFR Part 61 or 40 CFR Part 63
There are no National Emission Standards for Hazardous Air Pollutants (NESHAP) included in the permit for the caster, reheat furnace and tundish preheaters and dryer.

(3) Prevention of Significant Deterioration (PSD) 40 CFR 52.21
US EPA has granted conditional approval to the PSD State Implementation Plan (SIP) of Indiana under provisions of 40 CFR 51.166 and 40 CFR 52.770 and superseding the delegated PSD SIP authority under 40 CFR 52.793. The effective date for these provisions is April 2, 2003. Therefore, the PSD permits will be issued under the authority of 326 IAC 2-2 and will no longer be issued under the provision of 40 CFR 52.21 and 40 CFR 124. Detailed PSD BACT determinations are shown in the subsequent pages of this TSD.

(4) 40 CFR 64 (Compliance Assurance Monitoring)
The second continuous caster is not subject to 40 CFR 64.2(a)(2) because it does not emit 100 tons per year of any regulated pollutant after control.

State Rule Applicability Determination

Pursuant to 326 IAC 2-1.1-4 (Federal Provisions), in the case of a conflict between the state rules and a provision of federal law or regulation, the more stringent requirement applies.

(1) Preventive Maintenance Plan (PMP) 326 IAC 1-6

(a) Since the second continuous caster is going to be connected to the existing electric arc furnace baghouse and exhausting through the same stack (Stack 1), the existing preventive maintenance plan for the meltshop will satisfy the PMP requirement for this caster.

(b) PMPs will not be required for the second Reheat Furnace, Tundish preheaters and dryer.

(2) 326 IAC 1-7-1 (Stack Height Requirements)
The following table summarizes the dimensions of the new stack involved in this proposed expansion.

Table 6 - - - Stack Dimensions

Stack ID	Outlet Diameter (feet)	Height (feet)	Maximum Outlet Flow Rate (acfm)	Outlet Gas Temperature (^{0}F)
41	12	91	137,865	500

(3) 326 IAC 2-1.1-6 (Public Notice)

(a) Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on November 19, 2004. Additional information was received on December 17, 2004; February 16, 2005; and February 21, 2005.

(b) The applicant has provided a copy of the application in the Peabody Public Library, 1160 East Highway 205, Columbia City, IN 46725.

(c) The following officials have been notified of this application:
(1) Mayor, Columbia City, IN
(2) President of County Council, Columbia City, IN and
(3) Chairman of the Board of County Commissioners, Columbia City, IN

(d) A notice of the preliminary findings will be published in the most circulated newspaper in the area. A notice may also be published in a newspaper of the surrounding area, as deemed necessary. There will be a 30-day comment period.

(4) 326 IAC 2-1.1-8 (Time Periods for Determination on Permit Applications)
Pursuant to 326 IAC 2-1.1-8(a)(1), a final action needs to be issued no later than 270 calendar days from the receipt of the application, taking into account actions that can suspend the time period. The application was received on November 19, 2004.

(5) 326 IAC 2-2 (Prevention of Significant Deterioration (PSD))
Detailed PSD BACT determinations are shown in the subsequent pages of this document.

(6) 326 IAC 2-2.2 (Clean Unit)
The following emissions units are designated as Clean Units pursuant to 326 IAC 2-2.2 (Clean Unit) because:
- - they have been reviewed under the PSD program (326 IAC 2-2),
- - they achieved reductions in emissions by using add-on control or implementing work practices, and
- - the owner/operator made an investment to:
  - - install the control technology,
  - - research the application of pollution prevention technique to the emission unit, or
  - - apply a pollution prevention to the emission unit.

(a) Second Continuous Caster (ID# 42a)
The second continuous caster is designated as clean unit for filterable and condensible particulate matter (PM/PM_{10}). The Clean Unit designation for the second continuous caster will be in effect for 10 years from the initial start up/operation of this caster.

(b) Second Reheat Furnace (ID# 41)
The second reheat furnace is designated as clean unit for NO_x. The Clean Unit designation for the second Reheat Furnace will be in effect for 10 years from the initial start up/operation of this furnace.

(c) New Tundish Preheaters and Dryer (ID# 3m, ID# 3n, ID# 3o)
The new three (3) tundish preheaters and dryer are designated as Clean Units for NO_x. The Clean Unit designations will be in effect for ten (10) years from the initial start up/operation of the preheaters and dryer.

(7) 326 IAC 2-3 (Emission Offset)
The Office of Air Quality (OAQ) has the authority to permit an applicant pursuant 326 IAC 2-3 and 40 CFR 51.166 (Nonattainment Rules) only when the source is located in a designated nonattainment area as specified in 40 CFR 81.315.

Whitley County has been designated as attainment area in 40 CFR 81.315. Therefore, the OAQ does not have the authority to require lowest achievable emission rate (LAER).

(8) 326 IAC 2-4.1 (Hazardous Air Pollutants (HAPs))
SDI, after this modification, is still considered a minor source in terms of hazardous air pollutant (HAP) emissions because emissions of each HAP is less than 10 tons per year and the sum of all the HAPs emitted is less than 25 tons per year.

(9) 326 IAC 2-6-1 (Emission Reporting)
Even prior to this proposed modification, SDI was subject to the emission reporting requirement because it has potential to emit equal to or greater than 100 tons per year.

(10) 326 IAC 2-7 (Part 70 Program)
The Office of Air Quality (OAQ) received the SDI Part 70 permit application on April 10, 2003.

The Part 70 permit has not yet been issued and is still under review by the OAQ.

(11) 326 IAC 2-8 (FESOP)
This program does not apply because SDI is a Part 70 source.

(12) 326 IAC 3-5-1 (Continuous Monitoring of Emissions)
The second caster will use the same existing opacity continuous emission monitor for the meltshop.

(13) 326 IAC 5-1 (Opacity Limitations)
Except otherwise specified under 326 IAC 2-2 (PSD), the new emission units involved in this proposed expansion are subject to the opacity standard specified in 325 IAC 5-1.

(14) 326 IAC 6-1 (PM Nonattainment Limitation)
This rule does not apply to SDI because it is not located in any of the counties or areas specified in 326 IAC 6-1-7.

(15) 326 IAC 6-2 (Particulate Emission Limitations for Sources of Indirect Heating)
There are no new boilers involved in this proposed modification.

(16) 326 IAC 6-3 (Particulate emission for manufacturing process)
The continuous caster and reheat furnace in this proposed modification are not subject to this rule, because pursuant to 326 IAC 6-3(c)(1), this rule does not apply if PM emissions limitations have been established under 326 IAC 2-2 (PSD).

(17) 326 IAC 8-1-6 (Volatile Organic Compounds (VOC))
The requirements under 326 IAC 8-1-6 are not applicable because each new emission unit involved in this proposed expansion has potential to emit less than 25 tons per year.

(18) 326 IAC 9 (Carbon Monoxide (CO) emission rules)
This rule does not apply because there are no applicable requirements specified for reheat furnaces.

(19) 326 IAC 10 (Nitrogen Oxides (NO_x) rules)
This rule does not apply to SDI because it is not located in Clark County or Floyd County.

(20) 326 IAC 11 (Source Specific limitations)
Steel mill is not one of the operations listed in this rule.

(21) 326 IAC 12 (New Source Performance Standards (NSPS))
This rule incorporates by reference the 40 CFR Part 60. Applicability determinations with this rule have been addressed under the Federal Rules Applicability of this TSD.

(22) 326 IAC 13 (Motor vehicles emissions)
Not applicable.

(23) 326 IAC 14 (Hazardous Air pollutants (HAPs) Emission)
This rule incorporates by reference the 40 CFR Part 61. Applicability determinations with this rule have been addressed under the Federal Rules Applicability of this TSD.

(24) 326 IAC 15 (Lead Rules)
SDI is not one of the listed sources subject to this rule.

PSD BACT Overview and General Discussion

The Prevention of Significant Deterioration (PSD) Program (326 IAC 2-2) requires a best available control technology (BACT) review and air quality modeling to be performed on the proposed expansion of the mini mill. BACT is a mass emission limitation based on the maximum degree of reduction of each pollutant that is subject to the PSD requirements. These reductions may be determined through the application of available control techniques, process design, work practices, and operational limitations. Such reductions are necessary to demonstrate that the remaining emissions after application of BACT standards will not cause or contribute to air pollution, thereby protecting public health and the environment.

BACT analysis also takes into account the energy, environmental, and economic impacts on the source. The Office of Air Quality (OAQ) makes BACT determinations by following these steps.

(1) Determine the pollutants that will under go major review.

(2) Identify all control technologies and eliminate technically infeasible options.

(3) Rank the technically feasible control technologies by effectiveness.

(4) Evaluate the most effective controls and document results.

(5) Select the BACT control and mass emission limit(s).

Once the technically feasible control technology has been identified, they are ranked in order of control effectiveness, with the most effective control alternative on top. The ranked alternatives are reviewed in terms of environmental, energy, and economic impacts specific to the proposed expansion of the mini mill. If the analysis determines that the evaluated alternative is not appropriate as BACT due to any of the impacts, then the next most effective is evaluated. This process is repeated until a control alternative is chosen as BACT. The proposed BACT must provide emission limitations, which are at least as stringent as the federally approved State Implementation Plan (SIP) or the federal New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP).

In going through the feasible controls, there may also be several different limits that have been set as BACT for the same control technology. The Office of Air Quality (OAQ) has to choose the most stringent limit as BACT unless the applicant demonstrates in a convincing manner why that limit is not feasible. The final BACT determination would be the technology with the most stringent corresponding limit that is technically and economically feasible.

The following BACT determinations are based on the information obtained from the PSD permit application submitted by Steel Dynamics, Inc. (SDI), the EPA RACT/BACT/LAER Clearinghouse and electronic data from other permitting agencies websites. The RACT/BACT/LAER Clearinghouse is a database system that provides emission limit data for industrial processes throughout the United States.

Continuous Caster PSD BACT Analysis

Steel Dynamics, Inc (SDI) is proposing to construct and operate a second continuous caster which has a nominal casting rate of 200 tons of steel per hour. This new continuous caster and the plant's existing continuous caster will be limited to a maximum combined casting rate of 300 tons of steel per hour. Emissions from both the continuous casters exhaust to the same electric are furnace baghouse stack (Stack 1).

Search of the RACT/BACT/LAER Clearinghouse shows that majority of the casters are vented to the control devices of the electric are furnaces of the meltshop.

The following mini mills in Indiana are the most recently permitted sources with casters. They are arranged in descending order in terms of their permit issuance dates:

(1) Nucor Steel, IN - - November 21, 2003
The casters located in the Nucor Steel's mini mill plant were re-permitted on November 21, 2003 for the maximum utilization of the meltshop. There were no separate PSD BACT limits specified for the casters alone because they vent to the same control of the electric arc furnaces.

These casters are of similar design and arrangement as the proposed caster to be located in the SDI, Whitley County plant.

(2) SDI, Hendricks County, IN - - August 29, 2003
The continuous caster located in the SDI Hendricks County plant was permitted on August 29, 2003. This caster does not vent to an add-on control device. It exhausts to a roof monitor and located in a separate area from the meltshop.

The PSD BACT limit for this caster was not considered BACT because of the difference in design and arrangement.

(3) SDI, Whitley County, IN - - July 7, 1999
The existing caster located in the SDI, Whitley County plant was originally permitted on July 7, 1999. The PSD BACT determination specified for this caster was that at least 99% of the filterable and condensible PM/PM_{10} emissions from the continuous caster shall be captured by the meltshop roof canopy, and then controlled by the electric are furnace baghouse.

Since the proposed second continuous caster is similar in design, operation, capacity and control technology of the existing caster, the same applicable PSD BACT limits will be applied to the proposed new caster.

Based on the evaluation provided above, the BACT standards and mass limitations for the continuous caster are as follows:

The filterable and condensible particulate matter (PM/PM_{10}) emissions from the second continuous caster (ID# 42a) shall be captured by the meltshop roof canopy, and then exhaust through the existing common electric arc furnace baghouse.

Reheat Furnace PSD BACT Analysis

Steel Dynamics, Inc. (SDI) is proposing to construct and operate a natural gas-fired low NO_x burners reheat furnace, identified as ID# 41, with a nominal heat input rate of 260 million Btu per hour. Combustion and process emissions from this reheat furnace exhaust through a stack, identified as Stack 41. This reheat furnace is in addition to the existing reheat furnace of the mini mill plant.

The following pages show the PSD BACT analysis for the proposed reheat furnace.

Reheat Furnace NO_x PSD BACT Evaluation

Nitrogen Oxides (NO_x) emissions are formed from the chemical reaction of nitrogen and oxygen at high temperature in the furnace. NO_x formation during combustion consists of three (3) types:

(1) Thermal NO_x
The principal mechanism of NO_x formation in natural gas combustion is thermal NO_x. The thermal NO_x mechanism occurs through the thermal dissociation and subsequent reaction of nitrogen and oxygen molecules in the combustion air. Most NO_x formed through the thermal NO_x is affected by three factors: oxygen concentration, peak temperature, and time of exposure at peak temperature. As these factors increase, NO_x emission levels increase. The emission trends due to changes in these factors are fairly consistent for all types of natural gas-fired boilers and furnaces. Emission levels vary considerably with the type and size of combustor and with operating conditions (e.g. combustion air temperature, volumetric heat release rate, load, and excess oxygen level).

The majority of the NO_x formation is anticipated from thermal NOx.

(2) Prompt NO_x
The second mechanism of NO_x formation, prompt NO_x, occurs through early reactions of nitrogen molecules in the combustion air and hydrocarbon radicals from the fuel. Prompt NO_x reactions occur within the flame and are usually negligible when compared to the amount on NO_x formed through the thermal NO_x mechanism.

(3) Fuel NO_x
The final mechanism of NO_x formation, fuel NO_x, stems from the evolution and reaction of fuel-bonded nitrogen compounds with oxygen. Due to the characteristically low fuel nitrogen content of natural gas, NO_x formation through the fuel NO_x mechanism is insignificant.

The following control alternatives were evaluated to control NO_x emissions from the Reheat Furnace:

(1) Low NO_x Burners - - Technically and Economically Feasible
There is an entire family of combustion controls for NO_x reduction from various combustion units:
- - low-NO_x burners,
- - low excess air (LEA),
- - overfire air (OFA),
- - burners out of service (BOOS),
- - reduced combustion air temperature,
- - load reduction, and
- - flue gas re-circulation (FGR).

Among these, low-NO_x burners are considered technically feasible for controlling NO_x emissions from reheat furnaces. Low NO_x burners control mixing of fuel and air in a pattern that keeps the flame temperature low and dissipates the heat quickly. Low NO_x burners incorporate many different design principles to achieve low NO_x operation.

LEA and OFA generally create more CO emissions due to low primary air resulting in incomplete combustion. Such conditions can result in inefficient heat distribution within the furnace.

BOOS, reduced combustion air temperature, and load reduction are inconsistent with the intended operation of the furnace.

FGR alters the distribution heat (resulting in cold spots) and lowers the efficiency of the furnace.

Evaluations of these technologies arrived at the conclusion that the use of low NO_x burners is technically and economically feasible.

(2) Selective Catalytic Reduction (SCR) - - - Technically and Economically Not Feasible
SCR is a technology that uses a catalyst and ammonia injection to promote the removal of NO_x at certain exhaust stream parameters such as inlet NO_x concentration, volumetric flow and temperature range. SCR operates best when inlet NO_x concentrations and exhaust temperatures are constant and in the range specified for the particular catalyst. Other parameters that can affect the performance of the catalyst are poisoning due to certain metals or chemicals in the exhaust stream and fouling or masking due to particulate matter plugging or covering the catalyst. In SCR systems, ammonia, usually diluted with air or steam, is injected through a grid system into the exhaust gas stream upstream of a catalyst bed. On the catalyst surface, the ammonia reacts with NO_x to form molecular nitrogen and water. The function of the catalyst is to effectively lower the activation energy of the NO_x decomposition reactions. In order for a SCR system to effectively reduce NO_x emissions, the exhaust gas stream should have relatively stable gas flow rates, NO_x concentrations, and temperature - steady-state system.

SCR systems are highly susceptible to catalyst poisoning due to contamination of the catalyst by reactive materials entrained in the gas stream. Other problems with catalysts are their propensity to fouling and masking. Fouling occurs when the catalyst's cell openings are plugged with a solid material. Masking occurs when the catalyst surfaces are covered with residues which prevent their contact with the flue gas. The problems with catalyst poisoning, fouling, and masking would, at a minimum, require the placement of the SCR unit downstream of the particulate control device (baghouse). SCR catalysts require high gas stream temperatures (500 ^{o}F to 1,100 ^{o}F), thus the gas stream would have to be reheated from approximately 200 ^{o}F to the proper operating temperature for the catalyst. This would require substantial energy expenditure (natural gas combustion) and result in additional NO_x emissions, not to mention CO emissions. SCR catalyst suppliers and manufacturers that were contacted confirm the above problems. SCR is not technically feasible.

However, the IDEM, OAQ is aware of only one (1) situation where selective catalytic reduction (SCR) is used to control NO_x emissions from a reheat furnace. Beta Steel, located in Indiana, has a SCR system installed at its Hot Strip Mill Slab Reheat Furnace. Beta Steel has experienced problems with the performance of its SCR system. This innovative application has not achieved the manufacturer's claims. When Beta Steel proposed to apply the SCR control technology to the reheat furnace in its permit application submitted on December 12, 1991, no extensive BACT analysis was performed and no cost information was required and submitted.

To pro-actively address concerns, notwithstanding the uncertainty on the technical feasibility of using SCR to control NO_x emissions from a reheat furnace, and the lower than expected performance of the only case where SCR has been used in a reheat furnace, an economic analysis was performed for the use of SCR. Cost effectiveness is the key criterion to be used in assessing the economic feasibility of a control alternative. If a control technology has been successfully applied to similar sources in a source category, the applicant should concentrate on documenting significant cost differences, if any, between the application of the control technology on those other sources and the particular source under review.

SDI submitted a cost analysis of installing and operating a SCR for the reheat furnace, as part of their application. The table below shows the cost summary of installing and using a SCR to control NOx emissions from the Reheat Furnace. Cost analysis was based (scaled up or down) on the cost analysis performed during the PSD BACT review of the first reheat furnace of this mini mill plant.

In a previous PSD permit issued to SDI, Whitley, IN, for their existing reheat furnace, it has been evaluated and comparison has been made which showed that the SCR proposed for SDI could be at least 35-38% more costly than Beta's components would be in today's dollars. For more information, refer to the supporting documents of PSD permit 183-10097-00030, issued on July 7, 1999.

Table 7 - - - SCR Cost Summary for the Reheat Furnace			
Costs	US $	Total US $	
Direct Purchased Equipment Cost	3,358,742	5,674,660	
Direct Installation Cost	1,739,408		
Indirect Capital Cost	576,510		
Capital Recovery (7%, 10 years)	808,072		1,891,442
Operation and Maintenance Direct Cost	771,310	1,083,370	
Operation and Maintenance Indirect Cost	312,060		
Annual Cost Effectiveness at 80%		25,946	
Based on this amount, the use of SCR as control is not economically feasible. The same conclusion was arrived during the PSD BACT review of the first reheat furnace permitted for SDI, Whitley, IN plant.			

NO_x PTE of the Reheat Furnace = 91.10 tons per year. (See Table 2)

The efficiency for the SCR used in this cost analysis was based on vendor guarantee.

$$\text{Annual Cost Effectiveness} = \frac{\$1{,}891{,}442}{(91.10\ \text{tons/year})*(80\%\ \text{Efficiency})} = \$25{,}946.00\ \text{per ton}$$

(3) Selective Non-Catalytic Reduction (SNCR) - - Technically Not Feasible
SNCR is a post-combustion process in which a reagent mixture is injected into the elevated temperature flue gas stream. Using urea solution as reagent, a portion of the NO_x is converted to nitrogen, water, and carbon monoxide. The process may release ammonia during the incomplete combustion of urea.

In order to achieve optimum efficiency of the SNCR system, it must be located in a temperature of 1,600 ^{0}F to 1,900 ^{0}F and an area of stable gas flows and NO_x concentrations. The exhaust from the reheat furnace is 900^{0}F. SNCR has not been applied to reheat furnaces. Therefore, SNCR is not technically feasible.

(4) Non-Selective Catalytic Reduction (NSCR) - - Technically Not Feasible
A non-selective catalytic reduction (NSCR) system is a post combustion add-on exhaust gas treatment system. It is often referred to as “three-way conversion” catalyst since it reduces NO_x, unburdened hydrocarbons, and CO simultaneously. In order to operate properly, the combustion process must be near-stoichiometric. Under this condition, in the presence of a catalyst, NO_x is reduced by CO, resulting in nitrogen and carbon dioxide. Steady-state near-stoichiometric combustion conditions do not exist in the furnace ductwork. Other potential problems with NSCR systems include catalyst poisoning by additives. Therefore, NSCR is not technically feasible.

Search of the RACT/BACT/LAER Clearinghouse resulted in the following list of sources with reheat furnaces. This Clearinghouse indicates that all steel mills listed do not have add-on control devices to control NO_x emissions from reheat furnace, except Beta Steel, IN. In addition, this Clearinghouse indicates that the use of natural gas and low-NO_x burners are the common means of controlling NO_x emissions from a reheat furnace.

Limits are arranged in ascending order.

Table 8 - - - Reheat Furnace NO_x BACT of Similar Sources

Source Name	NO_x Limit (lbs/MMBtu)	Source Name	NO_x Limit (lbs/MMBtu)
Beta Steel, IN	0.077	Nucor Steel, SC	0.125
SDI, Hendricks, IN	0.080	Nucor Steel, NC	0.128
SDI, Whitley, IN *(proposed)*	**0.080**	MacQuanex, AR	0.140
Charter Steel, WI	0.090	IPSCO, AL	0.172
Nucor-Yamato, AR	0.094	Ameristeel, FL	0.190
Nucor Steel, SC	0.098	Chaparral Steel, VA	0.210
SDI, Whitley, IN (existing)	0.110	IPSCO, IA	0.230
Republic Technologies, OH	0.112	IPSCO, IA	0.269

The RACT/BACT/LAER Clearinghouse indicates NO_x limits ranging from 0.077 pounds per million Btu to 0.269 pounds per million Btu.

The cost analysis shown in the previous evaluation concludes that the NO_x limit (0.077 pounds per ton) specified for Beta Steel will not be considered as BACT for this operation. This is because Beta Steel uses an SCR to comply with this limit and SCR has been determined to be not economically feasible for SDI.

On August 29, 2003, the Office of Air Quality (OAQ) issued a PSD Permit to SDI, located in Hendricks County IN, for a reheat furnace (185 million Btu per hour). After conducting an extensive BACT analysis, the NO_x BACT limit for the reheat furnace was specified to be 0.080 pounds per million Btu. This limit will be considered as PSD BACT for this proposed operation.

Since BACT analysis is based on a Top Down Analysis, which means that the evaluation of the BACT limits starts at the most stringent limits and eliminates limits that are not feasible or less stringent, the remaining BACT limits were not considered as BACT for this specific application because they are less stringent than the PSD BACT limit being considered.

Based on the evaluation provided above, the BACT standards and mass limitations for the Reheat Furnace are as follows:

(1) The Reheat Furnace (ID# 41) shall use natural gas as fuel.

(2) The Reheat Furnace (ID# 41) shall be equipped with low-NO_x burners.

(3) The NO_x emissions from the Reheat Furnace (ID# 41) shall not exceed 0.080 pounds per million Btu and 20.8 pounds per hour, based on a 3-hour block average.

NO_x = (260 million Btu/hour)(0.080 lbs/MMBtu) = 20.8 pounds per hour

Reheat Furnace CO PSD BACT Evaluation

Carbon monoxide (CO) emissions will be emitted as by-product of incomplete or inefficient combustion of natural gas.

The following control alternatives were evaluated to control CO emissions from the Reheat Furnace:

(1) Regenerative Thermal Oxidizer (RTO) - Technically Feasible, Economically Not Feasible
Even though RTO is considered technically feasible for controlling CO emissions from reheat furnaces, this control device has not been applied to similar sources.

To pro-actively address concerns, notwithstanding the uncertainty on the technical feasibility of using RTO to control CO emissions from a reheat furnace, an economic analysis was performed for the use of RTO. Cost effectiveness is the key criterion to be used in assessing the economic feasibility of a control alternative. If a control technology has been successfully applied to similar sources in a source category, an applicant should concentrate on documenting significant cost differences, if any, between the application of the control technology on those other sources and the particular source under review.

SDI provided a cost analysis of installing and operating a regenerative thermal oxidizer (RTO) system for the reheat furnace as part of their application. The table below shows the cost summary of installing and using a RTO to control the CO emissions from the Reheat Furnace.

Table 9 - - - RTO Cost Summary for the Reheat Furnace			
Costs	US $	Total US $	
Direct Purchased Equipment Cost	1,153,953	1,973,753	
Direct Installation Cost	442,483		
Indirect Capital Cost	377,315		
Annual Capital Recovery (7%, 10 years)	281,062		959,651
Annual Operation and Maintenance Direct Cost	513,155	678,589	
Annual Operation and Maintenance Indirect Cost	165,434		
Annual Cost Effectiveness at 80%		35,113.46	
Based on this amount, the use of RTO, in addition to post combustion chamber, is not economically feasible.			

CO PTE of the Reheat Furnace = 34.16 tons per year. (See Table 2)

Due to the uncertainty of the exact amount of CO that can be oxidized with the use of RTO, 80% efficiency will be used for the cost analysis.

$$\text{Annual Cost Effectiveness} = \frac{\$959{,}651}{(34.16\ \text{tons/year})*(80\%\ \text{Efficiency})} = \$35{,}113.46\ \text{per ton}$$

(2) Catalytic Oxidizer/Incineration - - Technically Feasible, Not Economically Feasible

Catalytic Oxidizer/Incineration uses a bed of catalyst that increases the rate of reaction leading to improved combustion of combustible gases. Catalytic Oxidizer/Incineration is technically feasible to control CO emissions from a reheat furnace, however, this control device has not been applied to similar sources.

To pro-actively address concerns, notwithstanding the unavailability of actual data to prove the technical feasibility of Catalytic Oxidizer/Incineration to control CO emissions from a reheat furnace, an economic analysis was performed for the use of Catalytic Oxidizer/Incineration. Cost effectiveness is the key criterion to be used in assessing the economic feasibility of a control alternative. If a control technology has been successfully applied to similar sources in a source category, an applicant should concentrate on documenting significant cost differences, if any, between the application of the control technology on those other sources and the particular source under review.

SDI provided a cost analysis of installing and operating a Catalytic Oxidizer/Incineration system for the reheat furnace as part of their application. The table below shows the cost summary of installing and using Catalytic Oxidizer/Incineration system to control the CO emissions from the Reheat Furnace.

Table 10 - - - Catalytic Oxidizer/Incineration Cost Summary for the Reheat Furnace			
Costs	US $	Total US $	
Direct Purchased Equipment Cost	875,904	1,597,354	
Direct Installation Cost	345,166		
Indirect Capital Cost	286,284		
Annual Capital Recovery (7%, 10 years)	214,647		1,020,851
Annual Operation and Maintenance Direct Cost	659,566	806,204	
Annual Operation and Maintenance Indirect Cost	146,638		
Annual Cost Effectiveness at 75%		39,845.86	
Based on this amount, the use of Catalytic Oxidizer/Incineration, in addition to post combustion chamber, is not economically feasible.			

CO PTE of the Reheat Furnace = 34.16 tons per year. (See Table 2)

Due to the uncertainty of the exact amount of CO that can be oxidized with the use of Catalytic Oxidizer/Incineration, 75% efficiency will be used for the cost analysis.

$$\text{Annual Cost Effectiveness} = \frac{\$1{,}020{,}851}{(34.16\ \text{tons/year})*(75\%\ \text{Efficiency})} = \$39{,}845.86\ \text{per ton}$$

(3) CO Oxidation Catalyst - - Technically Feasible, Not Economically Feasible

Oxidation catalyst uses the same principle as thermal oxidation with the addition of catalyst to reduce the oxidation temperature. The optimal working temperature range for CO oxidation catalysts is approximately 850 ^{o}F - 1,100 ^{o}F with a minimum exhaust gas stream temperature of 500 ^{o}F for minimally acceptable CO control. The optimal working temperature range for catalytic incineration is approximately 500 ^{o}F - 600 ^{o}F. Oxidation catalyst is technically feasible to control CO emissions from a reheat furnace, however, this control device has not been applied to similar sources.

To pro-actively address concerns, notwithstanding the unavailability of actual data to prove the technical feasibility of CO Oxidation Catalyst to control CO emissions from a reheat furnace, an economic analysis was performed for the use of CO Oxidation Catalyst. Cost effectiveness is the key criterion to be used in assessing the economic feasibility of a control alternative. If a control technology has been successfully applied to similar sources in a source category, an applicant should concentrate on documenting significant cost differences, if any, between the application of the control technology on those other sources and the particular source under review.

SDI provided a cost analysis of installing and operating a CO Oxidation Catalyst system for the reheat furnace as part of their application. The table below shows the cost summary of installing and using a CO Oxidation Catalyst system to control the CO emissions from the Reheat Furnace.

Table 11 - - - CO Oxidation Catalyst Cost Summary for the Reheat Furnace			
Costs	US $	Total US $	
Direct Purchased Equipment Cost	400,014	705,295	
Direct Installation Cost	174,800		
Indirect Capital Cost	130,481		
Annual Capital Recovery (7%, 10 years)	100,434		453,211
Annual Operation and Maintenance Direct Cost	259,586	352,777	
Annual Operation and Maintenance Indirect Cost	93,191		
Annual Cost Effectiveness at 50%		26,534.60	
Based on this amount, the use of CO Oxidation Catalysts, in addition to post combustion chamber, is not economically feasible.			

CO PTE of the Reheat Furnace = 34.16 tons per year. (See Table 2)

Due to the uncertainty of the exact amount of CO that can be oxidized with the use of CO Oxidation Catalyst, only 50% efficiency will be used for the cost analysis.

$$\text{Annual Cost Effectiveness} = \frac{\$453{,}211}{(34.16\ \text{tons/year})*(50\%\ \text{Efficiency})} = \$26{,}534.60\ \text{per ton}$$

(4) Flaring - - Not Technically Feasible
Flaring is not technically feasible to control CO emissions from the reheat furnace because:

(a) The exhaust gases from the reheat furnace will contain insufficient CO levels to support self-combustion thus CO in the exhaust will not self-combust as necessary for flaring or a post combustion chamber. Additional natural gas combustion would be needed to substantially raise the CO concentration to provide self-combustion.

(b) In order to raise the exhaust gas temperature from 500 ^{o}F to the minimum operating temperature required by a flare (1,300 ^{o}F) at a residence time of 0.5 seconds, additional heat input for flaring and for a post combustion chamber would be needed. This additional fuel requirement would result in additional CO emissions.

Search of the RACT/BACT/LAER Clearinghouse resulted in the following list of sources with reheat furnaces. This Clearinghouse indicates that all steel mills listed do not have add-on control devices to control CO emissions from reheat furnaces. Performing proper combustion practices is the common method of controlling CO emissions from a reheat furnace.

Limits are arranged in an ascending order.

Table 12 - - - Reheat Furnace CO BACT of Similar Sources

Source Name	CO Limit (lb/MMBtu)	Source Name	CO Limit (lb/MMBtu)
Charter Steel, WI	0.011	Chaparral Steel, VA	0.075
SDI, Whitley, IN (existing)	0.030	Nucor-Yamato, AR	0.0824
SDI, Whitley, IN (*proposed*)	**0.030**	Nucor Steel, NC	0.084
MacQuanex, AR	0.035	SDI, Hendricks, IN	0.084
Republic Technologies, OH	0.039	Nucor Steel, SC	0.187
Beta Steel, IN	0.040	Ameristeel, FL	0.350
Arkansas Steel, AR	0.063	Nucor Steel, SC	1.970

The RACT/BACT/LAER Clearinghouse indicates CO limits ranging from 0.011 pounds per million Btu to 1.97 pounds per million Btu.

Since NO_x emissions are more of a concern due to it being a precursor in the formation of ozone, and the NOx BACT limit (0.08 lb/MMBtu) for the proposed Reheat Furnace will be the most stringent PSD BACT limit among existing mini mills, and decrease in NO_x emissions has the tendency to affect the CO emissions, the CO BACT limit (0.011 pounds per million Btu) will not be considered as PSD BACT for this proposed reheat furnace.

Table 13 - - - Reheat Furnaces CO and NO_x BACT Limits

Source Name	CO Limit (lbs/MMBtu)	NO_x Limit (lbs/MMBtu)
Charter Steel, WI	0.011	0.090
SDI, Whitley, IN	0.030	0.080

Since BACT analysis is based on a Top Down Analysis, which means that the evaluation of the BACT limits starts at the most stringent limits and eliminates limits that are not feasible, the remaining BACT limits were not considered as BACT for this specific application because they are less stringent than the PSD BACT limit being considered.

Based on the information provided above, the BACT standards and mass limitations for the Reheat Furnace are as follows:

(1) The Reheat Furnace (ID# 41) shall use natural gas as fuel.

(2) Good combustion practices shall be observed.

(3) The CO emissions from the Reheat Furnace (ID# 41) shall not exceed 0.030 pounds per million Btu and 7.8 pounds per hour, based on a 3-hour block average.

CO = (260 million Btu/hour)(0.030 lbs/MMBtu) = 7.8 pounds per hour

Reheat Furnace VOC PSD BACT Evaluation

Volatile organic compound (VOC) emissions will be emitted as by-product of incomplete or inefficient combustion of natural gas. Due to the small amount of VOC emissions that will be emitted (6.26 tons per year, see Table 2) from the reheat furnace, the use of any add-on control devices is not practical. The OAQ is not aware of a steel mill using any add-on control technology to control VOC emissions from a reheat furnace.

Search of the RACT/BACT/LAER Clearinghouse resulted in the following list of sources with reheat furnaces. This Clearinghouse indicates that all steel mills listed do not have add-on control devices to control VOC emissions from reheat furnace.

Limits are arranged in an ascending order.

Table 14 - - - Reheat Furnace VOC BACT of Similar Sources

Source Name	VOC Limit (lb/MMBtu)	Source Name	VOC Limit (lb/MMBtu)
Charter Steel, WI	0.0014	Nucor Steel, NC	0.005
SDI, Hendricks, IN	0.005	Chaparral Steel, VA	0.0053
SDI, Whitley, IN *(proposed)*	**0.005**	Nucor-Yamato, AR	0.0054

The RACT/BACT/LAER Clearinghouse indicates VOC limits ranging from 0.0014 pounds per million Btu to 0.0054 pounds per million Btu.

The VOC limit specified for Charter Steel, WI, was in terms of pounds per hour rate and was specified based on a limited annual fuel usage, such that VOC is not subject to PSD review. Based on this, the VOC limit (0.0014 pounds per million Btu) will not be considered as BACT for this operation.

On August 29, 2003, the Office of Air Quality (OAQ) issued a PSD Permit to SDI, located in Hendricks County IN, for a reheat furnace (185 million Btu per hour). After conducting an extensive BACT analysis, the VOC BACT limit for the reheat furnace was specified to be 0.005 pounds per million Btu. This limit will be considered as PSD BACT for this proposed operation.

Since BACT analysis is based on a Top Down Analysis, which means that the evaluation of the BACT limits starts at the most stringent limits and eliminates limits that are not feasible or less stringent, the remaining BACT limits were not considered as BACT for this specific application because they are less stringent than the PSD BACT limit being considered.

Based on the information provided above, the BACT standards and mass limitations for the Reheat Furnace are as follows:

(1) The Reheat Furnace (ID# 41) shall use natural gas as fuel.

(2) Good combustion practices shall be observed.

(3) The VOC emissions from the Reheat Furnace (ID# 41) shall not exceed 0.005 pounds per million Btu and 1.3 pounds per hour, based on a 3-hour block average.

VOC = (260 MMBtu/hour)(0.005 lbs/MMBtu) = 1.3 pounds per hour

Reheat Furnace SO_2 PSD BACT Evaluation

Sulfur dioxide (SO_2) emissions will be generated during the combustion of natural gas. Due to the small amount of SO_2 emissions that will be emitted from the reheat furnace (0.68 tons per year, see Table 2), the use of any add-on control devices is not practical.

Search of the RACT/BACT/LAER Clearinghouse resulted in the following list of sources with reheat furnaces. This Clearinghouse indicates that all steel mills listed do not have add-on control devices to control SO_2 emissions from reheat furnace.

Limits are arranged in an ascending order.

Table 15 - - - Reheat Furnace SO_2 BACT of Similar Sources

Source Name	SO_2 Limit (lb/MMBtu)	Source Name	SO_2 Limit (lb/MMBtu)
Nucor Steel, SC	0.00057	SDI, Hendricks, IN	0.0006
Nucor Steel, NC	0.00058	**SDI, Whitley, IN *(proposed)***	**0.0006**
Chaparral Steel, VA	0.0006	Charter Steel, WI	0.00061
Nucor-Yamato, AR	0.0006	Nucor Steel, SC	0.00086

The RACT/BACT/LAER Clearinghouse indicates SO_2 limits ranging from 0.00057 pounds per million Btu to 0.00086 pounds per million Btu.

On August 29, 2003, the Office of Air Quality (OAQ) issued a PSD Permit to SDI, located in Hendricks County IN, for a reheat furnace (185 million Btu per hour). After conducting an extensive BACT analysis, the SO_2 BACT limit for the reheat furnace was specified to be 0.0006 pounds per million Btu. This limit will be considered as PSD BACT for this proposed operation.

Since BACT analysis is based on a Top Down Analysis, which means that the evaluation of the BACT limits starts at the most stringent limits and eliminates limits that are not feasible or less stringent, the remaining BACT limits were not considered as BACT for this specific application because they are less stringent than the PSD BACT limit being considered.

Based on the information provided above, the BACT standards and mass limitations for the Reheat Furnace are as follows:

(1) The Reheat Furnace (ID# 41) shall use natural gas as fuel.

(2) Good combustion practices shall be observed.

(3) The SO_2 emissions from the Reheat Furnace (ID# 41) shall not exceed 0.0006 pounds per million Btu and 0.156 pounds per hour, based on a 3-hour block average.

SO_2 = (260 MMBtu/hour)(0.0006 lbs/MMBtu) = 0.156 pounds per hour

Reheat Furnace PM/PM_{10} PSD BACT Evaluation

Particulate matter emissions in natural gas combustion are usually larger molecular weight hydrocarbons that are not fully combusted. Trace amounts of mill scale from the steel slabs being heated will be exhausted.

The following control alternatives were evaluated to control particulate emissions from the Reheat Furnace:

(1)	Fabric Filter (Baghouse)	- -	Not Technically Feasible
(2)	Electrostatic Precipitator (ESP)	- -	Not Technically Feasible
(3)	Wet Scrubber	- -	Not Technically Feasible
(4)	Cyclones	- -	Not Technically Feasible

All control options are technically infeasible because the primary fuel for the proposed reheat furnace is natural gas, which has little or no ash at all that would contribute to the formation of PM or PM_{10}. The particulate concentration in the furnace exhaust gas stream is too low to be economically and effectively controlled by any of these options.

Due to the small amount of particulate matter that will be emitted from the reheat furnace (8.65 tons per year, see Table 2), installing and using any add-on control devices is not practical. No further evaluation of add-on particulate controls is necessary.

Search of the RACT/BACT/LAER Clearinghouse resulted in the following list of sources with reheat furnaces. This Clearinghouse indicates that all steel mills listed do not have add-on control devices to control particulate emissions from reheat furnaces.

Limits are arranged in an ascending order.

Table 16 - - - Reheat Furnace PM/PM_{10} BACT of Similar Sources

Source Name	PM/PM_{10} Limit (lbs/MMBtu)	Source Name	PM/PM_{10} Limit (lbs/MMBtu)
SDI, Hendricks, IN	0.0019	Nucor Steel, NC	0.0078
SDI, Whitley, IN *(proposed)* (Filterable PM)	**0.0019**	Chaparral Steel, VA	0.010
MacQuanex, AR	0.0031	Nucor Steel, SC	0.014
Republic Technologies, OH	0.005	Arkansas Steel, AR	0.015
IPSCO, AL	0.0058	Nucor-Yamato, AR	0.0168
SDI, Hendricks, IN	0.0076	Charter Steel, WI	0.082
SDI, Whitley, IN *(proposed)* (Filterable and Condensible PM/PM_{10})	**0.0076**		

The RACT/BACT/LAER Clearinghouse indicates particulate matter limits ranging from 0.0019 pounds per million Btu to 0.0082 pounds per million Btu.

On August 29, 2003, the Office of Air Quality (OAQ) issued a PSD Permit to SDI, located in Hendricks County IN, for a reheat furnace (185 million Btu per hour). After conducting an extensive BACT analysis, the particulate BACT limit for the reheat furnace was specified to be 0.0019 pounds of filterable PM per million Btu and 0.0076 pounds of filterable and condensible PM_{10} per million Btu. These limits will be considered as PSD BACT for this proposed operation.

Since BACT analysis is based on a Top Down Analysis, which means that the evaluation of the BACT limits starts at the most stringent limits and eliminates limits that are not feasible or less stringent, the remaining BACT limits were not considered as BACT for this specific application because they are less stringent than the PSD BACT limit being considered.

Based on the information provided above, the BACT standards and mass limitations for the Reheat Furnace are as follows:

(1) The Reheat Furnace (ID# 41) shall use natural gas as fuel.

(2) Good combustion practices shall be observed.

(3) The filterable particulate matter (PM) emissions from the Reheat Furnace (ID# 41) shall not exceed 0.0019 pounds per million Btu and 0.494 pounds per hour, based on a 3-hour block average.

PM = (260 MMBtu/hour)(0.0019 lbs/MMBtu) = 0.494 pounds per hour

(4) The filterable and condensible particulate matter (PM/PM_{10}) emissions from the Reheat Furnace (ID# 41) shall not exceed 0.0076 pounds per million Btu and 1.98 pounds per hour, based on a 3-hour block average.

PM_{10} = (260 MMBtu/hour)(0.0076 lbs/MMBtu) = 1.98 pounds per hour

(5) The visible emissions from the Reheat Furnace (ID# 41) shall not exceed 3% opacity.

Reheat Furnace Mercury, Lead and Fluoride PSD BACT Evaluation

Due to the small amount of lead and mercury emissions that will be emitted from the reheat furnace, installing and using any add-on control devices is not practical. No further evaluation of add-on particulate controls is necessary.

Lead PTE = 0.57 tons per year
Mercury PTE = 0.30 tons per year
Fluoride PTE = 0 tons per year

Search of the RACT/BACT/LAER Clearinghouse resulted with no sources with mercury, lead or fluoride limits for reheat furnaces.

Based on the information provided above, the BACT standards and mass limitations for the Reheat Furnace are as follows:

(1) The Reheat Furnace (ID# 41) shall use natural gas as fuel.

(2) Good combustion practices shall be observed.

(3) The lead emissions from the Reheat Furnace (ID# 41) shall not exceed 0.0005 pounds per million Btu and 0.13 pounds per hour, based on a 3-hour block average.

Lead = (260 MMBtu/hour)(0.0005 lbs/MMBtu) = 0.13 pounds per hour

(4) The mercury emissions from the Reheat Furnace (ID# 41) shall not exceed 0.00026 pounds per million Btu and 0.068 pounds per hour, based on a 3-hour block average.

Mercury = (260 MMBtu/hour)(0.00026 lbs/MMBtu) = 0.068 pounds per hour

Tundish Nozzle Preheater, Tundish Preheater and Tundish Dryer PSD BACT Analysis

Steel Dynamics Inc. (SDI) is proposing to install and operate the following preheaters and dryer:

(1) One (1) natural gas-fired Tundish Nozzle Preheater, identified as ID# 3m, rated at 10 million Btu per hour.

(2) One (1) natural gas-fired Tundish Preheater, identified as ID# 3n, rated at 10 million Btu per hour.

(3) One (1) natural gas-fired Tundish Dryer, identified as ID# 3o, rated at 5 million Btu per hour.

The emissions from these preheaters and dryer will be by-products of natural gas combustion.

Add-on control is not feasible due to the PTE, capacity and size of the burners (see table below).

Table 17 - - - Tundish Preheaters and Dryer (25 MMBtu/hour)

Pollutant	Emission Factor (EF) (lbs/MMBtu)	PTE (tons/year)
SO_2	0.0006	0.07
NO_x	0.050	5.48
VOC	0.0055	0.60
CO	0.084	9.20
PM/PM_{10}	0.0076	0.83
Lead	0.0005	0.05
Mercury	0.00026	0.03
Fluoride	0.0000028	0.00

Total Nominal Heat Input of the Tundish Preheaters and Dryer = 25 million Btu per hour

PTE = (Nominal Heat Input 25 MMBtu/hr)*(EF lbs/MMBtu)*(8760 hrs/yr)*(1 ton/2000 lb)
= tons/year

The Office of Air Quality (OAQ) is not aware of a steel mill using any add-on control technology to control combustion-related emissions from tundish preheater and dryers.

The table below summarizes the most recent PSD permits issued by IDEM for similar units. Sources are arranged in alphabetical order with limits in ascending order.

Table 18 - - - PSD BACT Limits of Similar Sources							
Company Name	Issuance Date	Rating (MMBtu/hour)	SO_2	NO_x	VOC	CO	PM PM_{10}
			lbs/MMBtu				
SDI Hendricks	August 2003	7.5	0.0006	0.050	0.0055	0.084	0.0076
SDI Whitley	*proposed*	25	0.0006	0.050	0.0055	0.084	0.0076
	July 1999	10	- -	0.10	- -	- -	- -
Nucor Steel	January 2001	15	- -	0.10	- -	- -	- -

On August 29, 2003, IDEM issued a PSD for SDI, Hendricks County, IN that covered among other units, five (5) ladle preheaters/dryers, each rated at 7.5 million Btu per hour. Since the tundish preheaters and dryer will use the same fuel and with in comparable capacity, the BACT will be the same.

Based on the information provided above, the BACT standards and mass limitations for the Tundish Preheaters and Dryer are as follows:

(1) The Tundish Preheaters and Dryer shall use natural gas as fuel.

(2) Each Tundish Preheater and Dryer shall be equipped with low-NO_x burners.

(3) Good operating practices shall be observed.

(4) The Tundish Preheaters and Dryer shall not exceed the following PSD BACT limits:

Table 19 - - - Tundish Preheaters and Dryer PSD BACT Limits				
Pollutant	**lbs/MMBtu**	**Tundish Nozzle Preheater (lbs/hour)**	**Tundish Preheater (lbs/hour)**	**Tundish Dryer (lbs/hour)**
		(10 MMBtu/hour)	**(10 MMBtu/hour)**	**(5 MMBtu/hour)**
SO_2	**0.0006**	**0.006**	**0.006**	**0.003**
NO_x	**0.05**	**0.5**	**0.5**	**0.25**
VOC	**0.0055**	**0.055**	**0.055**	**0.028**
CO	**0.084**	**0.84**	**0.84**	**0.42**
PM /PM_{10}	**0.0076**	**0.076**	**0.076**	**0.038**

Emission Rate = (MMBtu/hour)(lbs/MMBtu) = lbs/hour

Additional PSD Requirements

(1) 326 IAC 2-2-4 (PSD Air Quality Analysis)
Detailed air quality analysis is shown in Appendix A -- Air Quality Analysis - - of this document.

(2) 326 IAC 2-2-5 (PSD Air Quality Impact)
SDI, Whitley County, IN is not located within 100 kilometers radius of the closest Federal Class I area. The closest Class I area is the Mammoth Cave, KY. Detailed air quality analysis is shown in Appendix A -- Air Quality Analysis - - of this document.

(3) 326 IAC 2-2-6 (PSD Increment Consumption)
The emissions from this plant are not expected to exceed 80% of the available maximum allowable increment. Detailed increment consumption analysis is shown in Appendix A -- Air Quality Analysis - - of this document.

(4) 326 IAC 2-2-8 (PSD Source Obligation)
(a) Approval to construct shall become invalid if construction is not commenced within 18 months after the receipt of the approval, or if construction is not completed within reasonable time.

(b) Approval for construction does not relieve SDI of the responsibility to comply with applicable provisions of the Indiana implementation plan and any other requirements under local, state, or federal law.

(5) 326 IAC 2-2-9 (PSD Innovative Control Technology)
There is no requirement at the State or Federal level which requires innovative control to be used. Innovative control means a control that has not been demonstrated in a commercial application on similar units, as stated in the U.S. EPA Top-Down BACT Guidance (Section V.A.2):

> "Although not required, innovative controls may also be evaluated and proposed as BACT... Innovative technologies are distinguished from technology transfer BACT candidates in that an innovative technology is still under development and has not been demonstrated in a commercial application on identical or similar emission units."

Innovative controls are normally given a waiver from the BACT requirements due to the uncertainty of actual control efficiency. PSD BACT requires that the applicant install the best available control technology, not create new ones. Based on this, the OAQ will not evaluate or require any innovative controls for this BACT analysis. Only available and proven control technologies are evaluated. A control technology is considered "available" when "there are sufficient data indicating (but not necessarily proving)" the technology "will lead to a demonstrable reduction in emissions of regulated pollutants or will otherwise represent BACT."

(6) 326 IAC 2-2-10 (PSD Source Information)
SDI has submitted the information necessary to perform an analysis or make a determination required under PSD review.

(7) 326 IAC 2-2-11 (PSD Stack Height)
This rule applies to source which commenced construction after December 31, 1970. The stacks heights of the mill are less than the good engineering practice (GEP) stack heights, thus a dispersion modeling has been performed to analyze air quality impact. Detailed analysis of this is in Appendix A - - Air Quality Analysis- - of this document.

(8) 326 IAC 2-2-12 (PSD Permit Rescission)
The construction permit remains in effect, unless it is rescinded, modified, revoked, or expires.

(9) 326 IAC 2-2-13 (Area Designation and Re-designation)
SDI is not located in any of the listed areas.

(10) 326 IAC 2-2-14 (Additional Requirements Impacting Class I Area).
SDI is not subject to this requirement because it does not impact a Federal Class I area. The nearest Class 1 area is the Mammoth Cave National Park, Edmonson County, KY.

(a) SDI is located in Whitley County, which is considered attainment for all criteria pollutants.

(b) The state of Indiana has no Class I and III areas.

(c) The closest Class I area is the Mammoth Cave National Park, Edmonson County, KY.

SDI will not adversely impact the visibility at a Class I area because SDI is not located within 200 kilometers radius of the closest Class 1 area.

(d) SDI is not subject to additional requirements impacting Class I area because it does not impact a Class I area. Additional modeling required for sources affecting Class I area is not is not required.

(11) 326 IAC 2-2-15 (Public Participation)
A notice of the preliminary findings will be published in the most circulated newspaper in the area. There will be a 30-day comment period.

(12) Land Use Classification
Columbia City is classified as rural. This classification was based on USEPA Auer (1978) land-use typing methodology. Rural dispersion coefficients were used in the modeling analyses.

(13) Topography
The topography of the mill site is essentially flat lands. Air modeling analysis did not consider terrain elevations.

(14) Wind Flow Pattern
The prevailing wind directions are from south to west. Measurements of surface wind flow are from the National Weather Service (NWS) station in Fort Wayne, IN. This data is considered representative of the local meteorology at the mill site (Whitley County).

(15) Air Quality Impact on Vegetation
There will be no significant adverse impact on the vegetation around the area because the predicted concentrations of the emissions are below the national air quality standards.

(16) Air Quality Impact on Soil
No significant adverse impact on the soil around the area is anticipated, because the concentrations are below the national air quality standards.

(17) Construction Impact
Emissions during the construction period are not expected to cause significant impact.

Endangered Species

The Clean Air Act (CAA) does not contain or express requirement for the applicant or the permitting agency to analyze or consider the impact of hazardous air pollutants on endangered species when applying for or making a decision on a PSD permit. The CAA only requires impacts to endangered species be considered when the US EPA modifies the HAPs list or promulgates a NESHAP. (42 USC 7412). In addition, Indiana's state rules do not require the performance of studies or analyses to determine the effect of toxic emissions from a source on federal or state-listed endangered species in the PSD permitting process. Endangered species are protected under state and federal laws, which prohibit the unlawful taking of an endangered species. IC 14-22-34 and 16 USC 701 et. seq.

The OAQ is not aware of any federally-listed endangered species within the vicinity of this source.

Based on the location of the mill and air quality analysis done, the impact of the modification would not affect habitats of endangered species. Therefore, emissions from this source will not adversely affect any federally-listed endangered species or any state-listed endangered species.

Below is a listing of endangered, threatened, or rare species in Indiana used in this review.

Table 20 - - - Endangered, Threatened or Rare Species in Indiana

Common Name	Type	County	Town Name
White Cat's Paw Pearlymussel	Mollusk	Allen	Fort Wayne, Cedarville, Woodburn, Grabill
		Kosciusko	Burket, Leesburg
Eastern Fanshell Pearlymussel	Mollusk	Wabash	Lagro, Wabash
Clubshell	Mollusk	Allen	Fort Wayne, Woodburn, Grabill, Cedarville
		Kosciusko	South Whitley, Mentone, Burket , Leesburg
		Huntington	Mount Etna
		Wabash	North Manchester
Northern Riffleshell	Mollusk	Allen	Fort Wayne, Grabill, Cedarville
		Kosciusko	Mentone, Burket , Leesburg, North Webster
Peregrine Falcon	Bird	Allen	Fort Wayne
		Kosciusko	North Webster
Indiana Bat Or Social Myotis	Mammal	Kosciusko	Warsaw
		Huntington	Mount Etna
		Wabash	Roann
Prairie White-Fringed Orchid	Plant	Noble	Merriam, Kendallville

Noise, Odor and Zoning

The Office of Air quality (OAQ) does not have jurisdiction over noise pollution, odor, and zoning.

Environmental Justice (EJ)

Based on the 2000 US Census, there are 12.5% of Indiana residents who identified themselves as racial minority. An area is classified as High Racial Minority if it falls between 18.75% to 24.99 %. Whitley County, IN, where SDI is located at, does not fall under this classification.

Based on the 1990 US Census, 28% of Indiana residents lived in households that received an income less than or equal to twice the poverty level. This is classified a Low Income Household. Whitley County, IN does not fall under this classification.

If the source being reviewed is going to be located in an area considered to be either a High Racial Minority or Low Income Household, the OAQ attempts to published the notice for the public review in a non-English newspaper, and holds public meeting prior to the issuing a final action. Since Whitley County is neither of these classifications, the OAQ will only publish the notice in the most circulated newspaper in the area.

For more information on EJ, please refer to http://www.in.gov/idem/environmetaljustice.

Recommendation and Conclusion

(1) Based on the facts, conditions and evaluations made, the OAQ staff recommends to the IDEM's Commissioner that the PSD/SSM 183-19849-00030 be approved.

(2) The construction and operation of this proposed modification shall be subject to the conditions of the attached proposed PSD/SSM No. 183-19849-00030.

IDEM Contact

Questions regarding this proposed permit can be directed to Iryn Calilung at the Indiana Department Environmental Management, Office of Air Quality, 100 North Senate Avenue, Indianapolis, Indiana 46204 or by telephone at (317) 233-5692 or toll free at 1-800-451-6027 extension 3-5692 or by e-mail at icalilun@dem.state.in.us.

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/guides.

Indiana Department of Environmental Management
Office of Air Quality

Appendix A - Air Modeling Analysis - of the Technical Support Document (TSD) Prevention of Significant Deterioration (PSD) and Part 70 Significant Source Modification (SSM)

Source Background and Description

Source Name:	Steel Dynamics, Inc. (SDI)
Source Location:	2601 County Road 700 East, Columbia City, IN 46725
Mailing Address:	2601 County Road 700 East, Columbia City, IN 46725
Responsible Official:	General Manager or designee pursuant to 326 IAC 2-7-1(34)
County:	Whitley
SIC Code:	3312 (Steel Mill)
NAICS Code:	331111
Source Categories:	1 of 28 Listed Source Categories Major PSD Source Minor source under Section 112 of the CAA Clean Units
Permit Number:	PSD/SSM 183-19849-00030
Air Modeler:	Steven Sherman 317/233-4286

Proposed Project

Steel Dynamics, Inc. proposes to construct and operate a second caster, rolling mill, reheat furnace, tundish preheaters, and tundish dryer in Whitley County.

Keramida Environmental prepared the permit application for SDI.

The Modeling Section in the Office of Air Quality (QAQ) received the permit application on December 22, 2004. This Appendix A of the technical support document provides the air quality analysis review of the permit application.

Analysis Summary

Based on the potential emissions after controls, a Prevention of Significant Deterioration (PSD) air quality analysis was triggered for NO_x and CO. The significant impact analysis determined that modeling concentrations for NO_x did exceed significant impact levels. A refined analysis was required for NOx and showed no violation of the National Ambient Air Quality Standard (NAAQS) and the PSD increment. The pre-and post-construction monitoring requirements are not necessary.

A Hazardous Air Pollutant (HAP) analysis was performed, but did not exceed IDEM's HAP threshold concentrations.

An additional impact analysis was conducted and showed no significant impact.

Based on the modeling results, the source will not have a significant impact upon 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.

Part A — Establish which pollutants require an air quality analysis based on Prevention of Significant Deterioration (PSD) significant emission rates.

Part 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.

Part C — Determine the significant impact level, the area impacted by the source's emissions and background air quality levels.

Part D — Demonstrate that the source 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.

Part E — Perform an analysis of any air toxic compound with a health risk factor on the general population.

Part F — Perform a qualitative analysis of the source'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.

Part G — Summarize the Air Quality Analysis

Part A - - Pollutants Analyzed for Air Quality Impact

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 and in the Code of Federal Register (CFR) 52.21(b)(23)(i).

Proposed Project Emissions

Particulate Matter less than 10 microns (PM_{10}), Sulfur Dioxide (SO_2), Nitrogen Dioxide (NO_2), Volatile Organic Compounds (VOC)(an Ozone (O_3) precursor), and Carbon Monoxide (CO), Lead, Beryllium, Fluorides, and Mercury are the pollutants that will be emitted from the proposed project. Therefore, an air quality analysis is required for these pollutants which exceeded their significant emission rates, as shown in Table 1 below.

TABLE 1- - Significant Emission Rates for PSD			
Pollutant	Source Emission Rate (Facility Totals) (tons/year)	Significant Emission Rate (tons/year)	Preliminary AQ Analysis Required
PM_{10}	54.3	15.0	No
NO_2	102	40.0	Yes
VOCs (O_3) [1]	6.9	250.0	No
CO	104.9	100.0	Yes
SO_2	0.8	40.0	No
Lead	0.0006	0.6	No
Beryllium[2]	0.000015	0.0004	No
Fluorides[2]	0.0035	3	No
Mercury[2]	0.00033	0.1	No

[1] An air quality analysis is not performed for VOCs because it is a photochemically reactive pollutant and did not exceed an emission threshold of 250 tons per year. A cursory review is performed when the threshold is exceeded but does not involved modeling.

[2] Beryllium, Fluorides, and Mercury have monitoring concentration thresholds listed in 326 IAC 2-2-4. There is no National Ambient Air Quality Standard for these pollutants.

Part B - - Good Engineering Practice (GEP), Met Data, Model Used, Receptors

Applicability

Stacks should comply with Good Engineering Practice (GEP) requirements established in 326 IAC 1-7-1.

If stacks are lower than GEP, excessive ambient concentrations due to aerodynamic downwash may occur.

Stacks taller than 65 meters (213 feet) are limited to GEP, the stack height for 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:

$$Hg = H + 1.5L$$

Where: Hg is the GEP stack height
H is the structure height
L is the structure's lesser dimension (height or width)

Proposed Project Stack

Since the stack height of the modification was below GEP stack height the effect of aerodynamic downwash will be accounted for in the air quality analysis for the project.

Meteorological Data

The meteorological data used in the Industrial Source Complex Short Term (ISCST3) model consisted of 1990 through 1994 surface data from the Fort Wayne Airport Weather Service station merged with the mixing heights from Dayton, Ohio 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.

Model Description

Keramida Environmental and OAQ used ISC3 Version 02035 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.

Receptor Grid

OAQ modeling utilized the same receptor grid generated by Keramida Environmental.

The receptor grid extended to approximately 10 kilometers from the plant.

Since all of the proposed emission sources have stack heights less than GEP stack height, receptors were closely spaced (100 meters) near the plant boundary to identify the influence of aerodynamic building downwash.

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

A significant impact analysis is conducted to determine whether a more refined analysis is required.

A significant impact analysis was conducted to determine if the source exceeded the PSD significant impact levels (concentrations). If the source's concentrations exceed these levels, further air quality analysis is required.

Modeling for NO_x was required because the results did exceed significant impact levels.

CO did not exceed significant impact levels and refined modeling was not necessary.

Significant impact levels are defined by the following time periods in Table 2 below 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 Aq Analysis Required
CO	1 Hour	67.1	2000	No
CO	8 Hour	29.9	500	No
NOx	Annual	3.71	1	Yes

Pre-construction Monitoring Analysis

A comparison of the preliminary modeling results was compared to the PSD preconstruction monitoring thresholds. The results are shown in the table below.

The criteria pollutants, CO and NO_2 did not trigger the preconstruction monitoring.

TABLE 3 - - Preconstruction Monitoring Analysis

Pollutant	Time Averaging Period	Maximum Modeled Impact (Ug/M^3)	Deminimis Level (Ug/M^3)	Above De Minimis Level
NO_2	Annual	3.71	14	No
CO	8 Hour	29.9	575	No

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 regional monitoring sites for this area.

Background Monitors

The results from this monitoring site is considered conservative since they are on-site.

For all 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 Steel Dynamics 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 Year of Data	Monitoring Site	Approximate Distance From Site	Averaging Period	Concentration (ug/m^3)
NO_x 2001/2003	SDI, DeKalb	On-site	Annual	16.9

Part D - - NAAQS and PSD Increment

NAAQS Compliance Analysis and Results

IDEM supplied all emission inventories of sources within a 50-kilometer radius of Steel Dynamics. Inventories were taken from IDEM air quality web site.

NAAQs modeling for the appropriate time-averaging periods for NO_x, was conducted and compared to the respective NAAQs limit. OAQ modeling results are shown in Table 5.

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

TABLE 5 - - NAAQS Analysis							
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
NOx	1990	Annual	8.27	16.9	25.2	100	NO

Analysis and Results of Source Impact on the PSD Increment

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

Source Impact

Since the impacts for NOx from Steel Dynamics modeled above significant impact levels, a PSD increment analysis for the existing major sources in Whitley County and its surrounding counties was required.

Results of the increment modeling are summarized in Table 6 below.

The results of the increment analysis shows that impacts were below 80% of the available increment.

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
NO_x	1990	Annual	8.19	25	32%	No

Part E - - Hazardous Air Toxics Analysis and Results

The OAQ presently requests data concerning the emission of 189 HAPs listed in the 1990 Clean Air Act Amendments (CAAA) which are either carcinogenic or otherwise considered toxic and may be used by industries in the State of Indiana. These substances are listed as air toxic compounds on the State of Indiana, Department of Environmental Management, Office of Air Quality's construction permit application Form Y.

OAQ performed toxic modeling using the ISCST3 model for all HAPs.

Maximum 8-hour concentrations were determined and the concentrations were recorded as a percentage of each HAP Permissible Exposure Limit (PEL). The PELs were established by the Occupational Safety and Health Administration (OSHA) and represent a worker's exposure to a pollutant over an 8-hour work day or a 40-hour work week.

In Table 7, below, the results of the HAP analysis with the modeled concentrations, 0.5% of the PEL and the CEP benchmarks for each HAP are listed.

All HAPs concentrations were modeled below 0.5% of their respective PELs.

The 0.5% of the PEL represents a safety factor of 200 taken into account when determining the health risk of the general population.

TABLE 7 - - Hazardous Air Pollutant Modeling Results				
HAP	Max 8-hour Concentration (ug/m^3)	.5% of PEL (ug/m^3)	Max Annual Concentration (ug/m^3)	NATA/ CEP Benchmark (ug/m^3)
Antimony	0.0011	2.5	0.00007	--
Arsenic	0.00064	0.05	0.00005	0.00023
Benzene	0.00143	16	0.00015	0.13
Benzo(a)anthracene	0.00000	--	0.00000	0.0091
Benzo(a)pyrene	0.00000	--	0.00000	0.00091
Benzo(b)fluoranthene	0.00000	--	0.00000	0.0091
Benzo(k)fluoranthene	0.00000	--	0.00000	0.0091
Beryllium	0.00032	0.01	0.00002	0.00042
Cadmium	0.00314	0.025	0.00025	0.00056
Chromium	0.312	2.5	0.0189	*
Chrysene	0.00001	--	0.00000	0.091
Cobalt	0.00072	0.5	0.00005	--
Dibenz(ah)anthracene	0.00000	--	0.00000	0.00083
Dichlorobenzene	0.00082	2250	0.00009	0.091
7,12-Dimethylbenz(a) anthracene	0.00001	--	0.00000	0.00014
Formaldehyde	0.511	4.65	0.00538	0.077
Hexane	1.224	9000	0.12900	200
Hydrogen Fluoride	0.1135	2000	0.00689	--
Indeno(1,2,3-cd)pyrene	0.00000	--	0.00000	0.0091
Manganese	3.063	25	0.1852	--
Mercury	0.0053	0.5	0.00867	--
Naphthalene	0.00041	250	0.00004	--
Nickel	0.01603	5	0.00100	0.0038
Selenium	0.00187	1	0.00012	--
Toluene	0.00231	3750	0.00024	--

* This NATA/CEP Benchmark applies to chromium VI and not chromium.

Part F - - Qualitative Analysis

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 source. The Steel Dynamics PSD permit application provided an additional impact analysis performed by Keramida Environmental.

Economic Growth

The project did not create a significant need for new housing for employees during installation and operation of the facility. During a meeting with the company, 100 permanent jobs and 400 construction jobs will be created. Most employees will be drawn from the nearby population, so that additional housing is not required. Given the employees required by Steel Dynamics will be drawn from the present work force, staffing and operation of this project did not have a negative impact on regional residential trends.

Soils and Vegetation Analysis

A list of soil types present in the general area was determined. The soil type for this area is Clayey Glacial Till. Vegetation in the vicinity of the proposed facility consists mainly of grasses. No sensitive aspects of the soil and vegetation in the area surrounding the facility have been identified. The secondary NAAQs, which establish the ambient concentration levels to protect soil or vegetation, will not be violated.

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 12 species of mussels, 4 species of birds, 2 species of bat and butterflies and 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.

The U.S. Fish and Wildlife Service, Division of Endangered Species list for Indiana two threatened and one 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 the area.

Additional Analysis Conclusions

The nearest Class I area to the facility is Mammoth Cave National Park in Kentucky which lies outside the 100 km Class I range. Thus no visibility analysis is required.

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

Part G - - Summary of Air Quality Analysis

Steel Dynamics has applied for a PSD construction permit to construct a facility in Whitley County. Keramida Environmental Incorporated of Indianapolis, Indiana prepared the PSD application.

Whitley County is designated as attainment for all criteria.

NO_x, and CO 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 NOx impacts were predicted to be greater than the significant impact levels.

The NAAQS and increment modeling for that pollutant showed no violations of the standard.

An air toxic analysis was preformed because they were above the emission thresholds required to do an analysis, but impacts were below benchmarks.

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

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