**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT**
*We Protect Hoosiers and Our Environment.*

*Mitchell E. Daniels Jr.*
**Governor**

*Thomas W. Easterly*
**Commissioner**

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

TO: Interested Parties / Applicant

DATE: December 2, 2008

RE: ThyssenKrupp Waupaca, Inc. / 123-26878-00019

FROM: Matthew Stuckey, Branch 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, Suite N 501E, 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.dot12/03/07

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December 2, 2008

Bryant Esch
ThyssenKrupp Waupaca, Inc. Plant 5
9856 State Highway 66
Tell City, Indiana 47586

Re: 123-26878-00019
Significant Source Modification to Part 70 No. 123-9234-00019

Dear Mr. Esch:

On August 15, 2008, the Office of Air Quality (OAQ) received an application for a significant source modification from ThyssenKrupp Waupaca, Inc. located at 9856 State Highway 66, Indiana 47586,for construction and modification of the following emission units.

(a) one (1) phenolic-urethane core machine, identified as P45A, to be constructed in 2008, with a maximum capacity of 6 tons per hour, with emissions controlled by existing scrubber C14 and exhausting through stack S14; and

(b) one (1) phenolic-urethane core machine, identified as P45B, to be constructed in 2008, with a maximum capacity of 6 tons per hour, with emissions controlled by existing scrubber C17 and exhausting through stack S17.

(c) two (2) natural gas-fired core dry oven, to be constructed in 2008, identified as P48A and P48B, with a maximum capacity of 2.5 MMBtu/hr each, with emissions exhausting in to the building.

(d) One (1) phenolic-urethane core sand handling system, identified as P42, constructed in 1998 and modified in 2008, with a maximum production capacity of 32 tons of cores per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C08, that exhausts to Stack S08.

(e) One (1) phenolic-urethane core sand handling system, identified as P46, approved for construction in 2005 and modified in 2008, with a maximum production capacity of 51 tons of cores per hour. Particulate matter emissions are controlled by one (1) baghouse, identified as C18, exhausting indoors.

(f) Two (2) paint booths, one identified as P26A, constructed in 2007 and modified in 2008, and one identified as P26B approved for construction in 2008, used to coat metal castings for rust protection, using spray guns with a combined maximum capacity of 16 (sixteen**)** gallons per hour, using overspray filters for PM control, exhausting to stacks S26A and S26B, respectively.

(g) One (1) autogrinder operation, to be constructed in 2008, identified as P87, with a maximum capacity of 22.5 tons of castings per hour, with emissions controlled by existing Baghouse C16 and exhausting to stack S16.

The following construction conditions are applicable to the proposed project:

General Construction Conditions

1. The data and information supplied with the application shall be considered part of this source modification approval. Prior to any proposed change in construction which may affect the potential to emit (PTE) of the proposed project, the change must be approved by the Office of Air Quality (OAQ).

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

3. Effective Date of the Permit
Pursuant to IC 13-15-5-3, this approval becomes effective upon its issuance.

4. Pursuant to 326 IAC 2-1.1-9 and 326 IAC 2-7-10.5(i), the Commissioner may revoke this approval if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.

5. All requirements and conditions of this construction approval shall remain in effect unless modified in a manner consistent with procedures established pursuant to 326 IAC 2.

6. Pursuant to 326 IAC 2-7-10.5(l) the emission units constructed under this approval shall not be placed into operation prior to revision of the source's Part 70 Operating Permit to incorporate the required operation conditions.

All other conditions of the permit shall remain unchanged and in effect. For your convenience, the entire Part 70 Operating Permit as modified will be provided at issuance.

This decision is subject to the Indiana Administrative Orders and Procedures Act – IC 4-21.5-3-5. If you have any questions on this matter, please contact Timothy R. Pettifor, OAQ, 100 North Senate Avenue, MC 61-53, Room 1003, Indianapolis, Indiana, 46204-2251, or call at (800) 451-6027, and ask for extension (4-5300), or dial (317) 234-5300.

Sincerely,

Original signed by

Tripurari P. Sinha, Ph. D., Section Chief
Permits Branch
Office of Air Quality

TP

cc: File -- Perry County
Perry County Health Department
Air Compliance Section

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT**
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# Part 70 Significant Source Modification
# OFFICE OF AIR QUALITY

## ThyssenKrupp Waupaca, Inc. Plant 5
## 9856 State Highway 66
## Tell City, Indiana 47586

(herein known as the Permittee) is hereby authorized to operate subject to the conditions contained herein, the source described in Section A (Source Summary) of 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. 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 B, Emergency Provisions.**

This permit 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 also addresses certain new source review requirements for existing equipment and is intended to fulfill the new source review procedures pursuant to 326 IAC 2-2 and 326 IAC 2-7-10.5, applicable to those conditions.

| Significant Source Modification No. 123-26878-00019 | |
|---|---|
| Issued by: Original signed by<br><br>Tripurari P. Sinha, Ph. D., Section Chief<br>Permit Branch<br>Office of Air Quality | Issuance Date: December 2, 2008 |

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## SECTION A SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the source contained in conditions A.1 through A.3 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this permit pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

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

The Permittee owns and operates a stationary gray and ductile iron foundry.

| | |
|---|---|
| Source Address: | 9856 State Highway 66, Tell City, IN 47586 |
| Mailing Address: | P.O. Box 189, Tell City, IN 47586 |
| General Source Phone Number: | 812-547-0700 |
| SIC Code: | 3321 |
| County Location: | Perry |
| Source Location Status: | Attainment for all criteria pollutants |
| Source Status: | Part 70 Permit Program<br>Major Source, under PSD Rules;<br>Major Source, Section 112 of the Clean Air Act<br>1 of 28 listed source categories (secondary metal production) |

### 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 consists of the following emission units and pollution control devices:

Phase I

(a) One (1) gray iron cupola, identified as P30, constructed in 1996, with a maximum melt rate of 80 tons per hour, using one (1) baghouse (C09A) for particulate control, one (1) incinerator (C11A) for carbon monoxide control and VOC emissions control, and one (1) dry alkaline injection system (C12A) for sulfur dioxide control, exhausting to stack S09;

(b) Four (4) production lines, each constructed in 1996, consisting of the following:

(1) Line 1 (modified in 1998 and approved for modification in 2007)

(A) One (1) pouring/mold cooling operation, identified as P01, with a maximum throughput of 35 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stacks S01 and S04;

(B) One (1) shakeout operation, identified as P02, with a maximum throughput of 35 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stack S01;

(C) One (1) cast cooling operation, identified as P03, with a maximum throughput of 25 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stacks S01 and S04;

(D) One (1) pick & sort operation, identified as P04, with a maximum throughput of 35 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stack S01;

(E) One (1) cleaning & grinding operation, identified as P05, with a maximum throughput of 25 tons per hour, using a mechanical blaster, using one (1)

baghouse (C07) for particulate control, exhausting to stack S07;

(2) Line 2
- (A) One (1) pouring/mold cooling operation, identified as P06, with a maximum throughput of 16 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stack S01;
- (B) One (1) shakeout operation, identified as P07, with a maximum throughput of 16 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stack S01;
- (C) One (1) cast cooling operation, identified as P08, with a maximum throughput of 16 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stack S01;
- (D) One (1) pick & sort operation, identified as P09, with a maximum throughput of 16 tons per hour, using one (1) baghouse (C07) for particulate control, exhausting to stack S07;
- (E) One (1) cleaning & grinding operation, identified as P10, with a maximum throughput of 16 tons per hour, using a mechanical blaster, using one (1) baghouse (C07) for particulate control, exhausting to stack S07;

(3) Line 3
- (A) One (1) pouring/mold cooling operation, identified as P11, with a maximum throughput of 16 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stack S01;
- (B) One (1) shakeout operation, identified as P12, with a maximum throughput of 16 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stack S01;
- (C) One (1) cast cooling operation, identified as P13, with a maximum throughput of 16 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stack S01;
- (D) One (1) pick & sort operation, identified as P14, with a maximum throughput of 16 tons per hour, using one (1) baghouse (C07) for particulate control, exhausting to stack S07;
- (E) One (1) cleaning & grinding operation, identified as P15, with a maximum throughput of 16 tons per hour, using a mechanical blaster, using one (1) baghouse (C07) for particulate control, exhausting to stack S07;

(4) Line 4
- (A) One (1) pouring/mold cooling operation, identified as P16, with a maximum throughput of 25 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stack S01;
- (B) One (1) shakeout operation, identified as P17, with a maximum throughput of 25 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stack S01;
- (C) One (1) cast cooling operation, identified as P18, with a maximum throughput of 25 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stack S01;
- (D) One (1) pick & sort operation, identified as P19, with a maximum throughput of 25 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stack S01;
- (E) One (1) cleaning & grinding operation, identified as P20, with a maximum throughput of 25 tons per hour, using a mechanical blaster, using one (1) baghouse (C07) for particulate control, exhausting to stack S07;

(c) Sand handling operations and ancillary operations, each constructed in 1996, consisting of the following:

(1) One (1) return sand handling & screen operation, identified as P21, with a

maximum throughput of 480 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stack S01;

(2) One (1) sand cooling & water addition operation, identified as P22, with a maximum throughput of 480 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stack S01;

(3) One (1) sand mulling & handling operation, identified as P23, with a maximum throughput of 480 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stack S01;

(4) One (1) spent sand handling & processing operation, identified as P24, with a maximum throughput of 50 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stack S01;

(5) Air make-up units, identified as P52, with a maximum combined heat input capacity of 65.6 million British thermal units (MMBtu) per hour, combusting natural gas, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stack S01;

(6) One (1) metallic returns handling operation, identified as P25, with a maximum throughput of 30 tons per hour, using one(1) baghouse (C07) for particulate control, exhausting to stack S07;

(7) One (1) core sand handling operation, identified as P40, with a maximum throughput of 16 tons per hour, using one (1) baghouse (C08) for particulate control, exhausting to stack S08;

(8) One (1) core manufacturing operation, identified as P41, with a maximum throughput of 16 tons per hour, exhausting to stack S11;

(9) One (1) core machine & oven operation, identified as P51, with a maximum heat input capacity of 16.8 MMBtu per hour, combusting natural gas, exhausting to stack S11;

(10) One (1) ladle preheating operation, identified as P53, with a maximum heat input capacity of 11.5 MMBtu per hour, combusting natural gas, exhausting to stack S12;

(11) One (1) ladle filling & iron transport operation, identified as P85, with a maximum throughput of 80 tons per hour, using one (1) baghouse (C44) for particulate control, exhausting to stack S44;

(12) One (1) ladle filling & iron transport operation, identified as P85, with a maximum throughput of 80 tons per hour; and

(13) One (1) ladle cleaning with burn bars, identified as P86.

(d) Two (2) paint booths, one identified as P26A constructed in 2007 and modified in 2008, and one identified as P26B, approved for construction in 2008, used to coat metal castings for rust protection, using spray guns with a combined maximum capacity of 16 (sixteen) gallons per hour, using overspray filters for PM control, exhausting to stacks S26A and S26B, respectively.

Phase II

(a) One (1) cupola iron melting system, identified as P33, constructed in 1998 with a maximum melt rate of 80 tons of iron per hour. VOC and CO emissions are controlled by one (1) recuperative incinerator, identified as C11B. Sulfur dioxide emissions are controlled by one (1) lime injection system (or equivalent), identified as C12B Particulate matter emissions are controlled by one (1) baghouse system, identified as C09B. The gases are then exhausted to stack S09;

(b) Four (4) production lines, each constructed in 1998, consisting of the following:

(1) Line 5

(A) One (1) pouring/mold cooling operation, identified as P60, with a maximum production capacity of 25 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15.

The gases are then exhausted to Stack S15;

(B) One (1) shakeout operation, identified as P61, with a maximum throughout capacity of 25 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15, that exhaust to Stack S15 or by one (1) baghouse system, identified as C16, that exhaust to Stack S16;

(C) One (1) cast cooling operation, identified as P62, with a maximum capacity of 25 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15.

(D) One (1) pick and sort operation, identified as P63, with a maximum throughput capacity of 25 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(E) One (1) cleaning and grinding operation, identified as P64, with a maximum throughput capacity of 25 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(2) Line 6

(A) One (1) pouring/mold cooling operation, identified as P65, with a maximum production capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15;

(B) One (1) shakeout operation, identified as P66, with a maximum throughput capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15, that exhaust to Stack S15 or by one (1) baghouse system, identified as C16, that exhaust to Stack S16;

(C) One (1) cast cooling operation, identified as P67, with a maximum capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15, that exhaust to Stack S15 or by one (1) baghouse system, identified as C16, that exhaust to Stack S16;

(D) One (1) pick and sort operation, identified as P68, with a maximum throughput capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(E) One (1) cleaning and grinding operation, identified as P69, with a maximum throughput capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(3) Line 7

(A) One (1) pouring/mold cooling operation, identified as P70, with a maximum production capacity of 30 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15;

(B) One (1) shakeout operation, identified as P71, with a maximum production capacity of 30 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15, that exhaust to Stack S15 or by one (1) baghouse system, identified as C16, that exhaust to Stack S16;

(C) One (1)cast cooling operation, identified as P72, with a maximum production capacity of 30 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15, that exhaust to

Stack S15 or by one (1) baghouse system, identified as C16, that exhaust to Stack S16;

(D) One (1) pick and sort operation, identified as P73, with a maximum throughput capacity of 30 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(E) One (1) cleaning and grinding operation, identified as P74, with a maximum throughput capacity of 30 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(4) Line 8

(A) One (1) pouring/mold cooling operation, identified as P75, with a maximum production capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15;

(B) One (1) shakeout operation, identified as P76, with a maximum throughput capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(C) One (1) cast cooling operation, identified as P77, with a maximum capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(D) One (1) pick and sort operation, identified as P78, with a maximum throughput capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16; and

(E) One (1) cleaning and grinding operation, identified as P79, with a maximum throughput capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16.

(c) Sand handling operations and ancillary operations, each constructed in 1998, consisting of the following:

(1) One (1) return sand handling and screening operation, identified as P80, with a maximum throughput capacity of 600 tons of sand per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15, that exhaust to Stack S15 or by one (1) baghouse system, identified as C16, that exhaust to Stack S16;

(2) One (1) sand mulling and handling operation, identified as P81, with a maximum capacity of 600 tons of sand per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15;

(3) One (1) sand blending and cooling operation, identified as P82, with a maximum capacity of 600 tons of sand per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15;

(4) One (1) spent sand and dust handling operation, identified as P83, with a maximum throughput capacity of 50 tons of sand per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15;

(5) One (1) metal returns handling operation, identified as P84, with a maximum capacity of 40 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15, that exhaust to Stack S15 or by one (1) baghouse system, identified as C16, that exhaust to Stack S16;

(6) One (1) enclosed cupola charge make-up and handling unit with a maximum charge of 91.2 tons per hour;
(7) One (1) ladle filling and iron transport operation with a maximum capacity of 150 tons of iron per hour, and a ladle cleaning operation with an average usage of 13.2 pounds of burn bars per hour, using one (1) baghouse (C44) for particulate control, exhausting to stack S44;
(8) Two (2) ductile iron treatment stations, both identified as P35, each with a maximum production capacity of 40 tons per hour. Particulate matter emissions are controlled by two (2) baghouse systems identified as C15 and C35. The gases from both baghouses are then exhausted to Stack S15;
(9) One (1) phenolic-urethane core sand handling system, constructed in 1998 and modified in 2008, identified as P42, with a maximum production capacity of 32 tons of cores per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C08, that exhausts to Stack S08;
(10) One (1) phenolic-urethane core making process, identified as P43, with a maximum production capacity of 20 tons of cores per hour. Volatile organic compound emissions are controlled by one (1) packed bed scrubber (or equivalent), identified as C14. The gases are then exhausted to Stack S14;
(11) One (1) phenolic-urethane core making process, identified as P44, consisting of 2 mixers and 2 core machines, each with a maximum capacity of 3 tons per hour. DMIPA emissions are controlled by one (1) packed bed scrubber, identified as C14. The gases are then exhausted to Stack S14;
(12) Raw material handling including iron handling at a maximum rate of 150 tons per hour, alloys handling at a maximum rate of 1.5 tons per hour, coke handling at a maximum rate of 15 tons per hour, and limestone handling at a maximum rate of 4.5 tons per hour;
(13) Natural gas fired air make-up units equipped with low-NOx burners, identified as P54, with a maximum heat input rate of 80 MMBtu per hour exhausting to Stack S15.
(14) One (1) pattern shop, identified as P50, controlled by a baghouse, exhausting to stack S08.

(d) One (1) autogrinder operation, to be constructed in 2008, identified as P87, with a maximum capacity of 22.5 tons of castings per hour, with emissions controlled by existing Baghouse C16 and exhausting to stack S16.

Core Room Expansion I

(a) One (1) phenolic-urethane core sand handling system, identified as P46, constructed in 2005 and modified in 2008, with a maximum production capacity of 51 tons of cores per hour. Particulate matter emissions are controlled by one (1) baghouse, identified as C18, and exhausting inside the building;
(b) One (1) phenolic-urethane core making process, identified as P47, to begin construction in 2005, consisting of 3 mixers and 3 core machines, each with a maximum capacity of 15 tons per hour. DMIPA catalyst emissions are controlled by one (1) packed bed scrubber, identified as C17. The gases are then exhausted to Stack S17;
(c) Three (3) natural gas-fired core drying ovens and natural gas-fired air make-up units, identified as P48, to begin construction in 2005, with the core drying ovens having a combined maximum heat input capacity of 9.0 MMBtu per hour and the air make-up units having a combined maximum heat input capacity of 3.2 MMBtu per hour, exhausting inside the building.

Core Room Expansion II

(a) one (1) phenolic-urethane core machine, identified as P45A, to be constructed in 2008, with a maximum capacity of 6 tons per hour, with emissions controlled by existing scrubber C14 and exhausting through stack S14;

(b) one (1) phenolic-urethane core machine, identified as P45B, to be constructed in 2008, with a maximum capacity of 6 tons per hour, with emissions controlled by existing scrubber C17 and exhausting through stack S17; and

(c) two (2) natural gas-fired core dry oven, to be constructed in 2008, identified as P48A and P48B, with a maximum capacity of 2.5 MMBtu/hr each, with emissions exhausting in to the building.

A.3 Specifically Regulated Insignificant Activities [326 IAC 2-7-1(21)] [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)]

(1) This stationary source also includes the following insignificant activities which are specifically regulated, as defined in 326 IAC 2-7-1(21):
(a) Degreasing operations that do not exceed 145 gallons per 12 months, except if subject to 326 IAC 20-6; [326 IAC 8-3-2] [326 IAC 8-3-5]

(2) This stationary source also includes the following insignificant activities which are not specifically regulated:

(a) Natural gas-fired combustion sources with heat input equal to or less than ten million (10,000,000) Btu per hour;

(b) A gasoline fuel transfer and dispensing operation handling less than or equal to 1,300 gallons per day, such as filling of tanks, locomotives, automobiles, having a storage capacity less than or equal to 10,500 gallons;

(c) A petroleum fuel, other than gasoline, dispensing facility, having a storage capacity of less than or equal to 10,500 gallons, and dispensing less than or equal to 230,000 gallons per month;

(d) Activities associated with the treatment of wastewater streams with an oil and grease content less than or equal to 1% by volume;

(e) Any operations using aqueous solutions containing less than 1% by weight of VOCs excluding HAPs;

(f) Forced and induced draft cooling tower system not regulated under a NESHAP;

(g) Heat exchanger cleaning and repair;

(h) Underground conveyors;

(i) Blowdown for any of the following: sight glass; boilers; compressors; pumps; and cooling tower;

(j) Mold release agents using low volatile products (vapor pressure less than or equal to 2 kilopascals measured at 38 degrees C);

(k) A laboratory as defined in 326 IAC 2-7-1(21)(D).

A.4 Part 70 Permit Applicability [326 IAC 2-7-2]

This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability)

because:

(a) It is a major source, as defined in 326 IAC 2-7-1(22); and

(b) It is a source in a source category designated by the United States Environmental Protection Agency (U.S. EPA) under 40 CFR 70.3 (Part 70 - Applicability).

## SECTION B GENERAL 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 Permit Term [326 IAC 2-7-5(2)][326 IAC 2-1.1-9.5][326 IAC 2-7-4(a)(1)(D)][IC 13-15-3-6(a)]

(a) This permit, 123-9234-00019, is issued for a fixed term of five (5) years from the issuance date of this permit, as determined in accordance with IC 4-21.5-3-5(f) and IC 13-15-5-3. Subsequent revisions, modifications, or amendments of this permit do not affect the expiration date of this permit.

(b) If IDEM, OAQ, upon receiving a timely and complete renewal permit application, fails to issue or deny the permit renewal prior to the expiration date of this permit, this existing permit shall not expire and all terms and conditions shall continue in effect, including any permit shield provided in 326 IAC 2-7-15, until the renewal permit has been issued or denied.

B.3 Term of Conditions [326 IAC 2-1.1-9.5]

Notwithstanding the permit term of a permit to construct, a permit to operate, or a permit modification, any condition established in a permit issued pursuant to a permitting program approved in the state implementation plan shall remain in effect until:

(a) the condition is modified in a subsequent permit action pursuant to Title I of the Clean Air Act; or

(b) the emission unit to which the condition pertains permanently ceases operation.

B.4 Enforceability [326 IAC 2-7-7]

Unless otherwise stated, all terms and conditions in this permit, including any provisions designed to limit the source's potential to emit, are enforceable by IDEM, the United States Environmental Protection Agency (U.S. EPA) and by citizens in accordance with the Clean Air Act.

B.5 Severability [326 IAC 2-7-5(5)]

The provisions of this permit are severable; a determination that any portion of this permit is invalid shall not affect the validity of the remainder of the permit.

B.6 Property Rights or Exclusive Privilege [326 IAC 2-7-5(6)(D)]

This permit does not convey any property rights of any sort or any exclusive privilege.

B.7 Duty to Provide Information [326 IAC 2-7-5(6)(E)]

(a) The Permittee shall furnish to IDEM, OAQ, within a reasonable time, any information that IDEM, OAQ may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The submittal by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34). Upon request, the Permittee shall also furnish to IDEM, OAQ copies of records required to be kept by this permit.

(b) For information furnished by the Permittee to IDEM, OAQ, the Permittee may include a claim of confidentiality in accordance with 326 IAC 17.1. When furnishing copies of requested records directly to U. S. EPA, the Permittee may assert a claim of confidentiality in accordance with 40 CFR 2, Subpart B.

B.8 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 the "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).

B.9 Annual Compliance Certification [326 IAC 2-7-6(5)]

(a) The Permittee shall annually submit a compliance certification report which addresses the status of the source's compliance with the terms and conditions contained in this permit, including emission limitations, standards, or work practices. The initial certification shall cover the time period from the date of final permit issuance through December 31 of the same year. All subsequent certifications shall cover the time period from January 1 to December 31 of the previous year, and shall be submitted no later than July 1 of each year to:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

and

United States Environmental Protection Agency, Region V
Air and Radiation Division, Air Enforcement Branch - Indiana (AE-17J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

(b) The annual compliance certification report 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) The annual compliance certification report shall include the following:

(1) The appropriate identification of each term or condition of this permit that is the basis of the certification;

(2) The compliance status;

(3) Whether compliance was continuous or intermittent;

(4) The methods used for determining the compliance status of the source, currently and over the reporting period consistent with 326 IAC 2-7-5(3); and

(5) Such other facts, as specified in Sections D of this permit, as IDEM, OAQ may require to determine the compliance status of the source.

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

B.10 Preventive Maintenance Plan [326 IAC 2-7-5(1),(3) and (13)][326 IAC 2-7-6(1) and (6)][326 IAC 1-6-3]

(a) If required by specific condition(s) in Section D of this permit, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMPs) within ninety (90) days after issuance of this permit, including the following information on each facility:

(1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;

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

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

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

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

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

(b) A copy of the PMPs shall be submitted to IDEM, OAQ upon request and within a reasonable time, and shall be subject to review and approval by IDEM, OAQ. IDEM, OAQ may require the Permittee to revise its PMPs whenever lack of proper maintenance causes or is the primary contributor to an exceedance of any limitation on emissions or potential to emit. The PMPs do not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

(c) To the extent the Permittee is required by 40 CFR Part 60/63 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.

B.11 Emergency Provisions [326 IAC 2-7-16]

(a) An emergency, as defined in 326 IAC 2-7-1(12), is not an affirmative defense for an action brought for noncompliance with a federal or state health-based emission limitation.

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

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

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

(3) During the period of an emergency, the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in this permit;

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

Telephone Number: 1-800-451-6027 (ask for Office of Air Quality, Compliance Section), or
Telephone Number: 317-233-0178 (ask for Compliance Section)
Facsimile Number: 317-233-6865
Southwest Regional Office phone: (812) 380-2305; fax: (812) 380-2304**.**

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

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

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

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

(A) A description of the emergency;

(B) Any steps taken to mitigate the emissions; and

(C) Corrective actions taken.

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

(6) The Permittee immediately took all reasonable steps to correct the emergency.

(c) In any enforcement proceeding, the Permittee seeking to establish the occurrence of an emergency has the burden of proof.

(d) This emergency provision supersedes 326 IAC 1-6 (Malfunctions). This permit condition is in addition to any emergency or upset provision contained in any applicable requirement.

(e) The Permittee seeking to establish the occurrence of an emergency shall make records available upon request to ensure that failure to implement a PMP did not cause or contribute to an exceedance of any limitations on emissions. However, IDEM, OAQ may require that the Preventive Maintenance Plans required under 326 IAC 2-7-4(c)(9) 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.

B.12 Permit Shield [326 IAC 2-7-15][326 IAC 2-7-20][326 IAC 2-7-12]

(a) Pursuant to 326 IAC 2-7-15, the Permittee has been granted a permit shield. The permit shield provides that compliance with the conditions of this permit shall be deemed compliance with any applicable requirements as of the date of permit issuance, provided that either the applicable requirements are included and specifically identified in this permit or the permit contains an explicit determination or concise summary of a determination that other specifically identified requirements are not applicable. The Indiana statutes from IC 13 and rules from 326 IAC, referenced in conditions in this permit, are those applicable at the time the permit was issued. The issuance or possession of this permit shall not alone constitute a defense against an alleged violation of any law, regulation or standard, except for the requirement to obtain a Part 70 permit under 326 IAC 2-7 or for applicable requirements for which a permit shield has been granted.

This permit shield does not extend to applicable requirements which are promulgated after the date of issuance of this permit unless this permit has been modified to reflect such new requirements.

(b) If, after issuance of this permit, it is determined that the permit is in nonconformance with an applicable requirement that applied to the source on the date of permit issuance, IDEM, OAQ, shall immediately take steps to reopen and revise this permit and issue a compliance order to the Permittee to ensure expeditious compliance with the applicable requirement until the permit is reissued. The permit shield shall continue in effect so long as the Permittee is in compliance with the compliance order.

(c) No permit shield shall apply to any permit term or condition that is determined after issuance of this permit to have been based on erroneous information supplied in the permit application. Erroneous information means information that the Permittee knew to be false, or in the exercise of reasonable care should have been known to be false, at the time the information was submitted.

(d) Nothing in 326 IAC 2-7-15 or in this permit shall alter or affect the following:

(1) The provisions of Section 303 of the Clean Air Act (emergency orders), including the authority of the U.S. EPA under Section 303 of the Clean Air Act;

(2) The liability of the Permittee for any violation of applicable requirements prior to or at the time of this permit's issuance;

(3) The applicable requirements of the acid rain program, consistent with Section 408(a) of the Clean Air Act; and

(4) The ability of U.S. EPA to obtain information from the Permittee under Section 114 of the Clean Air Act.

(e) This permit shield is not applicable to any change made under 326 IAC 2-7-20(b)(2) (Sections 502(b)(10) of the Clean Air Act changes) and 326 IAC 2-7-20(c)(2) (trading based on State Implementation Plan (SIP) provisions).

(f) This permit shield is not applicable to modifications eligible for group processing until after IDEM, OAQ, has issued the modifications. [326 IAC 2-7-12(c)(7)]

(g) This permit shield is not applicable to minor Part 70 permit modifications until after IDEM, OAQ, has issued the modification. [326 IAC 2-7-12(b)(8)]

B.13 Prior Permits Superseded [326 IAC 2-1.1-9.5][326 IAC 2-7-10.5]

(a) All terms and conditions of permits established prior to 123-9234-00019 and issued pursuant to permitting programs approved into the state implementation plan have been either:

(1) incorporated as originally stated,

(2) revised under 326 IAC 2-7-10.5, or

(3) deleted under 326 IAC 2-7-10.5.

(b) Provided that all terms and conditions are accurately reflected in this permit, all previous registrations and permits are superseded by this part 70 operating permit.

B.14 Termination of Right to Operate [326 IAC 2-7-10][326 IAC 2-7-4(a)]

The Permittee's right to operate this source terminates with the expiration of this permit unless a timely and complete renewal application is submitted at least nine (9) months prior to the date of expiration of the source's existing permit, consistent with 326 IAC 2-7-3 and 326 IAC 2-7-4(a).

B.15 Deviations from Permit Requirements and Conditions [326 IAC 2-7-5(3)(C)(ii)]

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

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

using the attached Quarterly Deviation and Compliance Monitoring Report, or its equivalent. A deviation required to be reported pursuant to an applicable requirement that exists independent of this permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report.

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

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

B.16 Permit Modification, Reopening, Revocation and Reissuance, or Termination [326 IAC 2-7-5(6)(C)][326 IAC 2-7-8(a)][326 IAC 2-7-9]

(a) This permit may be modified, reopened, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a Part 70 Operating Permit modification,

revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any condition of this permit.
[326 IAC 2-7-5(6)(C)] The notification by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

(b) This permit shall be reopened and revised under any of the circumstances listed in IC 13-15-7-2 or if IDEM, OAQ determines any of the following:

(1) That this permit contains a material mistake.

(2) That inaccurate statements were made in establishing the emissions standards or other terms or conditions.

(3) That this permit must be revised or revoked to assure compliance with an applicable requirement. [326 IAC 2-7-9(a)(3)]

(c) Proceedings by IDEM, OAQ to reopen and revise this permit shall follow the same procedures as apply to initial permit issuance and shall affect only those parts of this permit for which cause to reopen exists. Such reopening and revision shall be made as expeditiously as practicable. [326 IAC 2-7-9(b)]

(d) The reopening and revision of this permit, under 326 IAC 2-7-9(a), shall not be initiated before notice of such intent is provided to the Permittee by IDEM, OAQ at least thirty (30) days in advance of the date this permit is to be reopened, except that IDEM, OAQ may provide a shorter time period in the case of an emergency. [326 IAC 2-7-9(c)]

B.17 Permit Renewal [326 IAC 2-7-3][326 IAC 2-7-4][326 IAC 2-7-8(e)]

(a) The application for renewal shall be submitted using the application form or forms prescribed by IDEM, OAQ and shall include the information specified in 326 IAC 2-7-4. Such information shall be included in the application for each emission unit at this source, except those emission units included on the trivial or insignificant activities list contained in 326 IAC 2-7-1(21) and 326 IAC 2-7-1(40). The renewal application does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

Request for renewal shall be submitted to:

Indiana Department of Environmental Management
Permits Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

(b) A timely renewal application is one that is:

(1) Submitted at least nine (9) months prior to the date of the expiration of this permit; and

(2) 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) If the Permittee submits a timely and complete application for renewal of this permit, the source's failure to have a permit is not a violation of 326 IAC 2-7 until IDEM, OAQ takes final action on the renewal application, except that this protection shall cease to apply if, subsequent to the completeness determination, the Permittee fails to submit by the

deadline specified in writing by IDEM, OAQ any additional information identified as being needed to process the application.

B.18 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
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

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)]

B.19 Permit Revision Under Economic Incentives and Other Programs [326 IAC 2-7-5(8)][326 IAC 2-7-12(b)(2)]

(a) No Part 70 permit revision shall be required under any approved economic incentives, marketable Part 70 permits, emissions trading, and other similar programs or processes for changes that are provided for in a Part 70 permit.

(b) Notwithstanding 326 IAC 2-7-12(b)(1) and 326 IAC 2-7-12(c)(1), minor Part 70 permit modification procedures may be used for Part 70 modifications involving the use of economic incentives, marketable Part 70 permits, emissions trading, and other similar approaches to the extent that such minor Part 70 permit modification procedures are explicitly provided for in the applicable State Implementation Plan (SIP) or in applicable requirements promulgated or approved by the U.S. EPA.

B.20 Operational Flexibility [326 IAC 2-7-20][326 IAC 2-7-10.5]

(a) The Permittee may make any change or changes at the source that are described in 326 IAC 2-7-20(b),(c), or (e) without a prior permit revision, if each of the following conditions is met:

(1) The changes are not modifications under any provision of Title I of the Clean Air Act;

(2) Any preconstruction approval required by 326 IAC 2-7-10.5 has been obtained;

(3) The changes do not result in emissions which exceed the limitations provided in this permit (whether expressed herein as a rate of emissions or in terms of total emissions);

(4) The Permittee notifies the:

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

MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

and

United States Environmental Protection Agency, Region V
Air and Radiation Division, Regulation Development Branch - Indiana (AR-18J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

in advance of the change by written notification at least ten (10) days in advance of the proposed change. The Permittee shall attach every such notice to the Permittee's copy of this permit; and

(5) The Permittee maintains records on-site, on a rolling five (5) year basis, which document all such changes and emission trades that are subject to 326 IAC 2-7-20(b),(c), or (e). The Permittee shall make such records available, upon reasonable request, for public review.

Such records shall consist of all information required to be submitted to IDEM, OAQ in the notices specified in 326 IAC 2-7-20(b)(1), (c)(1), and (e)(2).

(b) The Permittee may make Section 502(b)(10) of the Clean Air Act changes (this term is defined at 326 IAC 2-7-1(36)) without a permit revision, subject to the constraint of 326 IAC 2-7-20(a). For each such Section 502(b)(10) of the Clean Air Act change, the required written notification shall include the following:

(1) A brief description of the change within the source;

(2) The date on which the change will occur;

(3) Any change in emissions; and

(4) Any permit term or condition that is no longer applicable as a result of the change.

The notification which shall be submitted is not considered an application form, report or compliance certification. Therefore, the notification by the Permittee does not require the certification by the “responsible official” as defined by 326 IAC 2-7-1(34).

(c) Emission Trades [326 IAC 2-7-20(c)]
The Permittee may trade emissions increases and decreases at the source, where the applicable SIP provides for such emission trades without requiring a permit revision, subject to the constraints of Section (a) of this condition and those in 326 IAC 2-7-20(c).

(d) Alternative Operating Scenarios [326 IAC 2-7-20(d)]
The Permittee may make changes at the source within the range of alternative operating scenarios that are described in the terms and conditions of this permit in accordance with 326 IAC 2-7-5(9). No prior notification of IDEM, OAQ, or U.S. EPA is required.

(e) Backup fuel switches specifically addressed in, and limited under, Section D of this permit shall not be considered alternative operating scenarios. Therefore, the notification requirements of part (a) of this condition do not apply.

B.21 Source Modification Requirement [326 IAC 2-7-10.5] [326 IAC 2-2-2]

(a) A modification, construction, or reconstruction is governed by the requirements of 326 IAC 2 and 326 IAC 2-7-10.5.

(b) Any modification at an existing major source is governed by the requirements of 326 IAC 2-2-2.

B.22 Inspection and Entry [326 IAC 2-7-6][IC 13-14-2-2][IC 13-30-3-1][IC 13-17-3-2]

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

(a) Enter upon the Permittee's premises where a Part 70 source is located, or emissions related activity is conducted, or where records must be kept under the conditions of this permit;

(b) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, have access to and copy any records that must be kept under the conditions of this permit;

(c) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, inspect any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit;

(d) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, sample or monitor substances or parameters for the purpose of assuring compliance with this permit or applicable requirements; and

(e) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, utilize any photographic, recording, testing, monitoring, or other equipment for the purpose of assuring compliance with this permit or applicable requirements.

B.23 Transfer of Ownership or Operational Control [326 IAC 2-7-11]

(a) The Permittee must comply with the requirements of 326 IAC 2-7-11 whenever the Permittee seeks to change the ownership or operational control of the source and no other change in the permit is necessary.

(b) Any application requesting a change in the ownership or operational control of the source shall contain a written agreement containing a specific date for transfer of permit responsibility, coverage and liability between the current and new Permittee. The application shall be submitted to:

Indiana Department of Environmental Management
Permits Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

The application which shall be submitted by the Permittee does require the certification 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)]

B.24 Annual Fee Payment [326 IAC 2-7-19] [326 IAC 2-7-5(7)][326 IAC 2-1.1-7]

(a) The Permittee shall pay annual fees to IDEM, OAQ within thirty (30) calendar days of receipt of a billing. Pursuant to 326 IAC 2-7-19(b), if the Permittee does not receive a bill from IDEM, OAQ the applicable fee is due April 1 of each year.

(b) Except as provided in 326 IAC 2-7-19(e), failure to pay may result in administrative enforcement action or revocation of this permit.

(c) The Permittee may call the following telephone numbers: 1-800-451-6027 or 317-233-4230 (ask for OAQ, Billing, Licensing, and Training Section), to determine the appropriate permit fee.

B.25 Credible Evidence [326 IAC 2-7-5(3)][326 IAC 2-7-6][62 FR 8314] [326 IAC 1-1-6]

For the purpose of submitting compliance certifications or establishing whether or not the Permittee has violated or is in violation of any condition of this permit, nothing in this permit shall preclude the use, including the exclusive use, of any credible evidence or information relevant to whether the Permittee would have been in compliance with the condition of this permit if the appropriate performance or compliance test or procedure had been performed.

## SECTION C SOURCE OPERATION CONDITIONS

Entire Source

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

C.1 Particulate Emission Limitations For Processes with Process Weight Rates Less Than One Hundred (100) Pounds per Hour [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2(e)(2), particulate emissions from any process not exempt under 326 IAC 6-3-1(b) or (c) which has a maximum process weight rate less than 100 pounds per hour and the methods in 326 IAC 6-3-2(b) through (d) do not apply shall not exceed 0.551 pounds per hour.

C.2 Opacity [326 IAC 5-1]

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

(a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

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

C.3 Open Burning [326 IAC 4-1] [IC 13-17-9]

The Permittee shall not open burn any material except as provided in 326 IAC 4-1-3, 326 IAC 4-1-4 or 326 IAC 4-1-6. The previous sentence notwithstanding, the Permittee may open burn in accordance with an open burning approval issued by the Commissioner under 326 IAC 4-1-4.1.

C.4 Incineration [326 IAC 4-2] [326 IAC 9-1-2]

The Permittee shall not operate an incinerator or incinerate any waste or refuse except as provided in 326 IAC 4-2 and 326 IAC 9-1-2.

C.5 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).

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

Pursuant to 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations), fugitive particulate matter emissions shall be controlled according to the plan submitted on February 12, 2003. The plan is included as Attachment A.

C.7 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. The provisions of 326 IAC 1-7-1(3), 326 IAC 1-7-2, 326 IAC 1-7-3(c) and (d), 326 IAC 1-7-4, and 326 IAC 1-7-5(a), (b), and (d) are not federally enforceable.

C.8 Asbestos Abatement Projects [326 IAC 14-10] [326 IAC 18] [40 CFR 61, Subpart M]

(a) Notification requirements apply to each owner or operator. If the combined amount of regulated asbestos containing material (RACM) to be stripped, removed or disturbed is at least 260 linear feet on pipes or 160 square feet on other facility components, or at least thirty-five (35) cubic feet on all facility components, then the notification requirements of 326 IAC 14-10-3 are mandatory. All demolition projects require notification whether or not asbestos is present.

(b) The Permittee shall ensure that a written notification is sent on a form provided by the Commissioner at least ten (10) working days before asbestos stripping or removal work or before demolition begins, per 326 IAC 14-10-3, and shall update such notice as necessary, including, but not limited to the following:

(1) When the amount of affected asbestos containing material increases or decreases by at least twenty percent (20%); or

(2) If there is a change in the following:

(A) Asbestos removal or demolition start date;

(B) Removal or demolition contractor; or

(C) Waste disposal site.

(c) The Permittee shall ensure that the notice is postmarked or delivered according to the guidelines set forth in 326 IAC 14-10-3(2).

(d) The notice to be submitted shall include the information enumerated in 326 IAC 14-10-3(3).

All required notifications shall be submitted to:

Indiana Department of Environmental Management
Asbestos Section, Office of Air Quality
100 North Senate Avenue
MC 61-52 IGCN 1003
Indianapolis, Indiana 46204-2251

The notice shall include a signed certification from the owner or operator that the information provided in this notification is correct and that only Indiana licensed workers and project supervisors will be used to implement the asbestos removal project. The notifications do not require a certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

(e) Procedures for Asbestos Emission Control
The Permittee shall comply with the applicable emission control procedures in 326 IAC 14-10-4 and 40 CFR 61.145(c). Per 326 IAC 14-10-1, emission control requirements are applicable for any removal or disturbance of RACM greater than three (3) linear feet on pipes or three (3) square feet on any other facility components or a total of at least 0.75 cubic feet on all facility components.

(f) Demolition and Renovation
The Permittee shall thoroughly inspect the affected facility or part of the facility where the demolition or renovation will occur for the presence of asbestos pursuant to 40 CFR 61.145(a).

(g) Indiana Accredited Asbestos Inspector
The Permittee shall comply with 326 IAC 14-10-1(a) that requires the owner or operator, prior to a renovation/demolition, to use an Indiana Accredited Asbestos Inspector to thoroughly inspect the affected portion of the facility for the presence of asbestos. The requirement to use an Indiana Accredited Asbestos inspector is not federally enforceable.

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

C.9 Performance Testing [326 IAC 3-6]

(a) All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this permit, utilizing 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 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
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

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

(b) The Permittee shall notify IDEM, OAQ of the actual test date at least fourteen (14) days prior to the actual test date. The notification submitted by the Permittee does not require certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

(c) Pursuant to 326 IAC 3-6-4(b), all test reports must be received by IDEM, OAQ 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.10 Compliance Requirements [326 IAC 2-1.1-11]

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

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

C.11 Compliance Monitoring [326 IAC 2-7-5(3)][326 IAC 2-7-6(1)]

Unless otherwise specified in this permit, all monitoring and record keeping requirements not already legally required shall be implemented within ninety (90) days of permit issuance. If required by Section D, the Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment. If due to circumstances beyond its control, that equipment cannot be installed and operated within ninety (90) days, the Permittee may extend the compliance schedule related to the equipment for an additional ninety (90) days provided the Permittee notifies:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

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

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

Unless otherwise specified in the approval for the new emission unit(s), compliance monitoring for new emission units or emission units added through a source modification shall be implemented when operation begins.

C.12 Maintenance of Continuous Opacity Monitoring Equipment [326 IAC 2-7-5(3)(A)(iii)]

(a) The Permittee shall install, calibrate, maintain, and operate all necessary continuous opacity monitoring systems (COMS) and related equipment.

(b) All COMS 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 COMS occurs, a record shall be made of the times and reasons of the breakdown and efforts made to correct the problem.

(d) Whenever a COMS is malfunctioning or is down for maintenance or repairs for a period of twenty-four (24) hours or more and a backup COMS is not online within twenty-four (24) hours of shutdown or malfunction of the primary COMS, the Permittee shall provide a certified opacity reader, who may be an employee of the Permittee or an independent contractor, to self-monitor the emissions from the emission unit stack.

(1) 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.

(2) Method 9 opacity readings shall be repeated for a minimum of five (5) consecutive six (6) minute averaging periods at least twice per day during daylight operations, with at least four (4) hours between each set of readings, until a COMS is online.

(3) Method 9 readings may be discontinued once a COMS is online.

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

(e) 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, (and 40 CFR 60 and/or 40 CFR 63).

C.13 Maintenance of Continuous Emission Monitoring Equipment [326 IAC 2-7-5(3)(A)(iii)]

(a) The Permittee shall install, calibrate, maintain, and operate all necessary continuous emission monitoring systems (CEMS) and related equipment.

(b) All continuous emission monitoring systems shall meet all applicable performance specifications of 40 CFR 60 or any other performance specification, and are subject to monitor system certification requirements pursuant to 326 IAC 3-5-3.

(c) 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.

(d) Whenever a continuous emission monitor other than an opacity monitor is malfunctioning or is down for maintenance or repairs, the following shall be used as an alternative to continuous data collection:

(1) If the CEMS is required for monitoring $NO_X$ or $SO_2$ emissions pursuant to 40 CFR 75 (Title IV Acid Rain program) or 326 IAC 10-4 ($NO_X$ Budget Trading Program), the Permittee shall comply with the relevant requirements of 40 CFR 75 Subpart D - Missing Data Substitution Procedures.

(2) If the CEMS is not used to monitor $NO_X$ or $SO_2$ emissions pursuant to 40 CFR 75 or 326 IAC 10-4, then supplemental or intermittent monitoring of the parameter shall be implemented as specified in Section D of this permit until such time as the emission monitor system is back in operation.

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

C.14 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.15 Instrument Specifications [326 IAC 2-1.1-11] [326 IAC 2-7-5(3)] [326 IAC 2-7-6(1)]

(a) When required by any condition of this permit, an analog instrument used to measure a parameter related to the operation of an air pollution control device shall have a scale such that the expected maximum reading for the normal range shall be no less than twenty percent (20%) of full scale.

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

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

C.16 Emergency Reduction Plans [326 IAC 1-5-2] [326 IAC 1-5-3]

Pursuant to 326 IAC 1-5-2 (Emergency Reduction Plans; Submission):

(a) The Permittee shall prepare written emergency reduction plans (ERPs) consistent with safe operating procedures.

(b) These ERPs shall be submitted for approval to:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003

Indianapolis, Indiana 46204-2251

within ninety (90) days after the date of issuance of this permit.

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

(c) If the ERP is disapproved by IDEM, OAQ, the Permittee shall have an additional thirty (30) days to resolve the differences and submit an approvable ERP.

(d) These ERPs shall state those actions that will be taken, when each episode level is declared, to reduce or eliminate emissions of the appropriate air pollutants.

(e) Said ERPs shall also identify the sources of air pollutants, the approximate amount of reduction of the pollutants, and a brief description of the manner in which the reduction will be achieved.

(f) Upon direct notification by IDEM, OAQ that a specific air pollution episode level is in effect, the Permittee shall immediately put into effect the actions stipulated in the approved ERP for the appropriate episode level. [326 IAC 1-5-3]

C.17 Risk Management Plan [326 IAC 2-7-5(12)] [40 CFR 68]

If a regulated substance, as defined in 40 CFR 68, is present at a source in more than a threshold quantity, the Permittee must comply with the applicable requirements of 40 CFR 68.

C.18 Response to Excursions or Exceedances [326 IAC 2-7-5] [326 IAC 2-7-6]

(a) Upon detecting an excursion or exceedance, the Permittee shall restore operation of the emissions unit (including any control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions.

(b) The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup or shutdown conditions). Corrective actions may include, but are not limited to, the following:

(1) initial inspection and evaluation;

(2) recording that operations returned to normal without operator action (such as through response by a computerized distribution control system); or

(3) any necessary follow-up actions to return operation to within the indicator range, designated condition, or below the applicable emission limitation or standard, as applicable.

(c) A determination of whether the Permittee has used acceptable procedures in response to an excursion or exceedance will be based on information available, which may include, but is not limited to, the following:

(1) monitoring results;

(2) review of operation and maintenance procedures and records; and/or

(3) inspection of the control device, associated capture system, and the process.

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

(e) The Permittee shall maintain the following records:

(1) monitoring data;

(2) monitor performance data, if applicable; and

(3) corrective actions taken.

C.19 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-7-5][326 IAC 2-7-6]

(a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this permit exceed the level specified in any condition of this permit, the Permittee shall take appropriate response actions. The Permittee shall submit a description of these response actions to IDEM, OAQ, within thirty (30) days of receipt of the test results. The Permittee shall take appropriate action to minimize excess emissions from the affected facility while the response actions are being implemented.

(b) A retest to demonstrate compliance shall be performed within one hundred twenty (120) days of receipt of the original test results. Should the Permittee demonstrate to IDEM, OAQ that retesting in one hundred 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 noncompliant 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.20 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:

(1) Indicate estimated actual emissions of all pollutants listed in 326 IAC 2-6-4(a);

(2) 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
MC 61-50 IGCN 1003
Indianapolis, Indiana 46204-2251

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

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

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

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

(c) If there is a "project" (as defined in 326 IAC 2-2-1(qq) and/or 326 IAC 2-3-1(ll)) at an existing emissions unit, other than projects at a source with a Plantwide Applicability Limitation (PAL), which is not part of a "major modification" (as defined in 326 IAC 2-2-1(ee) and/or 326 IAC 2-3-1(z)) and the Permittee elects to utilize the "projected actual emissions" (as defined in 326 IAC 2-2-1(rr) and/or 326 IAC 2-3-1(mm)), the Permittee shall comply with following:

(1) Before beginning actual construction of the "project" (as defined in 326 IAC 2-2-1(qq) and/or 326 IAC 2-3-1(ll)) at an existing emissions unit, document and maintain the following records:

(A) A description of the project.

(B) Identification of any emissions unit whose emissions of a regulated new source review pollutant could be affected by the project.

(C) A description of the applicability test used to determine that the project is not a major modification for any regulated NSR pollutant, including:

(i) Baseline actual emissions;

(ii) Projected actual emissions;

(iii) Amount of emissions excluded under section 326 IAC 2-2-1(rr)(2)(A)(iii) and/or 326 IAC 2-3-1(mm)(2)(A)(iii); and

(iv) An explanation for why the amount was excluded, and any netting calculations, if applicable.

(2) Monitor the emissions of any regulated NSR pollutant that could increase as a result of the project and that is emitted by any existing emissions unit identified in (1)(B) above; and

(3) Calculate and maintain a record of the annual emissions, in tons per year on a calendar year basis, for a period of five (5) years following resumption of regular

operations after the change, or for a period of ten (10) years following resumption of regular operations after the change if the project increases the design capacity of or the potential to emit that regulated NSR pollutant at the emissions unit.

C.22 General Reporting Requirements [326 IAC 2-7-5(3)(C)] [326 IAC 2-1.1-11] [326 IAC 2-2] [326 IAC 2-3]

(a) The Permittee shall submit the attached Quarterly Deviation and Compliance Monitoring Report or its equivalent. Any deviation from permit requirements, the date(s) of each deviation, the cause of the deviation, and the response steps taken must be reported. This report shall be submitted 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
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

(c) Unless otherwise specified in this permit, any notice, report, or other submission required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.

(d) Unless otherwise specified in this permit, all reports required in Section D of this permit shall be submitted within thirty (30) days of the end of the reporting period. All reports do require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

(e) The first report shall cover the period commencing on the date of issuance of this permit and ending on the last day of the reporting period. Reporting periods are based on calendar years, unless otherwise specified in this permit. For the purpose of this permit “calendar year” means the twelve (12) month period from January 1 to December 31 inclusive.

(f) If the Permittee is required to comply with the recordkeeping provisions of (c) in Section C - General Record Keeping Requirements for any “project” (as defined in 326 IAC 2-2-1(qq) and/or 326 IAC 2-3-1(ll)) at an existing emissions unit, and the project meets the following criteria, then the Permittee shall submit a report to IDEM, OAQ:

(1) The annual emissions, in tons per year, from the project identified in (c)(1) in Section C- General Record Keeping Requirements exceed the baseline actual emissions, as documented and maintained under Section C- General Record Keeping Requirements (c)(1)(C)(i), by a significant amount, as defined in 326 IAC 2-2-1(xx) and/or 326 IAC 2-3-1(qq), for that regulated NSR pollutant, and

(2) The emissions differ from the preconstruction projection as documented and maintained under Section C - General Record Keeping Requirements (c)(1)(C)(ii).

(g) The report for project at an existing emissions unit shall be submitted within sixty (60) days after the end of the year and contain the following:

(1) The name, address, and telephone number of the major stationary source.

(2) The annual emissions calculated in accordance with (c)(2) and (3) in Section C - General Record Keeping Requirements.

(3) The emissions calculated under the actual-to-projected actual test stated in 326 IAC 2-2-2(d)(3) and/or 326 IAC 2-3-2(c)(3).

(4) Any other information that the Permittee deems fit to include in this report.

Reports required in this part shall be submitted to:

Indiana Department of Environmental Management
Air Compliance Section, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

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

**Stratospheric Ozone Protection**

C.23 Compliance with 40 CFR 82 and 326 IAC 22-1

Pursuant to 40 CFR 82 (Protection of Stratospheric Ozone), Subpart F, except as provided for motor vehicle air conditioners in Subpart B, the Permittee shall comply with the standards for recycling and emissions reduction:

(a) Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to 40 CFR 82.156.

(b) Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to 40 CFR 82.158.

(c) Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to 40 CFR 82.161.

**Ambient Monitoring Requirements [326 IAC 2-2-4]**

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

IDEM has determined that the SO2 ambient monitoring site can be removed from operation because the data has established that the SO2 levels comply with the NAAQS with an adequate margin of safety.

Pursuant to CP123-8451-00019 issued on February 4, 1998 and 326 IAC 2-2-4, the Permittee shall continue to operate the upwind and downwind ambient monitoring sites for $PM_{10}$ and collect meteorological data described in (a) through (d).

(a) The ambient data for $PM_{10}$ and meteorological data shall be collected following the initial compliance demonstration. IDEM, OAQ reserves the authority to require the Permittee to monitor for compliance with the National Ambient Air Quality Standards (NAAQS) for $PM_{2.5}$ in the event that such information is necessary to demonstrate compliance with the standard.

(b) The monitoring site(s) shall measure the following meteorological parameters:

(1) wind direction,
(2) wind speed, and
(3) temperature.

(c) A quarterly summary of the monitoring data shall be submitted to:

Indiana Department of Environmental Management
Ambient Monitoring Section, Office of Air Quality
2525 North Shadeland Avenue
Indianapolis, Indiana 46219

within ninety (90) calendar days after the end of the quarter being reported.

(d) The Permittee may petition IDEM, OAQ for the removal of the monitoring sites if it has been established that the PM10 levels will continue to comply with the NAAQS with an adequate margin of safety. The monitoring requirements may be continued if there exists a threat to the NAAQS or if determined to be warranted by IDEM, OAQ.

**SECTION D.3 FACILITY OPERATION CONDITIONS**

Facility Description [326 IAC 2-7-5(15)]
**Facilities Exhausting to Stacks S15 and S16**
Phase II

(1) Line 5
- (A) One (1) pouring/mold cooling operation, identified as P60, with a maximum production capacity of 25 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15;
- (B) One (1) shakeout operation, identified as P61, with a maximum throughout capacity of 25 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15, that exhaust to Stack S15 or by one (1) baghouse system, identified as C16,that exhaust to Stack S16;
- (C) One (1) cast cooling operation, identified as P62, with a maximum capacity of 25 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15.
- (D) One (1) pick and sort operation, identified as P63, with a maximum throughput capacity of 25 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;
- (E) One (1) cleaning and grinding operation, identified as P64, with a maximum throughput capacity of 25 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(2) Line 6
- (A) One (1) pouring/mold cooling operation, identified as P65, with a maximum production capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15;
- (B) One (1) shakeout operation, identified as P66, with a maximum throughput capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15, that exhaust to Stack S15 or by one (1) baghouse system, identified as C16, that exhaust to Stack S16;
- (C) One (1) cast cooling operation, identified as P67, with a maximum capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15, that exhaust to Stack S15 or by one (1) baghouse system, identified as C16, that exhaust to Stack S16;
- (D) One (1) pick and sort operation, identified as P68, with a maximum throughput capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;
- (E) One (1) cleaning and grinding operation, identified as P69, with a maximum throughput capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(3) Line 7
- (A) One (1) pouring/mold cooling operation, identified as P70, with a maximum production capacity of 30 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15;
- (B) One (1) shakeout operation, identified as P71, with a maximum production capacity of 30 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15, that exhaust to Stack S15 or by one (1) baghouse system, identified as C16, that exhaust to Stack S16;
- (C) One (1) cast cooling operation, identified as P72, with a maximum production

capacity of 30 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15, that exhaust to Stack S15 or by one (1) baghouse system, identified as C16, that exhaust to Stack S16;

(D) One (1) pick and sort operation, identified as P73, with a maximum throughput capacity of 30 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(E) One (1) cleaning and grinding operation, identified as P74, with a maximum throughput capacity of 30 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(4) Line 8

(A) One (1) pouring/mold cooling operation, identified as P75, with a maximum production capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15;

(B) One (1) shakeout operation, identified as P76, with a maximum throughput capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(C) One (1) cast cooling operation, identified as P77, with a maximum capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(D) One (1) pick and sort operation, identified as P78, with a maximum throughput capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16; and

(E) One (1) cleaning and grinding operation, identified as P79, with a maximum throughput capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16.

Phase II

Sand Handling Operations and Ancillary Operations:

(1) One (1) return sand handling and screening operation, identified as P80, with a maximum throughput capacity of 600 tons of sand per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15, that exhaust to Stack S15 or by one (1) baghouse system, identified as C16, that exhaust to Stack S16;

(2) One (1) sand mulling and handling operation, identified as P81, with a maximum capacity of 600 tons of sand per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15;

(3) One (1) sand blending and cooling operation, identified as P82, with a maximum capacity of 600 tons of sand per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15;

(4) One (1) spent sand and dust handling operation, identified as P83, with a maximum throughput capacity of 50 tons of sand per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15;

(5) One (1) metal returns handling operation, identified as P84, with a maximum capacity of 40 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15, that exhaust to Stack S15 or by one (1) baghouse system, identified as C16, that exhaust to Stack S16;

(6) One (1) Tumbleblast shotblast machine, identified as P55, with a maximum capacity of 18 tons of metal castings per hour, with emissions controlled by existing baghouse C15, and exhausting to stack S15.

(d) One (1) autogrinder operation, to be constructed in 2008, identified as P87, with a maximum capacity of 22.5 tons of castings per hour, with emissions controlled by existing Baghouse C16 and exhausting to stack S16.

Ductile Iron Treatment Operations

(1) Two (2) ductile iron treatment stations, both identified as P35, each with a maximum production capacity of 40 tons per hour. Particulate matter emissions are controlled by two (2) baghouse systems identified as C15 and C35. The gases from both baghouses are then exhausted to Stack S15;

Combustion Units

(1) Natural gas fired air make-up units equipped with low-NOx burners, identified as P54, with a maximum heat input rate of 80 MMBtu per hour exhausting to Stack S15.

(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 Particulate Matter PSD BACT Limits [326 IAC 2-2-3(a)(3)]

(a) Pursuant to CP-123-4593-00019, issued on January 19, 1996, CP-123-8451-00019, issued on February 4, 1998, SSM123-12331-00019 issued on January 31, 2001, and 326 IAC 2-2-3(a)(3) (Prevention of Significant Deterioration (PSD) Rules), the particulate matter emissions from the following operations shall be limited as shown in the table below:

| Stack ID | Process | Process ID | PM Emission Limitation (gr/dscf) |
|---|---|---|---|
| S15 | Return Sand Handling/ Screening | P80 | 0.005 |
| | Sand Mulling and Handling | P81 | |
| | Sand Blending and Cooling | P82 | |
| | Spent Sand and Dust Handling | P83 | |
| | Metal Returns Handling System | P84 | |
| | Line 5 Pouring/Mold Cooling | P60 | |
| | Line 5 Shakeout | P61 | |
| | Line 5 Cast Cooling | P62 | |
| | Line 6 Pouring/Mold Cooling | P65 | |
| | Line 6 Shakeout | P66 | |
| | Line 6 Cast Cooling | P67 | |
| | Line 7 Pouring/Mold Cooling | P70 | |
| | Line 7 Shakeout | P71 | |

| Stack ID | Process | Process ID | PM Emission Limitation (gr/dscf) |
|---|---|---|---|
| | Line 7 Cast Cooling | P72 | |
| | Line 8 Pouring/Mold Cooling | P75 | |
| | shotblast machine | P55 | |
| | ductile iron treatment stations #1 and #2 | P35 | |
| S16 | Return Sand Handling/ Screening | P80 | 0.005 |
| | Line 5 Pick and Sort | P63 | |
| | Line 5 Cleaning/ Grinding | P64 | |
| | Line 6 Shakeout | P66 | |
| | Line 6 Cast Cooling | P67 | |
| | Line 6 Pick and Sort | P68 | |
| | Line 6 Cleaning/ Grinding | P69 | |
| | Line 7 Shakeout | P71 | |
| | Line 7 Cast Cooling | P72 | |
| | Line 7 Pick and Sort | P73 | |
| | Line 7 Cleaning/ Grinding | P74 | |
| | Line 8 Shakeout | P76 | |
| | Line 8 Cast Cooling | P77 | |
| | Line 8 Pick and Sort | P78 | |
| | Line 8 Cleaning/ Grinding | P79 | |

(b) Pursuant to CP123-4593-00019 issued on January 19, 1996, visible emissions from any baghouse stack shall not exceed ten percent (10%) opacity.

D.3.2 Lead PSD BACT Limits [326 IAC 2-2-3(a)(3)] [326 IAC 2-4.1-1]

Pursuant to CP-123-8451-00019, issued on February 4, 1998, Amendment 123-9740-00019, issued May 22, 1998, SSM123-12331-00019 issued on January 31, 2001, and 326 IAC 2-2-3(a)(3) and revised by PSD/SSM 123-25303-00019, the lead (Pb) emissions from the following operations shall be limited as shown in the table below:

| Stack ID | Process | Process ID | Lead Emission Limitation for stack (lb/hr) |
|---|---|---|---|
| S15 | Line 5 Pouring/Mold Cooling | P60 | 0.035 |
| | Line 5 Shakeout | P61 | |
| | Line 5 Cast Cooling | P62 | |
| | Line 6 Pouring/Mold Cooling | P65 | |
| | Line 6 Shakeout | P66 | |
| | Line 6 Cast Cooling | P67 | |
| | Line 7 Pouring/Mold Cooling | P70 | |
| | Line 7 Shakeout | P71 | |
| | Line 7 Cast Cooling | P72 | |
| | Line 8 Pouring/Mold Cooling | P75 | |
| | shotblast machine | P55 | |
| | Metal Returns Handling System | P84 | |
| | Return Sand Handling/Screening | P80 | |
| | Sand Mulling and Handling | P81 | |
| | Sand Blending and Cooling | P82 | |
| | Spent Sand and Dust Handling | P83 | |
| S16 | Line 5 Shakeout | P61 | 0.018 |
| | Line 5 Pick and Sort | P63 | |
| | Line 5 Cleaning/ Grinding | P64 | |
| | Line 6 Shakeout | P66 | |
| | Line 6 Cast Cooling | P67 | |
| | Line 6 Pick and Sort | P68 | |
| | Line 6 Cleaning/ Grinding | P69 | |
| | Line 7 Shakeout | P71 | |
| | Line 7 Cast Cooling | P72 | |
| | Line 7 Pick and Sort | P73 | |
| | Line 7 Cleaning/ Grinding | P74 | |

| Stack ID | Process | Process ID | Lead Emission Limitation for stack (lb/hr) |
|---|---|---|---|
| | Line 8 Shakeout | P76 | |
| | Line 8 Cast Cooling | P77 | |
| | Line 8 Pick and Sort | P78 | |
| | Line 8 Cleaning/ Grinding | P79 | |
| | Return Sand Handling/Screening | P80 | |
| | Metal Returns Handling System | P84 | |

D.3.3 Beryllium PSD BACT Limits [326 IAC 2-2-3(a)(3)] [326 IAC 2-4.1-1]

Pursuant to CP-123-8451-00019, issued on February 4, 1998, Amendment 123-9740-00019, issued May 22, 1998, SSM123-12331-00019 issued on January 31, 2001, and 326 IAC 2-2-3(a)(3) and revised by PSD/SSM 123-25303-00019, the beryllium (Be) emissions from the processes listed below shall be limited as shown in the table below:

| Stack ID | Process | Process ID | Beryllium Emission Limitation for stack (lb/hr) |
|---|---|---|---|
| S15 | Line 5 Pouring/Mold Cooling | P60 | 0.00069 |
| | Line 5 Shakeout | P61 | |
| | Line 5 Cast Cooling | P62 | |
| | Line 6 Pouring/Mold Cooling | P65 | |
| | Line 6 Shakeout | P66 | |
| | Line 6 Cast Cooling | P67 | |
| | Line 7 Pouring/Mold Cooling | P70 | |
| | Line 7 Shakeout | P71 | |
| | Line 7 Cast Cooling | P72 | |
| | Line 8 Pouring/Mold Cooling | P75 | |
| | shotblast machine | P55 | |
| | Metal Returns Handling System | P84 | |
| | Return Sand Handling/Screening | P80 | |
| | Sand Mulling and Handling | P81 | |
| | Sand Blending and Cooling | P82 | |

| Stack ID | Process | Process ID | Beryllium Emission Limitation for stack (lb/hr) |
|---|---|---|---|
| | Spent Sand and Dust Handling | P83 | |
| S16 | Line 5 Shakeout | P61 | 0.00036 |
| | Line 5 Pick and Sort | P63 | |
| | Line 5 Cleaning/ Grinding | P64 | |
| | Line 6 Shakeout | P66 | |
| | Line 6 Cast Cooling | P67 | |
| | Line 6 Pick and Sort | P68 | |
| | Line 6 Cleaning/ Grinding | P69 | |
| | Line 7 Shakeout | P71 | |
| | Line 7 Cast Cooling | P72 | |
| | Line 7 Pick and Sort | P73 | |
| | Line 7 Cleaning/ Grinding | P74 | |
| | Line 8 Shakeout | P76 | |
| | Line 8 Cast Cooling | P77 | |
| | Line 8 Pick and Sort | P78 | |
| | Line 8 Cleaning/ Grinding | P79 | |
| | Return Sand Handling/Screening | P80 | |
| | Metal Returns Handling System | P84 | |

D.3.4 Sulfur Dioxide Emissions Limitations [326 IAC 2-2-3(a)(3)]

Pursuant to CP-123-8451-00019, issued on February 4, 1998, Amendment 123-9740-00019, issued May 22, 1998 and 326 IAC 2-2-3(a)(3), the sulfur dioxide ($SO_2$) emissions from the following processes shall be limited as shown in the table below:

| Stack ID | Process | Process ID | $SO_2$ Emission Limitations for individual processes (lb/hr) | $SO_2$ Emission Limitation for stack (lb/hr) |
|---|---|---|---|---|
| S15 | Line 5 Pouring/Mold Cooling | P60 | 1.00 | 3.69 |
| | Line 6 Pouring/Mold Cooling | P65 | 0.72 | |
| | Line 7 Pouring/Mold Cooling | P70 | 1.2 | |
| | Line 8 Pouring/Mold Cooling | P75 | 0.72 | |

D.3.5 Volatile Organic Compound Emission Limitations [326 IAC 2-2-3(a)(3)] [326 IAC 8-1-6]

Pursuant to CP-123-8451-00019, issued on February 4, 1998, Amendment 123-9740-00019, issued May 22, 1998, 326 IAC 2-2-3(a)(3) and 326 IAC 8-1-6 (General Reduction Requirements for New Facilities), the volatile organic compound (VOC) emissions from the following processes shall be limited as shown in the table below:

| Stack ID | Process | Process ID | VOC Emission Limitations for individual processes (lb/hr) | VOC Emission Limitation for stack (lb/hr) |
|---|---|---|---|---|
| S15 | Line 5 Pouring/Mold Cooling | P60 | 12.5 | 52.3 |
| | Line 5 Shakeout | P61 | 1.25 | |
| | Line 6 Pouring/Mold Cooling | P65 | 9.00 | |
| | Line 6 Shakeout | P66 | 1.13 | |
| | Line 7 Pouring/Mold Cooling | P70 | 15.0 | |
| | Line 7 Shakeout | P71 | 1.5 | |
| | Line 8 Pouring/Mold Cooling | P75 | 9.00 | |
| S16 | Line 5 Shakeout | P61 | 1.25 | 5.23 |
| | Line 6 Shakeout | P66 | 0.675 | |
| | Line 7 Shakeout | P71 | 1.5 | |
| | Line 8 Shakeout | P76 | 1.8 | |

D.3.6 Carbon Monoxide Emission Limitations [326 IAC 2-2-3(a)(3)]

Pursuant to CP-123-8451-00019, issued on February 4, 1998, Amendment 123-9740-00019, issued May 22, 1998 and 326 IAC 2-2-3(a)(3), the carbon monoxide (CO) emissions from the following processes shall be limited as shown in the table below:

| Stack ID | Process | Process ID | CO Emission Limitations for individual processes (lb/ton iron) |
|---|---|---|---|
| S15 | Line 5 Pouring/Mold Cooling | P60 | 5.0 |
| | Line 5 Shakeout | P61 | 1.0 |
| | Line 6 Pouring/Mold Cooling | P65 | 5.0 |
| | Line 6 Shakeout | P66 | 1.0 |
| | Line 7 Pouring/Mold Cooling | P70 | 5.0 |
| | Line 7 Shakeout | P71 | 1.0 |
| | Line 8 Pouring/Mold Cooling | P75 | 5.0 |
| S16 | Line 5 Shakeout | P61 | 1.0 |
| | Line 6 Shakeout | P66 | 1.0 |
| | Line 7 Shakeout | P71 | 1.0 |
| | Line 8 Shakeout | P76 | 1.0 |

D.3.7 NOx Emission Limitations [326 IAC 2-2-3(a)(3)]

(a) Pursuant to CP-123-8451-00019, issued on February 4, 1998, Amendment 123-9740-00019, issued May 22, 1998 and 326 IAC 2-2-3(a)(3), the ($NO_X$) emissions from the following processes shall be limited as shown in the table below:

| Stack ID | Process | Process ID | NOx Emission Limitations for individual processes (lb/ton iron) |
|---|---|---|---|
| S15 | Line 5 Pouring/Mold Cooling | P60 | 0.01 |
| | Line 6 Pouring/Mold Cooling | P65 | 0.01 |
| | Line 7 Pouring/Mold Cooling | P70 | 0.01 |
| | Line 8 Pouring/Mold Cooling | P75 | 0.01 |

(b) Pursuant to CP-123-8451-00019, issued on February 4, 1998, and 326 IAC 2-2-3(a)(3), the natural gas fired air makeup units, identified as P54, shall be equipped with low-NOx burners and shall be limited to a maximum heat input rate of 80 MMBtu per hour.

D.3.8 Operating Requirements [326 IAC 2-2-3(a)(3)]

(a) Pursuant to SSM123-11479-00019 issued on June 7, 2001 and 326 IAC 2-2-3(a)(3), the maximum production rate of both ductile iron treatment stations identified as P35 shall not exceed a combined total of 80 tons of iron per hour, based on a 24 hour average.

(b) Pursuant to CP-123-8451-00019, issued on February 4 1998 and 326 IAC 2-2-3(a)(3), the sand handling operations shall comply with the following limitations:

(1) the return sand handling/screening process, identified as P80, shall be limited to a maximum throughput capacity of 600 tons of sand per hour;

(2) the sand mulling/handling process, identified as P81, shall be limited to a maximum throughput capacity of 600 tons of sand per hour.

(3) the sand blending and cooling process, identified as P82, shall be limited to a maximum throughput capacity of 600 tons of sand per hour; and

(4) the spent sand and dust handling system, identified as P83, shall be limited to a maximum throughput capacity of 50 tons of sand per hour.

(c) Pursuant to CP-123-8451-00019, issued on February 4 1998 and 326 IAC 2-2-3(a)(3), the metal returns handling system, identified as P84, shall be limited to a maximum capacity of 40 tons per hour.

(d) Pursuant to CP-123-8451-00019, issued on February 4 1998 and 326 IAC 2-2-3(a)(3), the pouring/cooling processes shall comply with the following limitations:

(1) the Line 5 pouring/mold cooling process, identified as P60, shall be limited to a maximum production capacity of 25 tons per hour;

(2) the Line 6 pouring/mold cooling process, identified as P65, shall be limited to a maximum production capacity of 18 tons per hour;

(3) the Line 7 pouring/mold cooling process, identified as P70, shall be limited to a maximum production capacity of 30 tons per hour; and

(4) the Line 8 pouring/mold cooling process, identified as P75, shall be limited to a maximum production capacity of 18 tons per hour.

(e) Pursuant to SSM123-12331-00019 issued on January 31, 2001, the shotblast machine, identified as P55, shall be limited to a maximum throughput capacity of 18 tons of metal castings per hour.

D.3.9 PSD Minor Limit [326 IAC 2-2]

The PM and PM10 emissions from the autogrinder process exhausting to stack S18 shall not exceed 0.60 pounds per hour.

Compliance with these limits will limit the potential PM and PM10 emissions from the sand handling operations and the autogrinder to less than 25 and 15 tons per year and render the requirements of 326 IAC 2-2 not applicable to the sand handling operations and the autogrinder.

D.3.10 Particulate Emission Limitations for Manufacturing Processes [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2, the particulate matter (PM) from the autogrinder operation identified as P87 shall not exceed 33.0 pounds per hour when operating at a process weight rate of 22.5 tons per hour. This limit was calculated using the following equations:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10\ P^{0.67}$ where E = rate of emission in pounds per hour and
P = process weight rate in tons per hour

D.3.11 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for these facilities and all control devices.

**Compliance Determination Requirements**

D.3.12 Testing Requirements [326 IAC 2-7-6(1),(6)] [326 IAC 2-1.1-11]

Before August 1, 2012, the Permittee shall perform PM, opacity, lead, and beryllium testing on the processes exhausting to stacks S15 and S16 using methods as approved by the Commissioner, in order to demonstrate compliance with the total stack limits specified in Conditions D.3.1, D.3.2, and D.3.3. These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C- Performance Testing.

D.3.13 Particulate Matter (PM/PM-10) [326 IAC 2-7-6(6)]

(a) Pursuant to CP-123-8451-00019, issued on February 4, 1998, and 326 IAC 2-2 (Prevention of Significant Deterioration (PSD) Rules), the PM, lead, and beryllium emissions shall be controlled by baghouses C15 (Stack S15), and C16 (Stack S16) at all times when the associated processes are in operation.

(b) In order to comply with Conditions D.3.9 and D.3.10, the Baghouse C16 for particulate control shall be in operation and control emissions from the autogrinder identified as P87 at all times the autogrinder is in operation.

(c) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

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

D.3.14 Visible Emission Notations [40 CFR 64]

(a) Visible emission notations of each baghouse stack exhaust shall be performed once per day during normal daylight operations when exhausting to the atmosphere. 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, eighty percent (80%) of the time 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) If abnormal emissions are observed, the Permittee shall take reasonable response steps in accordance with Section C- Response to Excursions or Exceedances. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances shall be considered a deviation from this permit.

D.3.15 Baghouse Parametric Monitoring [40 CFR 64]

The Permittee shall record the pressure drop across each of the baghouses used in conjunction with the processes listed in this section, at least once per day when the associated process is in operation. When for any one reading, the pressure drop across a baghouse is outside the normal range of 3.0 and 10.0 inches of water or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C- Response to

Excursions or Exceedances. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances, shall be considered a deviation from this permit.

The instrument used for determining the pressure shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated at least once every six (6) months.

D.3.16 Broken or Failed Bag Detection

(a) For a single compartment baghouse controlling emissions from a process operated continuously, a failed unit and the associated process shall be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

(b) For a single compartment baghouse controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the line. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

Bag failure can be indicated by a significant drop in the baghouse's pressure reading with abnormal visible emissions, by an opacity violation, or by other means such as gas temperature, flow rate, air infiltration, leaks, dust traces or triboflows.

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

D.3.17 Record Keeping Requirement

(a) To document compliance with Conditions D.3.12 the Permittee shall maintain records of visible emission notations of each baghouse stack exhaust once per day. The Permittee shall include in its daily record when a visible emission notation is not taken and the reason for the lack of visible emission notation (e.g. the process did not operate that day).

(b) To document compliance with Conditions D.3.13 the Permittee shall maintain records of the pressure drop across each baghouse once per day. The Permittee shall include in its daily record when a pressure drop reading is not taken and the reason for the lack of pressure drop reading (e.g. the process did not operate that day).

(c) Pursuant to CP123-8451-00019 issued on February 4, 1998, and to document compliance with Conditions D.3.7(b) the Permittee shall maintain records of the equipment installed and the type of fuel used in the air makeup units.

(d) In order to document compliance with D.3.8, records shall be kept of the total iron throughput to each ductile iron treatment station each day of operation, and of the total hours of operation of each ductile iron treatment station each day of operation.

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

## SECTION D.4 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]
**Facilities Exhausting to Stacks S08, S11, and S14**
Phase I

(a) sand handling operations and ancillary operations, each constructed in 1996, consisting of the following:

(1) One (1) core sand handling operation, identified as P40, with a maximum throughput of 16 tons per hour, using one (1) baghouse (C08) for particulate control, exhausting to stack S08;

(2) One (1) core manufacturing operation, identified as P41, with a maximum throughput of 16 tons per hour, exhausting to stack S11;

(3) One (1) core machine & oven operation, identified as P51, with a maximum heat input capacity of 16.8 MMBtu per hour, combusting natural gas, exhausting to stack S11;

(4) One (1) pattern shop, identified as P50, controlled by a baghouse, exhausting inside the building.

Phase II

(b) sand handling operations and ancillary operations, each constructed in 1998, consisting of the following:

(1) One (1) phenolic-urethane core sand handling system, identified as P42, constructed in 1998 and modified in 2008, with a maximum production capacity of 32 tons of cores per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C08, that exhausts to Stack S08;

(2) One (1) phenolic-urethane core making process, identified as P43, consisting of 6 mixers and 6 core machines, with a total maximum production capacity of 20 tons of cores per hour. DMIPA emissions are controlled by one (1) packed bed scrubber, identified as C14. The gases are then exhausted to Stack S14;

(3) One (1) phenolic-urethane core making process, identified as P44, consisting of 2 mixers and 2 core machines, each with a maximum capacity of 3 tons per hour. DMIPA emissions are controlled by one (1) packed bed scrubber, identified as C14. The gases are then exhausted to Stack S14;

Core Room Expansion II

(a) one (1) phenolic-urethane core machine, identified as P45A, to be constructed in 2008, with a maximum capacity of 6 tons per hour, with emissions controlled by existing scrubber C14 and exhausting through stack S14;

(b) one (1) phenolic-urethane core machine, identified as P45B, to be constructed in 2008, with a maximum capacity of 6 tons per hour, with emissions controlled by existing scrubber C17 and exhausting through stack S17; and

(c) two (2) natural gas-fired core dry oven, to be constructed in 2008, identified as P48A and P48B, with a maximum capacity of 2.5 MMBtu/hr each, with emissions exhausting in to the building.

(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 Particulate Matter Emissions Limitations [326 IAC 2-2-3(a)(3)]

(a) Pursuant to CP-123-4593-00019, issued on January 19, 1996, CP-123-8451-00019, issued on February 4, 1998, and 326 IAC 2-2-3(a)(3) (Prevention of Significant Deterioration (PSD) Rules), the particulate matter emissions from the following operations shall be limited to the following:

| Stack ID | Process | Process ID | PM Emission Limitations for individual processes (gr/dscf) unless otherwise specified | PM Emission Limitations for Stacks (lb/hr) and (tons/yr) |
|---|---|---|---|---|
| S08 | Core Sand Handling | P40 | 0.005 | 0.6 lb/hr |
| S08 | Phenolic-Urethane Core Sand Handling System | P42 | 0.005 | |
| S11 | Core Machines & Ovens | P51 | 0.23 lb/hr and 1.0 ton/yr | 0.23 lb/hr and 1.0 tons/yr |

(b) Pursuant to CP123-4593-00019 issued on January 19, 1996, visible emissions from any baghouse stack shall not exceed ten percent (10%) opacity.

D.4.2 VOC BACT Limits [326 IAC 2-2-3(a)(3)] [326 IAC 8-1-6]

Pursuant to CP-123-4593-00019, issued on January 19, 1996, CP-123-8451-00019, issued on February 4, 1998, SSM 123-12948-00019, issued on June 5, 2001, SSM 123-16456, issued on May 13, 2003, and SSM 123-26878-00019, issued in 2008, 326 IAC 8-1-6 (BACT), and 326 IAC 2-2-3(a)(3) (Prevention of Significant Deterioration (PSD) Rules), the Permittee shall comply with the following requirements:

(a) The VOC emissions from the core machines and ovens identified as P51 shall not exceed 0.10 pounds per hour and 0.43 tons per year.

(b) The VOC emissions from the core manufacturing process identified as P41 shall not exceed 4.6 pounds per hour and 20.2 tons per year.

(c) The volatile organic compound (VOC) emissions, not including dimethylisopropylamine (DMIPA), from both of the phenolic-urethane core machines, identified as P44, shall not exceed 1.836 pounds per hour (total for both machines combined) and 0.010 pounds per pound of binder used.

(d) The volatile organic compound (VOC) emissions from both of the mixers, identified as P44, shall not exceed 0.324 pounds per hour (total for both mixers combined) and 0.002 pounds per pound of binder used.

(e) The amount of binder used in both mixers, identified as P44, combined shall not exceed 390 tons per 12 consecutive month period with compliance determined at the end of each month. For the first 12 months of operation, the limit shall be 32.5 tons per month.

(f) The amount of cores produced by both core machines, identified as P44, combined shall not exceed 26,000 tons per 12 consecutive month period with compliance determined at the end of each month. For the first 12 months of operation, the limit shall be 2,167 tons per month.

(g) The total VOC emissions (including DMIPA) from the mixers and core machines identified as P43 shall not exceed 0.4 pound per ton of cores.

(h) The scrubber controlling the DMIPA emissions from the core machines identified as P43**,** P44, P45A, and P45B shall maintain a 100% capture of the DMIPA emissions, using a permanent total enclosure that complies with the requirements of 40 CFR Part 51, Appendix M, Method 24. The scrubber shall achieve at least 98% overall control efficiency of the DMIPA.

(i) The DMIPA emissions from the scrubber controlling the core machines identified as P43 and P44 shall not exceed 0.04 pound per ton of cores and 1.04 pounds per hour. Compliance with limit is also necessary to render the requirements of 326 IAC 2-4.1-1 (New Source Toxics Control) not applicable.

(j) The DMIPA emissions from the scrubber controlling the core machines identified as P45A and P45B shall not exceed 0.04 pound per ton of cores and 0.24 pounds per hour.

(k) The Permittee shall only use dimethylisopropylamine (DMIPA) as a catalyst for the core machines identified as P43, P44, P45A, and P45B.

D.4.3 Particulate Emission Limitations for Manufacturing Processes [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2, the particulate matter (PM) from the sand handling operation identified as P42 shall not exceed 40.5 pounds per hour when operating at a process weight rate of 32 tons per hour. This limit was calculated using the following equations:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

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

D.4.4 $SO_2$ Emissions Limitations [326 IAC 2-2-3(a)(3)]

Pursuant to CP-123-4593-00019, issued on January 19, 1996, CP-123-8451-00019, issued on February 4, 1998, and 326 IAC 2-2-3(a)(3) (Prevention of Significant Deterioration (PSD) Rules), the $SO_2$ emissions from the core machines and ovens identified as P51 and exhausting to stack S11 shall not exceed 0.01 pound per hour and 0.044 tons per year.

D.4.5 NOx Emissions Limitations [326 IAC 2-2-3(a)(3)]

Pursuant to CP-123-4593-00019, issued on January 19, 1996, CP-123-8451-00019, issued on February 4, 1998, and 326 IAC 2-2-3(a)(3) (Prevention of Significant Deterioration (PSD) Rules), the NOx emissions from the core machines and ovens identified as P51 and exhausting to stack S11 shall not exceed 2.35 pounds per hour and 10.3 tons per year.

D.4.6 CO Emissions Limitations [326 IAC 2-2-3(a)(3)]

Pursuant to CP-123-4593-00019, issued on January 19, 1996, CP-123-8451-00019, issued on February 4, 1998, and 326 IAC 2-2-3(a)(3) (Prevention of Significant Deterioration (PSD) Rules), the CO emissions from the core machines and ovens identified as P51 and exhausting to stack S11 shall not exceed 0.59 pound per hour and 2.58 tons per year.

D.4.7 Operating Requirements [326 IAC 2-2-3(a)(3)]

(a) Pursuant to CP123-4593-00019 issued on January 19, 1996 and 326 IAC 2-2-3(a)(3), the core ovens shall use only natural gas as a fuel source.

(b) Pursuant to SSM 123-12948-00019, issued on June 5, 2001, and SSM 123-16456, issued on May 13, 2003, the combined maximum capacity of the core machines identified as P44 shall not exceed 6 tons of cores per hour, based on a 24 hour average.

(c) Pursuant to SSM 123-12948-00019, issued on June 5, 2001, and SSM 123-16456, issued on May 13, 2003, the combined maximum capacity of the core machines identified as P43 shall not exceed 20 tons of cores per hour, based on a 24 hour average.

D.4.8 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for these facilities and all control devices.

**Compliance Determination Requirements**

D.4.9 Control of Hazardous Air Pollutants (HAPs) [326 IAC 2-2-3(a)(3)] [326 IAC 2-7-6(6)]

(a) Pursuant to SSM 123-12948-00019, issued on June 5, 2001, SSM 123-16456-00019, issued on May 13, 2003, CP123-4593-00019 issued on January 19, 1996 and 326 IAC 2-2-3(a)(3), the DMIPA emissions from the core machines identified as P43 and P44 shall be controlled by a scrubber C14 (Stack S14) at all times that any of the core machines is in operation.

(b) Pursuant to SSM 123-12948-00019, issued on June 5, 2001, SSM 123-16456-00019, issued on May 13, 2003, CP123-4593-00019 issued on January 19, 1996 and 326 IAC 2-2-3(a)(3), the PM emissions from the core sand handling operations identified as P40 and P42 shall be controlled by a baghouse (C08) at all times that the core sand handling operations are in operation.

(c) The PM emissions from the pattern shop identified as P50 shall be controlled by the baghouse at all times that the pattern shop is in operation.

(d) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

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

Pursuant to SSM 123-16456-00019 issued May 13, 2003, within 60 days after achieving maximum production rate but no later than 180 days after the startup of the core machines after the catalyst change, the Permittee shall perform DMIPA testing on the scrubber controlling the core machines identified as P43 and P44 in order to demonstrate compliance with Conditions D.4.2 (h) and (i) using methods as approved by the Commissioner. These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C- Performance Testing.

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

D.4.11 Packed Bed Scrubber Parametric Monitoring

(a) The Permittee shall monitor and record the pH of the scrubber solution and the pressure drop across the scrubber unit at least once per day. When for any one reading, the pressure drop across the scrubber is outside the normal range of 2 to 5 inches of water or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C- Response to Excursions or Exceedances. When for any one reading, the pH level of the scrubbing liquid exceeds the normal

maximum of 4.5 or a maximum established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C- Response to Excursions or Exceedances. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances, shall be considered a deviation from this permit.

(b) The Permittee shall continuously monitor the flow rate of the scrubbing liquid. When for any one reading, the flow rate is below the normal minimum of 235 gallons per minute or a minimum established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C- Response to Excursions or Exceedances. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances, shall be considered a deviation from this permit.

(c) The instruments used for determining the pressure, flow rate, and pH level shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated at least once every six (6) months.

D.4.12 Packed Bed Scrubber Failure Detection

(a) For a scrubber controlling emissions from a process operated continuously, a failed unit and the associated process shall be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

(b) For a scrubber controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the line. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

D.4.13 Visible Emission Notations

(a) Visible emission notations of each baghouse stack exhaust shall be performed once per day during normal daylight operations when exhausting to the atmosphere. 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, eighty percent (80%) of the time 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) If abnormal emissions are observed, the Permittee shall take reasonable response steps in accordance with Section C- Response to Excursions or Exceedances. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances shall be considered a deviation from this permit.

D.4.14 Baghouse Parametric Monitoring

The Permittee shall record the pressure drop across each of the baghouses used in conjunction with the processes listed in this section, at least once per day when the associated process is in operation. When for any one reading, the pressure drop across the baghouse is outside the normal range of 1.0 and 4.0 inches of water or a range established during the latest stack test, the

Permittee shall take reasonable response steps in accordance with Section C- Response to Excursions or Exceedances. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances, shall be considered a deviation from this permit.

The instrument used for determining the pressure shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated at least once every six (6) months.

D.4.15 Broken or Failed Bag Detection

(a) For a single compartment baghouse controlling emissions from a process operated continuously, a failed unit and the associated process shall be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

(b) For a single compartment baghouse controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the line. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

Bag failure can be indicated by a significant drop in the baghouse's pressure reading with abnormal visible emissions, by an opacity violation, or by other means such as gas temperature, flow rate, air infiltration, leaks, dust traces or triboflows.

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

D.4.16 Record keeping Requirement

(a) To document compliance with Condition D.4.2(e), the Permittee shall maintain records of the binder usage in the two core mixers associated with the core making process identified as P44 each month.

(b) To document compliance with Condition D.4.2(f), the Permittee shall maintain records of the core production from the two core machines associated with the core making process identified as P44 each month.

(c) To document compliance with Condition D.4.10(a), the Permittee shall maintain records of the pressure drop and pH readings of the scrubber once per day. The Permittee shall include in its daily record when a reading is not taken and the reason for the lack of reading (e.g. the process did not operate that day).

(d) To document compliance with Condition D.4.10(b), the Permittee shall maintain records of the flow rate of the scrubber. The Permittee shall include in its daily record when a reading is not taken and the reason for the lack of reading (e.g. the process did not operate that day).

(e) To document compliance with Conditions D.4.12 the Permittee shall maintain records of visible emission notations of each baghouse stack exhaust once per day. The Permittee shall include in its daily record when a visible emission notation is not taken and the reason for the lack of visible emission notation (e.g. the process did not operate that day).

(f) To document compliance with Conditions D.4.13 the Permittee shall maintain records of the pressure drop across each baghouse once per day. The Permittee shall include in its daily record when a pressure drop reading is not taken and the reason for the lack of pressure drop reading (e.g. the process did not operate that day).

(g) In order to document compliance with D.4.6(b) and (c), records shall be kept of the core production of P43 and P44 each day of operation, and of the total hours of operation of P43 and P44 each day of operation.

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

D.4.17 Reporting Requirements

A quarterly summary of the information to document compliance with Condition D.4.2 (e) and (f) shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. The reports submitted by the Permittee do 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)]**

Core Room Expansion I

(a) One (1) phenolic-urethane core sand handling system, identified as P46, constructed in 2005 and modified in 2008, with a maximum production capacity of 51 tons of cores per hour. Particulate matter emissions are controlled by one (1) baghouse, identified as C18, and exhausting inside the building;

(b) One (1) phenolic-urethane core making process, identified as P47, to begin construction in 2005, consisting of 3 mixers and 3 core machines, each with a maximum capacity of 15 tons per hour. DMIPA catalyst emissions are controlled by one (1) packed bed scrubber, identified as C17. The gases are then exhausted to Stack S17;

(c) Three (3) natural gas-fired core drying ovens and natural gas-fired air make-up units, identified as P48, to begin construction in 2005, with the core drying ovens having a combined maximum heat input capacity of 9.0 MMBtu per hour and the air make-up units having a combined maximum heat input capacity of 3.2 MMBtu per hour, exhausting inside the building.

(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 PSD Minor Limit [326 IAC 2-2]

The PM and PM10 emissions from the core sand handling process exhausting to stack S18 shall each not exceed 0.60 pounds per hour.

This emission limit will limit emissions of PM and PM10 to less than the PSD significant levels of 25 and 15 tons per year, respectively, so that the installation of units P46, P47, and P48 is not subject to 326 IAC 2-2 (PSD).

D.7.2 VOC Emission Limitations [326 IAC 8-1-6][326 IAC 2-2]

Pursuant to 326 IAC 8-1-6 (New Facilities, General Reduction Requirements) the Best Available Control Technology (BACT) for the phenolic-urethane core making process, identified as P47, is as follows:

(a) A packed bed scrubber system with a minimum DMIPA (a VOC) overall control efficiency of 98% shall be used to control DMIPA (a VOC) emissions from the three (3) core machines.

(b) The non-DMIPA volatile organic compound (VOC) emissions from the three (3) phenolic-urethane core machines, identified as P47, shall not exceed 0.01 pound per pound of binder used.

(c) The non-DMIPA volatile organic compound (VOC) emissions from the three (3) mixers, identified as P47, shall not exceed 0.002 pound per pound of binder used.

(d) The amount of binder used in all three (3) mixers, identified as P47, combined shall not exceed 5,910,000 pounds per 12 consecutive month period, with compliance determined

at the end of each month.

(e) The amount of cores produced by all three (3) core machines, identified as P47, combined shall not exceed 197,000 tons per 12 consecutive month period, with compliance determined at the end of each month.

(f) The total DMIPA (a VOC) emissions from the mixers and core machines identified as P47 shall not exceed 0.04 pound per ton of cores.

(g) The scrubber controlling the DMIPA emissions from the core machines identified as P47 shall have a 100% capture of the DMIPA emissions, using a permanent total enclosure that complies with the requirements of 40 CFR Part 51, Appendix M, Method 24. The scrubber shall achieve at least 98% overall control efficiency of the DMIPA.

(h) The Permittee shall use only low VOC content resins in the core making process.

Compliance with the above limits will also limit emissions of VOC to less than the PSD significant level of 40 tons per year so that the installation of units P46, P47, and P48 is not subject to 326 IAC 2-2 (PSD).

D.7.3 Particulate [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the allowable particulate emission rate from the core sand handling system (P46) shall not exceed 44.8 pounds per hour when operating at a process weight rate of 51 tons per hour. The pounds per hour limitation was calculated using the following equation:

Interpolation and extrapolation of the data for the process weight rate in excess of 60,000 pounds per hour shall be accomplished by use of the equation:

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

D.7.4 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for the core sand handling process and the phenolic-urethane core making process and their control devices.

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

D.7.5 Particulate Control [326 IAC 2-7-6(6)]

(a) In order to comply with conditions D.7.1 and D.7.3, the baghouse C18 for particulate control shall be in operation and control emissions from the core sand handling system (P46) at all times that the core sand handling system (P46) is in operation.

(b) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

D.7.6 VOC Control

In order to comply with condition D.7.2, the packed bed scrubber C17 for DMIPA emissions control shall be in operation at control DMIPA emissions from the core machines identified as P47 at all times that any of the core machines is in operation.

D.7.7 Testing Requirements [326 IAC 2-7-6(1),(6)] [326 IAC 2-1.1-11]

Within 60 days after achieving maximum production rate but no later than 180 days after the startup of the core machines identified as P47, in order to demonstrate compliance with Conditions D.7.2(b), D.7.2(c), and D.7.2(g), the Permittee shall perform VOC and DMIPA testing on the scrubber controlling the core machines identified as P47 utilizing methods as approved by the Commissioner. This test shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C-Performance Testing.

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

D.7.8 Packed Bed Scrubber Parametric Monitoring

(a) The Permittee shall monitor and record the pH of the scrubber solution and the pressure drop across the scrubber unit at least once per day. When for any one reading, the pressure drop across the scrubber is outside the normal range of 2 to 5 inches of water or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C- Response to Excursions or Exceedances. When for any one reading, the pH level of the scrubbing liquid exceeds the normal maximum of 4.5 or a maximum established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C- Response to Excursions or Exceedances. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances, shall be considered a deviation from this permit.

(b) The Permittee shall continuously monitor the flow rate of the scrubbing liquid. When for any one reading, the flow rate is below the normal minimum of 254 gallons per minute or a minimum established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C- Response to Excursions or Exceedances. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances, shall be considered a deviation from this permit.

(c) The instruments used for determining the pressure, flow rate, and pH level shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated at least once every six (6) months.

D.7.9 Packed Bed Scrubber Failure Detection

(a) For a scrubber controlling emissions from a process operated continuously, a failed unit and the associated process shall be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

(b) For a scrubber controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the line. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

D.7.10 Parametric Monitoring

The Permittee shall record the pressure drop across the baghouse used in conjunction with the core sand handling system (P46), at least once per day when the process is in operation. When for any one reading, the pressure drop across the baghouse is outside the normal range of 2.0 and 10.0 inches of water or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C- Response to Excursions or Exceedances. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances shall be considered a deviation from this permit.

The instrument used for determining the pressure shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated at least once every six (6) months.

D.7.11 Broken or Failed Bag Detection

(a) For a single compartment baghouse controlling emissions from a process operated continuously, a failed unit and the associated process shall be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

(b) For a single compartment baghouse controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the line. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

Bag failure can be indicated by a significant drop in the baghouse's pressure reading with abnormal visible emissions, by an opacity violation, or by other means such as gas temperature, flow rate, air infiltration, leaks, dust traces or triboflows.

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

D.7.12 Record Keeping Requirements

(a) To document compliance with Condition D.7.2(d), the Permittee shall maintain records of the binder usage in the three core mixers associated with the core making process identified as P47 each month.

(b) To document compliance with Condition D.7.2(e), the Permittee shall maintain records of the core production from the three core machines associated with the core making process identified as P47 each month.

(c) To document compliance with Condition D.7.8(a), the Permittee shall maintain records of the pressure drop and pH readings of the scrubber once per day. The Permittee shall include in its daily record when a reading is not taken and the reason for the lack of reading (e.g. the process did not operate that day).

(d) To document compliance with Condition D.7.8(b), the Permittee shall maintain records of the flow rate of the scrubber. The Permittee shall include in its daily record when a reading is not taken and the reason for the lack of reading (e.g. the process did not operate that day).

(e) To document compliance with Condition D.7.11 the Permittee shall maintain records of the pressure drop across the baghouse once per day. The Permittee shall include in its daily record when a pressure drop reading is not taken and the reason for the lack of pressure drop reading (e.g. the process did not operate that day).

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

D.7.13 Reporting Requirements

A quarterly summary of the information to document compliance with Conditions D.7.2(d) and D.7.2(e) shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. 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.8 FACILITY OPERATION CONDITIONS

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

(a) Two (2) paint booths, identified as P26A constructed in 2007 and modified in 2008, and one identified as P26B, approved for construction in 2008, used to coat metal castings for rust protection, using spray guns with a combined maximum capacity of sixteen (16) gallons per hour, using overspray filters for PM control, exhausting to stacks S26A and S26B, respectively.

(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 PSD Minor Limit (PSD) [326 IAC 2-2] Volatile Organic Compound (VOC) [326 IAC 8-1-6]

(a) The VOC emissions from the paint booths P26A and P26B shall not exceed 1.4 pounds of VOC per gallon of paint used.

(b) The paint input to booths P26A and P26B shall not exceed 25,000 gallons of paint per twelve (12) consecutive month period.

Compliance with the above limits in addition to the limits in Condition D.4.2 (h) and (j) shall limit the VOC emissions for this modification to less than 40 tons per year and render the requirements of 326 IAC 2-2 not applicable to the 2008 modification.

D.8.2 Volatile Organic Compound (VOC) [326 IAC 8-2-9]

(a) Pursuant to 326 IAC 8-2-9, the Permittee shall not allow the discharge into the atmosphere VOC in excess of three (3.5) pounds of VOC per gallon of coating, excluding water, as delivered to the applicator.

(b) Pursuant to 326 IAC 8-2-9(f), all solvents sprayed from the application equipment of paint booth P26 during cleanup or color changes shall be directed into containers. Said containers shall be closed as soon as the solvent spraying is complete. In addition, all waste solvent shall be disposed of in such a manner that minimizes evaporation.

D.8.3 Particulate [326 IAC 6-3-2(d)]

Pursuant to 326 IAC 6-3-2(d), particulate from paint booths P26A and P26B shall be controlled by a dry particulate filter, and the Permittee shall operate the control device in accordance with manufacturer's specifications.

**Compliance Determination Requirements**

D.8.4 Volatile Organic Compounds

Compliance with the VOC content limitation contained in Condition D.8.1 shall be determined pursuant to 326 IAC 8-1-4(a)(3)(A) using formulation data supplied by the coating manufacturer. However, IDEM, OAQ reserves the authority to determine compliance using Method 24 in conjunction with the analytical procedures specified in 326 IAC 8-1-4.

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

D.8.5 Particulate Monitoring

(a) Daily inspections shall be performed to verify the placement, integrity and particle loading of the filters. To monitor the performance of the dry filters, weekly observations shall be made of the overspray from the surface coating booth stacks S26A and S26B while the booth is operation. If a condition exists which should result in a response step, the

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

(b) Monthly inspections shall be performed of the coating emissions from the stack and the presence of overspray on the rooftops and nearby ground. When there is a noticeable change in overspray emissions, or when evidence of overspray emissions is observed, the Permittee shall take reasonable response steps in accordance with Section C - Response to Excursion or Exceedances. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances, shall be considered a deviation from this permit.

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

D.8.6 Record Keeping Requirements

(a) To document compliance with Conditions 8.1.1 and 8.1.2, the Permittee shall maintain records of the VOC content of each coating material and solvent used. Records shall include purchase orders, invoices, and material safety data sheets (MSDS) necessary to verify the type and amount used.

(b) To document compliance with Condition 8.1.1, the Permittee shall maintain a record of the amount of paint used per twelve consecutive month period.

(c) To document compliance with Condition D.8.2 and D.8.4, the Permittee shall maintain a log of weekly overspray observations, daily and monthly.

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

D.8.7 Reporting Requirements

A quarterly summary of the information to document compliance with Condition D.8.1 shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by the “responsible official” as defined by 326 IAC 2-7-1(34).

## SECTION E.1 FACILITY OPERATION CONDITIONS

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

Under the Iron and Steel Foundry NESHAP (40 CFR 63, Subpart EEEEE), the following emission units are considered as part of an existing affected source.

Phase 1

(a) One (1) gray iron cupola, identified as P30, constructed in 1996, with a maximum melt rate of 80 tons per hour, using one (1) baghouse (C09A) for particulate control, one (1) incinerator (C11A) for carbon monoxide control and VOC emissions control, and one (1) dry alkaline injection system (C12A) for sulfur dioxide control, exhausting to stack S09;

(b) Four (4) production lines, each constructed in 1996, consisting of the following:

(1) Line 1 (modified in 1998 and approved for modification in 2007)

(A) One (1) pouring/mold cooling operation, identified as P01, with a maximum throughput of 35 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stacks S01 and S04;
(B) One (1) shakeout operation, identified as P02, with a maximum throughput of 35 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stack S01;
(C) One (1) cast cooling operation, identified as P03, with a maximum throughput of 25 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stacks S01 and S04;
(D) One (1) pick & sort operation, identified as P04, with a maximum throughput of 35 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stack S01;
(E) One (1) cleaning & grinding operation, identified as P05, with a maximum throughput of 25 tons per hour, using a mechanical blaster, using one (1) baghouse (C07) for particulate control, exhausting to stack S07;

(2) Line 2

(A) One (1) pouring/mold cooling operation, identified as P06, with a maximum throughput of 16 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stack S01;
(B) One (1) shakeout operation, identified as P07, with a maximum throughput of 16 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stack S01;
(C) One (1) cast cooling operation, identified as P08, with a maximum throughput of 16 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stack S01;
(D) One (1) pick & sort operation, identified as P09, with a maximum throughput of 16 tons per hour, using one (1) baghouse (C07) for particulate control, exhausting to stack S07;
(E) One (1) cleaning & grinding operation, identified as P10, with a maximum throughput of 16 tons per hour, using a mechanical blaster, using one (1) baghouse (C07) for particulate control, exhausting to stack S07;

(3) Line 3
- (A) One (1) pouring/mold cooling operation, identified as P11, with a maximum throughput of 16 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stack S01;
- (B) One (1) shakeout operation, identified as P12, with a maximum throughput of 16 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stack S01;
- (C) One (1) cast cooling operation, identified as P13, with a maximum throughput of 16 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stack S01;
- (D) One (1) pick & sort operation, identified as P14, with a maximum throughput of 16 tons per hour, using one (1) baghouse (C07) for particulate control, exhausting to stack S07;
- (E) One (1) cleaning & grinding operation, identified as P15, with a maximum throughput of 16 tons per hour, using a mechanical blaster, using one (1) baghouse (C07) for particulate control, exhausting to stack S07;

(4) Line 4
- (A) One (1) pouring/mold cooling operation, identified as P16, with a maximum throughput of 25 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stack S01;
- (B) One (1) shakeout operation, identified as P17, with a maximum throughput of 25 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stack S01;
- (C) One (1) cast cooling operation, identified as P18, with a maximum throughput of 25 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stack S01;
- (D) One (1) pick & sort operation, identified as P19, with a maximum throughput of 25 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stack S01;
- (E) One (1) cleaning & grinding operation, identified as P20, with a maximum throughput of 25 tons per hour, using a mechanical blaster, using one (1) baghouse (C07) for particulate control, exhausting to stack S07;

(c) Sand handling operations and ancillary operations, each constructed in 1996, consisting of the following:
- (1) One (1) return sand handling & screen operation, identified as P21, with a maximum throughput of 480 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stack S01;
- (2) One (1) sand cooling & water addition operation, identified as P22, with a maximum throughput of 480 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stack S01;

(3) One (1) sand mulling & handling operation, identified as P23, with a maximum throughput of 480 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stack S01;
(4) One (1) spent sand handling & processing operation, identified as P24, with a maximum throughput of 50 tons per hour, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stack S01;
(5) Air make-up units, identified as P52, with a maximum combined heat input capacity of 65.6 million British thermal units (MMBtu) per hour, combusting natural gas, using three (3) baghouses (C01, C02, C03) for particulate control, exhausting to stack S01;
(6) One (1) metallic returns handling operation, identified as P25, with a maximum throughput of 30 tons per hour, using one(1) baghouse (C07) for particulate control, exhausting to stack S07;
(7) One (1) core sand handling operation, identified as P40, with a maximum throughput of 16 tons per hour, using one (1) baghouse (C08) for particulate control, exhausting to stack S08;
(8) One (1) core manufacturing operation, identified as P41, with a maximum throughput of 16 tons per hour, exhausting to stack S11;
(9) One (1) core machine & oven operation, identified as P51, with a maximum heat input capacity of 16.8 MMBtu per hour, combusting natural gas, exhausting to stack S11;
(10) One (1) ladle preheating operation, identified as P53, with a maximum heat input capacity of 11.5 MMBtu per hour, combusting natural gas, exhausting to stack S12;
(11) One (1) ladle filling & iron transport operation, identified as P85, with a maximum throughput of 80 tons per hour, using one (1) baghouse (C44) for particulate control, exhausting to stack S44;
(12) One (1) ladle filling & iron transport operation, identified as P85, with a maximum throughput of 80 tons per hour; and
(13) One (1) ladle cleaning with burn bars, identified as P86.

Phase II

(a) One (1) cupola iron melting system, identified as P33, constructed in 1998 with a maximum melt rate of 80 tons of iron per hour. VOC and CO emissions are controlled by one (1) recuperative incinerator, identified as C11B. Sulfur dioxide emissions are controlled by one (1) lime injection system (or equivalent), identified as C12B Particulate matter emissions are controlled by one (1) baghouse system, identified as C09B. The gases are then exhausted to stack S09;

(b) Four (4) production lines, each constructed in 1998, consisting of the following:

(1) Line 5

(A) One (1) pouring/mold cooling operation, identified as P60, with a maximum production capacity of 25 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15;

(B) One (1) shakeout operation, identified as P61, with a maximum throughout capacity of 25 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15, that exhaust to Stack S15 or by one (1) baghouse system, identified as C16, that exhaust to Stack S16;

(C) One (1) cast cooling operation, identified as P62, with a maximum capacity of 25 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15.

(D) One (1) pick and sort operation, identified as P63, with a maximum throughput capacity of 25 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(E) One (1) cleaning and grinding operation, identified as P64, with a maximum throughput capacity of 25 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(2) Line 6

(A) One (1) pouring/mold cooling operation, identified as P65, with a maximum production capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15;

(B) One (1) shakeout operation, identified as P66, with a maximum throughput capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15, that exhaust to Stack S15 or by one (1) baghouse system, identified as C16, that exhaust to Stack S16;

(C) One (1) cast cooling operation, identified as P67, with a maximum capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15, that exhaust to Stack S15 or by one (1) baghouse system, identified as C16, that exhaust to Stack S16;

(D) One (1) pick and sort operation, identified as P68, with a maximum throughput capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(E) One (1) cleaning and grinding operation, identified as P69, with a maximum throughput capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(3) Line 7

(A) One (1) pouring/mold cooling operation, identified as P70, with a maximum production capacity of 30 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15;

(B) One (1) shakeout operation, identified as P71, with a maximum production capacity of 30 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15, that exhaust to Stack S15 or by one (1) baghouse system, identified as C16, that exhaust to Stack S16;

(C) One (1)cast cooling operation, identified as P72, with a maximum production capacity of 30 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15, that exhaust to Stack S15 or by one (1) baghouse system, identified as C16, that exhaust to Stack S16;

(D) One (1) pick and sort operation, identified as P73, with a maximum throughput capacity of 30 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(E) One (1) cleaning and grinding operation, identified as P74, with a maximum throughput capacity of 30 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(4) Line 8

(A) One (1) pouring/mold cooling operation, identified as P75, with a maximum production capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15;

(B) One (1) shakeout operation, identified as P76, with a maximum throughput capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(C) One (1) cast cooling operation, identified as P77, with a maximum capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(D) One (1) pick and sort operation, identified as P78, with a maximum throughput capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16; and

(E) One (1) cleaning and grinding operation, identified as P79, with a maximum throughput capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16.

| | |
|---|---|
| (c) | Sand handling operations and ancillary operations, each constructed in 1998, consisting of the following: |
| (1) | One (1) return sand handling and screening operation, identified as P80, with a maximum throughput capacity of 600 tons of sand per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15, that exhaust to Stack S15 or by one (1) baghouse system, identified as C16, that exhaust to Stack S16; |
| (2) | One (1) sand mulling and handling operation, identified as P81, with a maximum capacity of 600 tons of sand per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15; |
| (3) | One (1) sand blending and cooling operation, identified as P82, with a maximum capacity of 600 tons of sand per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15; |
| (4) | One (1) spent sand and dust handling operation, identified as P83, with a maximum throughput capacity of 50 tons of sand per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15; |
| (5) | One (1) metal returns handling operation, identified as P84, with a maximum capacity of 40 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15, that exhaust to Stack S15 or by one (1) baghouse system, identified as C16, that exhaust to Stack S16; |
| (6) | One (1) enclosed cupola charge make-up and handling unit with a maximum charge of 91.2 tons per hour; |
| (7) | One (1) ladle filling and iron transport operation with a maximum capacity of 150 tons of iron per hour, and a ladle cleaning operation with an average usage of 13.2 pounds of burn bars per hour, using one (1) baghouse (C44) for particulate control, exhausting to stack S44; |
| (8) | Two (2) ductile iron treatment stations, both identified as P35, each with a maximum production capacity of 40 tons per hour. Particulate matter emissions are controlled by two (2) baghouse systems identified as C15 and C35. The gases from both baghouses are then exhausted to Stack S15; |
| (9) | One (1) phenolic-urethane core sand handling system, identified as P42, constructed in 1998 and modified in 2008 with a maximum production capacity of 32 tons of cores per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C08, that exhausts to Stack S08; |
| (10) | One (1) phenolic-urethane core making process, identified as P43, with a maximum production capacity of 20 tons of cores per hour. Volatile organic compound emissions are controlled by one (1) packed bed scrubber (or equivalent), identified as C14. The gases are then exhausted to Stack S14; |
| (11) | One (1) phenolic-urethane core making process, identified as P44, consisting of 2 mixers and 2 core machines, each with a maximum capacity of 3 tons per hour. DMIPA emissions are controlled by one (1) packed bed scrubber, identified as C14. The gases are then exhausted to Stack S14; |
| (12) | Raw material handling including iron handling at a maximum rate of 150 tons per hour, alloys handling at a maximum rate of 1.5 tons per hour, coke handling at a maximum rate of 15 tons per hour, and limestone handling at a maximum rate of 4.5 tons per hour; |
| (13) | Natural gas fired air make-up units equipped with low-NOx burners, identified as P54, with a maximum heat input rate of 80 MMBtu per hour exhausting to Stack S15. |
| (14) | One (1) pattern shop, identified as P50, controlled by a baghouse, exhausting to stack S08. |

Core Room Expansion

(a) One (1) phenolic-urethane core sand handling system, identified as P46, constructed in 2005 and modified in 2008, with a maximum production capacity of 51 tons of cores per hour. Particulate matter emissions are controlled by one (1) baghouse, identified as C18, and exhausting inside the building;

(b) One (1) phenolic-urethane core making process, identified as P47, to begin construction in 2005, consisting of 3 mixers and 3 core machines, each with a maximum capacity of 15 tons per hour. DMIPA catalyst emissions are controlled by one (1) packed bed scrubber, identified as C17. The gases are then exhausted to Stack S17.

**National Emission Standards for Hazardous Air Pollutants (NESHAP) Requirements [326 IAC 2-7-5(1)]**

E.1.1 General Provisions Relating to NESHAP Subpart EEEEE (National Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries [326 IAC 20-1] [40 CFR Part 63, Subpart A]

Pursuant to 40 CFR 63.3901, the Permittee shall comply with the provisions of 40 CFR Part 63, Subpart A – General Provisions, which are incorporated by reference as 326 IAC 20-1-1 as specified in Table 2 of 40 CFR Part 63, Subpart EEEEE in accordance with schedule in 40 CFR 63 Subpart EEEEE.

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E.1.2 NESHAP Subpart EEEEE Requirements [40 CFR 63, Subpart EEEEE]

Pursuant to 40 CFR 63, Subpart EEEEE, the Permittee shall comply with the provisions of 40 CFR Part 63, Subpart EEEEE, beginning April 23, 2007, as follows:

*§ 63.7680 What is the purpose of this subpart?*

This subpart establishes national emission standards for hazardous air pollutants (NESHAP) for iron and steel foundries. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emissions limitations, work practice standards, and operation and maintenance requirements in this subpart.

*§ 63.7681 Am I subject to this subpart?*

You are subject to this subpart if you own or operate an iron and steel foundry that is (or is part of) a major source of hazardous air pollutant (HAP) emissions. Your iron and steel foundry is a major source of HAP for purposes of this subpart if it emits or has the potential to emit any single HAP at a rate of 10 tons or more per year or any combination of HAP at a rate of 25 tons or more per year or if it is located at a facility that emits or has the potential to emit any single HAP at a rate of 10 tons or more per year or any combination of HAP at a rate of 25 tons or more per year.

*§ 63.7682 What parts of my foundry does this subpart cover?*

(a) The affected source is each new or existing iron and steel foundry.

(b) This subpart covers emissions from metal melting furnaces, scrap preheaters, pouring areas, pouring stations, automated conveyor and pallet cooling lines, automated shakeout lines, and mold and core making lines. This subpart also covers fugitive emissions from foundry operations.

(c) An affected source is existing if you commenced construction or reconstruction of the affected source before December 23, 2002.

(d) An affected source is new if you commenced construction or reconstruction of the affected source on or after December 23, 2002. An affected source is reconstructed if it meets the definition of “reconstruction” in §63.2.

*§ 63.7683 When do I have to comply with this subpart?*

(a) Except as specified in paragraph (b) of this section, if you have an existing affected source, you must comply with each emissions limitation, work practice standard, and operation and maintenance requirement in this subpart that applies to you no later than April 23, 2007. Major source status for existing affected sources must be determined no later than April 23, 2007.

(b) If you have an existing affected source, you must comply with the work practice standards in §63.7700(b) or (c), as applicable, no later than April 22, 2005.

(c) If you have a new affected source for which the initial startup date is on or before April 22, 2004, you must comply with each emissions limitation, work practice standard, and operation and maintenance requirement in this subpart that applies to you by April 22, 2004.

(d) If you have a new affected source for which the initial startup date is after April 22, 2004, you must comply with each emissions limitation, work practice standard, and operation and maintenance requirement in this subpart that applies to you upon initial startup.

(e) If your iron and steel foundry is an area source that becomes a major source of HAP, you must meet the requirements of §63.6(c)(5).

(f) You must meet the notification and schedule requirements in §63.7750. Note that several of these notifications must be submitted before the compliance date for your affected source.

*Emissions Limitations*
*§ 63.7690 What emissions limitations must I meet?*

(a) You must meet each emissions limit or standard in paragraphs (a)(1) through (11) of this section that applies to you.

(1) For each electric arc metal melting furnace, electric induction metal melting furnace, or scrap preheater at an existing iron and steel foundry, you must not discharge emissions through a conveyance to the atmosphere that exceed either the limit for particulate matter (PM) in paragraph (a)(1)(i) of this section or, alternatively the limit for total metal HAP in paragraph (a)(1)(ii) of this section:

(i) 0.005 grains of PM per dry standard cubic foot (gr/dscf), or

(ii) 0.0004 gr/dscf of total metal HAP.

(2) For each cupola metal melting furnace at an existing iron and steel foundry, you must not discharge emissions through a conveyance to the atmosphere that exceed either the limit for PM in paragraph (a)(2)(i) of this section or, alternatively the limit for total metal HAP in paragraph (a)(2)(ii) of this section:

(i) 0.006 gr/dscf of PM, or

(ii) 0.0005 gr/dscf of total metal HAP.

(3) For each cupola metal melting furnace or electric arc metal melting furnace at a new iron and steel foundry, you must not discharge emissions through a conveyance to the atmosphere that exceed either the limit for PM in paragraph (a)(3)(i) of this section or, alternatively the limit for total metal HAP in paragraph (a)(3)(ii) of this section:

(i) 0.002 gr/dscf of PM, or

(ii) 0.0002 gr/dscf of total metal HAP.

(4) For each electric induction metal melting furnace or scrap preheater at a new iron and steel foundry, you must not discharge emissions through a conveyance to the atmosphere that exceed either the limit for PM in paragraph (a)(4)(i) of this section or, alternatively the limit for total metal HAP in paragraph (a)(4)(ii) of this section:

(i) 0.001 gr/dscf of PM, or

(ii) 0.00008 gr/dscf of total metal HAP.

(5) For each pouring station at an existing iron and steel foundry, you must not discharge emissions through a conveyance to the atmosphere that exceed either the limit for PM in paragraph (a)(5)(i) of this section or, alternatively the limit for total metal HAP in paragraph (a)(5)(ii) of this section:

(i) 0.010 gr/dscf of PM, or

(ii) 0.0008 gr/dscf of total metal HAP.

(6) For each pouring area or pouring station at a new iron and steel foundry, you must not discharge emissions through a conveyance to the atmosphere that exceed either the limit for PM in paragraph (a)(6)(i) of this section or, alternatively the limit for total metal HAP in paragraph (a)(6)(ii) of this section:

(i) 0.002 gr/dscf of PM, or

(ii) 0.0002 gr/dscf of total metal HAP.

(7) For each building or structure housing any emissions source at the iron and steel foundry, you must not discharge any fugitive emissions to the atmosphere that exhibit opacity greater than 20 percent (6-minute average), except for one 6-minute average per hour that does not exceed 27 percent opacity.

(8) For each cupola metal melting furnace at a new or existing iron and steel foundry, you must not discharge emissions of volatile organic hazardous air pollutants (VOHAP) through a conveyance to the atmosphere that exceed 20 parts per million by volume (ppmv) corrected to 10 percent oxygen.

(9) As an alternative to the work practice standard in §63.7700(e) for a scrap preheater at an existing iron and steel foundry or in §63.7700(f) for a scrap preheater at a new iron and steel foundry, you must not discharge emissions of VOHAP through a conveyance to the atmosphere that exceed 20 ppmv.

(10) For one or more automated conveyor and pallet cooling lines that use a sand mold system or automated shakeout lines that use a sand mold system at a new iron and steel foundry, you must not discharge emissions of VOHAP through a conveyance to the atmosphere that exceed a flow-weighted average of 20 ppmv.

(11) For each triethylamine (TEA) cold box mold or core making line at a new or existing iron and steel foundry, you must meet either the emissions limit in paragraph (a)(11)(i) of this section or, alternatively the emissions standard in paragraph (a)(11)(ii) of this section:

(i) You must not discharge emissions of TEA through a conveyance to the atmosphere that exceed 1 ppmv, as determined when scrubbing with fresh acid solution; or

(ii) You must reduce emissions of TEA from each TEA cold box mold or core making line by at least 99 percent, as determined when scrubbing with fresh acid solution.

(b) You must meet each operating limit in paragraphs (b)(1) through (5) of this section that applies to you.

(1) You must install, operate, and maintain a capture and collection system for all emissions sources subject to an emissions limit or standard for VOHAP or TEA in paragraphs (a)(8) through (11) of this section.

(i) Each capture and collection system must meet accepted engineering standards, such as those published by the American Conference of Governmental Industrial Hygienists.

(ii) You must operate each capture system at or above the lowest value or settings established as operating limits in your operation and maintenance plan.

(2) You must operate each wet scrubber applied to emissions from a metal melting furnace, scrap preheater, pouring area, or pouring station subject to an emissions limit for PM or total metal HAP in paragraphs (a)(1) through (6) of this section such that the 3-hour average pressure drop and scrubber water flow rate does not fall below the minimum levels established during the initial or subsequent performance test.

(3) You must operate each combustion device applied to emissions from a cupola metal melting furnace subject to the emissions limit for VOHAP in paragraph (a)(8) of this section, such that the 15-minute average combustion zone temperature does not fall below 1,300 degrees Fahrenheit ( °F). Periods when the cupola is off blast and for 15 minutes after going on blast from an off blast condition are not included in the 15-minute average.

(4) You must operate each combustion device applied to emissions from a scrap preheater subject to the emissions limit for VOHAP in paragraph (a)(9) of this section or from a TEA cold box mold or core making line subject to the emissions limit for TEA in paragraph (a)(11) of this section, such that the 3-hour average combustion zone temperature does not fall below the minimum level established during the initial or subsequent performance test.

(5) You must operate each wet acid scrubber applied to emissions from a TEA cold box mold or core making line subject to the emissions limit for TEA in paragraph (a)(11) of this section such that:

(i) The 3-hour average scrubbing liquid flow rate does not fall below the minimum level established during the initial or subsequent performance test; and

(ii) The 3-hour average pH of the scrubber blowdown, as measured by a continuous parameter monitoring system (CPMS), does not exceed 4.5 or the pH of the scrubber blowdown, as measured once every 8 hours during process operations, does not exceed 4.5.

(c) If you use a control device other than a baghouse, wet scrubber, wet acid scrubber, or combustion device, you must prepare and submit a monitoring plan containing the information listed in paragraphs (c)(1) through (5) of this section. The monitoring plan is subject to approval by the Administrator.

(1) A description of the device;

(2) Test results collected in accordance with §63.7732 verifying the performance of the device for reducing emissions of PM, total metal HAP, VOHAP, or TEA to the levels required by this subpart;

(3) A copy of the operation and maintenance plan required by §63.7710(b);

(4) A list of appropriate operating parameters that will be monitored to maintain continuous compliance with the applicable emissions limitation(s); and

(5) Operating parameter limits based on monitoring data collected during the performance test.

*Work Practice Standards*
*§ 63.7700 What work practice standards must I meet?*

(a) For each segregated scrap storage area, bin or pile, you must either comply with the certification requirements in paragraph (b) of this section, or prepare and implement a plan for the selection and inspection of scrap according to the requirements in paragraph (c) of this section. You may have certain scrap subject to paragraph (b) of this section and other scrap subject to paragraph (c) of this section at your facility provided the scrap remains segregated until charge make-up.

(b) You must prepare and operate at all times according to a written certification that the foundry purchases and uses only metal ingots, pig iron, slitter, or other materials that do not include post-consumer automotive body scrap, post-consumer engine blocks, post-consumer oil filters, oily turnings, lead components, mercury switches, plastics, or free organic liquids. For the purpose of this paragraph (b), “free organic liquids” is defined as material that fails the paint filter test by EPA Method 9095A, “Paint Filter Liquids Test” (Revision 1, December 1996), as published in EPA Publication SW–846 “Test Methods for

Evaluating Solid Waste, Physical/Chemical Methods" (incorporated by reference—see §63.14). Any post-consumer engine blocks, post-consumer oil filters, or oily turnings that are processed and/or cleaned to the extent practicable such that the materials do not include lead components, mercury switches, plastics, or free organic liquids can be included in this certification.

(c) You must prepare and operate at all times according to a written plan for the selection and inspection of iron and steel scrap to minimize, to the extent practicable, the amount of organics and HAP metals in the charge materials used by the iron and steel foundry. This scrap selection and inspection plan is subject to approval by the Administrator. You must keep a copy of the plan onsite and readily available to all plant personnel with materials acquisition or inspection duties. You must provide a copy of the material specifications to each of your scrap vendors. Each plan must include the information specified in paragraphs (c)(1) through (3) of this section.

(1) A materials acquisition program to limit organic contaminants according to the requirements in paragraph (c)(1)(i) or (ii) of this section, as applicable.

(i) For scrap charged to a scrap preheater, electric arc metal melting furnace, or electric induction metal melting furnaces, specifications for scrap materials to be depleted (to the extent practicable) of the presence of used oil filters, plastic parts, organic liquids, and a program to ensure the scrap materials are drained of free liquids; or

(ii) For scrap charged to a cupola metal melting furnace, specifications for scrap materials to be depleted (to the extent practicable) of the presence of plastic, and a program to ensure the scrap materials are drained of free liquids.

(2) A materials acquisition program specifying that the scrap supplier remove accessible mercury switches from the trunks and hoods of any automotive bodies contained in the scrap and remove accessible lead components such as batteries and wheel weights. You must obtain and maintain onsite a copy of the procedures used by the scrap supplier for either removing accessible mercury switches or for purchasing automobile bodies that have had mercury switches removed, as applicable.

(3) Procedures for visual inspection of a representative portion, but not less than 10 percent, of all incoming scrap shipments to ensure the materials meet the specifications.

(i) The inspection procedures must identify the location(s) where inspections are to be performed for each type of shipment. Inspections may be performed at the scrap supplier's facility. The selected location(s) must provide a reasonable vantage point, considering worker safety, for visual inspection.

(ii) The inspection procedures must include recordkeeping requirements that document each visual inspection and the results.

(iii) The inspection procedures must include provisions for rejecting or returning entire or partial scrap shipments that do not meet specifications and limiting purchases from vendors whose shipments fail to meet specifications for more than three inspections in one calender year.

(iv) If the inspections are performed at the scrap supplier's facility, the inspection procedures must include an explanation of how the periodic inspections ensure that not less than 10 percent of scrap purchased from each supplier is subject to inspection.

(d) For each furan warm box mold or core making line in a new or existing iron and steel foundry, you must use a binder chemical formulation that does not contain methanol as a specific ingredient of the catalyst formulation as determined by the Material Safety Data Sheet. This requirement does not apply to the resin portion of the binder system.

(e) For each scrap preheater at an existing iron and steel foundry, you must meet either the requirement in paragraph (e)(1) or (2) of this section. As an alternative to the requirement in paragraph (e)(1) or (2) of this section, you must meet the VOHAP emissions limit in §63.7690(a)(9).

(1) You must install, operate, and maintain a gas-fired preheater where the flame directly contacts the scrap charged; or

(2) You must charge only material that is subject to and in compliance with the scrap certification requirement in paragraph (b) of this section.

(f) For each scrap preheater at a new iron and steel foundry, you must charge only material that is subject to and in compliance with the scrap certification requirement in paragraph (b) of this section. As an alternative to this requirement, you must meet the VOHAP emissions limit in §63.7690(a)(9).

[69 FR 21923, Apr. 22, 2004, as amended at 70 FR 29404, May 20, 2005]

*Operation and Maintenance Requirements*
*§ 63.7710 What are my operation and maintenance requirements?*

(a) As required by §63.6(e)(1)(i), you must always operate and maintain your iron and steel foundry, including air pollution control and monitoring equipment, in a manner consistent with good air pollution control practices for minimizing emissions at least to the levels required by this subpart.

(b) You must prepare and operate at all times according to a written operation and maintenance plan for each capture and collection system and control device for an emissions source subject to an emissions limit in §63.7690(a). Your operation and maintenance plan also must include procedures for igniting gases from mold vents in pouring areas and pouring stations that use a sand mold system. This operation and maintenance plan is subject to approval by the Administrator. Each plan must contain the elements described in paragraphs (b)(1) through (6) of this section.

(1) Monthly 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 must include observations of the physical appearance of the equipment ( *e.g.,* presence of holes in the ductwork or hoods, flow constrictions caused by dents or accumulated dust in the ductwork, and fan erosion). The operation and maintenance plan must also include requirements to repair the defect or deficiency as soon as practicable.

(2) Operating limits for each capture system for an emissions source subject to an emissions limit or standard for VOHAP or TEA in §63.7690(a)(8) through (11). You must establish the operating according to the requirements in paragraphs (b)(2)(i) through (iii) of this section.

(i) Select operating limit parameters appropriate for the capture system design that are representative and reliable indicators of the performance of the capture system. At a minimum, you must use appropriate operating limit parameters that indicate the level of the ventilation draft and damper position settings for the capture system when operating to collect emissions, including revised settings for seasonal variations. Appropriate operating limit parameters for ventilation draft include, but are not limited to: volumetric flow rate through each separately ducted hood, total volumetric flow rate at the inlet to the control device to which the capture system is vented, fan motor amperage, or static pressure. Any parameter for damper position setting may be used that indicates the duct damper position related to the fully open setting.

(ii) For each operating limit parameter selected in paragraph (b)(2)(i) of this section, designate the value or setting for the parameter at which the capture system operates during the process operation. If your operation allows for more than one process to be operating simultaneously, designate the value or setting for the parameter at which the capture system operates during each possible configuration that you may operate ( *i.e.,* the operating limits with one furnace melting, two melting, as applicable to your plant).

(iii) Include documentation in your plan to support your selection of the operating limits established for your capture system. This documentation must include a description of the capture system design, a description of the capture system operating during production, a description of each selected operating limit parameter, a rationale for why you chose the parameter, a description of the method used to monitor the parameter according to the requirements of §63.7740(a), and the data used to set the value or setting for the parameter for each of your process configurations.

(3) Preventative maintenance plan for each control device, including a preventative maintenance schedule that is consistent with the manufacturer's instructions for routine and long-term maintenance.

(4) A site-specific monitoring plan for each bag leak detection system. For each bag leak detection system that operates on the triboelectric effect, the monitoring plan must be consistent with the recommendations contained in the U.S. Environmental Protection Agency guidance document “Fabric Filter Bag Leak Detection Guidance” (EPA–454/R–98–015). This baghouse monitoring plan is subject to approval by the Administrator. The owner or operator shall operate and maintain the bag leak detection system according to the site-specific monitoring plan at all times. The plan must address all of the items identified in paragraphs (b)(4)(i) through (v) of this section.

(i) Installation of the bag leak detection system.

(ii) Initial and periodic adjustment of the bag leak detection system including how the alarm set-point will be established.

(iii) Operation of the bag leak detection system including quality assurance procedures.

(iv) How the bag leak detection system will be maintained including a routine maintenance schedule and spare parts inventory list.

(v) How the bag leak detection system output will be recorded and stored.

(5) Corrective action plan for each baghouse. The plan must include the requirement that, in the event a bag leak detection system alarm is triggered, you must initiate corrective action to determine the cause of the alarm within 1 hour of the alarm, initiate corrective action to correct the cause of the problem within 24 hours of the alarm, and complete the corrective action as soon as practicable. Corrective actions taken may include, but are not limited to:

(i) Inspecting the baghouse for air leaks, torn or broken bags or filter media, or any other condition that may cause an increase in emissions.

(ii) Sealing off defective bags or filter media.

(iii) Replacing defective bags or filter media or otherwise repairing the control device.

(iv) Sealing off a defective baghouse compartment.

(v) Cleaning the bag leak detection system probe or otherwise repairing the bag leak detection system.

(vi) Making process changes.

(vii) Shutting down the process producing the PM emissions.

(6) Procedures for providing an ignition source to mold vents of sand mold systems in each pouring area and pouring station unless you determine the mold vent gases either are not ignitable, ignite automatically, or cannot be ignited due to accessibility or safety issues. You must document and maintain records of this determination. The determination of ignitability, accessibility, and safety may encompass multiple casting patterns provided the castings utilize similar sand-to-metal ratios, binder formulations, and coating materials. The determination of ignitability must be based on observations of the mold vents within 5 minutes of pouring, and the flame must be present for at least 15 seconds for the mold vent to be considered ignited. For the purpose of this determination:

(i) Mold vents that ignite more than 75 percent of the time without the presence of an auxiliary ignition source are considered to ignite automatically; and

(ii) Mold vents that do not ignite automatically and cannot be ignited in the presence of an auxiliary ignition source more than 25 percent of the time are considered to be not ignitable.

*General Compliance Requirements*

*§ 63.7720 What are my general requirements for complying with this subpart?*

(a) You must be in compliance with the emissions limitations, work practice standards, and operation and maintenance requirements in this subpart at all times, except during periods of startup, shutdown, or malfunction.

(b) During the period between the compliance date specified for your iron and steel foundry in §63.7683 and the date when applicable operating limits have been established during the initial performance test, you must maintain a log detailing the operation and maintenance of the process and emissions control equipment.

(c) You must develop a written startup, shutdown, and malfunction plan according to the provisions in §63.6(e)(3). The startup, shutdown, and malfunction plan also must specify what constitutes a shutdown of a cupola and how to determine that operating conditions are normal following startup of a cupola.

[69 FR 21923, Apr. 22, 2004, as amended at 71 FR 20468, Apr. 20, 2006]

*Initial Compliance Requirements*

*§ 63.7730 By what date must I conduct performance tests or other initial compliance demonstrations?*

(a) As required by §63.7(a)(2), you must conduct a performance test no later than 180 calendar days after the compliance date that is specified in §63.7683 for your iron and steel foundry to demonstrate initial compliance with each emissions limitation in §63.7690 that applies to you.

(b) For each work practice standard in §63.7700 and each operation and maintenance requirement in §63.7710 that applies to you where initial compliance is not demonstrated using a performance test, you must demonstrate initial compliance no later than 30 calendar days after the compliance date that is specified for your iron and steel foundry in §63.7683.

(c) If you commenced construction or reconstruction between December 23, 2002 and April 22, 2004, you must demonstrate initial compliance with either the proposed emissions limit or the promulgated emissions limit no later than October 19, 2004 or no later than 180 calendar days after startup of the source, whichever is later, according to §63.7(a)(2)(ix).

(d) If you commenced construction or reconstruction between December 23, 2002 and April 22, 2004, and you chose to comply with the proposed emissions limit when demonstrating initial compliance, you must conduct a second performance test to demonstrate compliance with the promulgated emissions limit by October 19, 2007 or after startup of the source, whichever is later, according to §63.7(a)(2)(ix).

*§ 63.7731 When must I conduct subsequent performance tests?*

(a) You must conduct subsequent performance tests to demonstrate compliance with all applicable PM or total metal HAP, VOHAP, and TEA emissions limitations in §63.7690 for your iron and steel foundry no less frequently than every 5 years. The requirement to conduct performance tests every 5 years does not apply to an emissions source for which a continuous emissions monitoring system (CEMS) is used to demonstrate continuous compliance.

(b) You must conduct subsequent performance tests to demonstrate compliance with the opacity limit in §63.7690(a)(7) for your iron and steel foundry no less frequently than once every 6 months.

*§ 63.7732 What test methods and other procedures must I use to demonstrate initial compliance with the emissions limitations?*

(a) You must conduct each performance test that applies to your iron and steel foundry according to the requirements in §63.7(e)(1) and the conditions specified in paragraphs (b) through (h) of this section.

(b) To determine compliance with the applicable emissions limit for PM in §63.7690(a)(1) through (6) for a metal melting furnace, scrap preheater, pouring station, or pouring area, follow the test methods and procedures in paragraphs (b)(1) through (5) of this section.

(1) Determine the concentration of PM according to the test methods in 40 CFR part 60, appendix A that are specified in paragraphs (b)(1)(i) through (v) of this section.

(i) Method 1 or 1A to select sampling port locations and the number of traverse points in each stack or duct. Sampling sites must be located at the outlet of the control device (or at the outlet of the emissions source if no control device is present) prior to any releases to the atmosphere.

(ii) Method 2, 2A, 2C, 2D, 2F, or 2G to determine the volumetric flow rate of the stack gas.

(iii) Method 3, 3A, or 3B to determine the dry molecular weight of the stack gas.

(iv) Method 4 to determine the moisture content of the stack gas.

(v) Method 5, 5B, 5D, 5F, or 5I, as applicable, to determine the PM concentration. The PM concentration is determined using only the front-half (probe rinse and filter) of the PM catch.

(2) Collect a minimum sample volume of 60 dscf of gas during each PM sampling run. A minimum of three valid test runs are needed to comprise a performance test.

(3) For cupola metal melting furnaces, sample only during times when the cupola is on blast.

(4) For electric arc and electric induction metal melting furnaces, sample only when metal is being melted.

(5) For scrap preheaters, sample only when scrap is being preheated.

(c) To determine compliance with the applicable emissions limit for total metal HAP in §63.7690(a)(1) through (6) for a metal melting furnace, scrap preheater, pouring station, or pouring area, follow the test methods and procedures in paragraphs (c)(1) through (5) of this section.

(1) Determine the concentration of total metal HAP according to the test methods in 40 CFR part 60, appendix A that are specified in paragraphs (c)(1)(i) through (v) of this section.

(i) Method 1 or 1A to select sampling port locations and the number of traverse points in each stack or duct. Sampling sites must be located at the outlet of the control device (or at the outlet of the emissions source if no control device is present) prior to any releases to the atmosphere.

(ii) Method 2, 2A, 2C, 2D, 2F, or 2G to determine the volumetric flow rate of the stack gas.

(iii) Method 3, 3A, or 3B to determine the dry molecular weight of the stack gas.

(iv) Method 4 to determine the moisture content of the stack gas.

(v) Method 29 to determine the total metal HAP concentration.

(2) Collect a minimum sample volume of 60 dscf of gas during each total metal HAP sampling run. A minimum of three valid test runs are needed to comprise a performance test.

(3) For cupola metal melting furnaces, sample only during times when the cupola is on blast.

(4) For electric arc and electric induction metal melting furnaces, sample only when metal is being melted.

(5) For scrap preheaters, sample only when scrap is being preheated.

(d) To determine compliance with the opacity limit in §63.7690(a)(7) for fugitive emissions from buildings or structures housing any emissions source at the iron and steel foundry, follow the procedures in paragraphs (d)(1) and (2) of this section.

(1) Using a certified observer, conduct each opacity test according to the requirements in EPA Method 9 (40 CFR part 60, appendix A) and §63.6(h)(5).

(2) Conduct each test such that the opacity observations overlap with the PM performance tests.

(e) To determine compliance with the applicable VOHAP emissions limit in §63.7690(a)(8) for a cupola metal melting furnace or in §63.7690(a)(9) for a scrap preheater, follow the test methods and procedures in paragraphs (e)(1) through (4) of this section.

(1) Determine the VOHAP concentration for each test run according to the test methods in 40 CFR part 60, appendix A that are specified in paragraphs (b)(1)(i) through (v) of this section.

(i) Method 1 or 1A to select sampling port locations and the number of traverse points in each stack or duct. Sampling sites must be located at the outlet of the control device (or at the outlet of the emissions source if no control device is present) prior to any releases to the atmosphere.

(ii) Method 2, 2A, 2C, 2D, 2F, or 2G to determine the volumetric flow rate of the stack gas.

(iii) Method 3, 3A, or 3B to determine the dry molecular weight of the stack gas.

(iv) Method 4 to determine the moisture content of the stack gas.

(v) Method 18 to determine the VOHAP concentration. Alternatively, you may use Method 25 to determine the concentration of total gaseous nonmethane organics (TGNMO) or Method 25A to determine the concentration of total organic compounds (TOC), using hexane as the calibration gas.

(2) Determine the average VOHAP, TGNMO, or TOC concentration using a minimum of three valid test runs. Each test run must include a minimum of 60 continuous operating minutes.

(3) For a cupola metal melting furnace, correct the measured concentration of VOHAP, TGNMO, or TOC for oxygen content in the gas stream using Equation 1 of this section:

$$C_{VOHAP,\,10\%O_2} = C_{VOHAP}\left(\frac{10.9\%}{20.9\% - \%O_2}\right) \qquad (Eq.\ 1)$$

Where:

$C_{VOHAP}$= Concentration of VOHAP in ppmv as measured by Method 18 in 40 CFR part 60, appendix A or the concentration of TGNMO or TOC in ppmv as hexane as measured by Method 25 or 25A in 40 CFR part 60, appendix A; and

$\%O_2$= Oxygen concentration in gas stream, percent by volume (dry basis).

(4) For a cupola metal melting furnace, measure the combustion zone temperature of the combustion device with the CPMS required in §63.7740(d) during each sampling run in 15-minute intervals. Determine and record the 15-minute average of the three runs.

(f) Follow the applicable procedures in paragraphs (f)(1) through (3) of this section to determine compliance with the VOHAP emissions limit in §63.7690(a)(10) for automated pallet cooling lines or automated shakeout lines.

(1) Follow these procedures to demonstrate compliance by direct measurement of total hydrocarbons (a surrogate for VOHAP) using a volatile organic compound (VOC) CEMS.

(i) Using the VOC CEMS required in §63.7740(g), measure and record the concentration of total hydrocarbons (as hexane) for 180 continuous operating minutes. You must measure emissions at the outlet of the control device (or at the outlet of the emissions source if no control device is present) prior to any releases to the atmosphere.

(ii) Reduce the monitoring data to hourly averages as specified in §63.8(g)(2).

(iii) Compute and record the 3-hour average of the monitoring data.

(2) As an alternative to the procedures in paragraph (f)(1) of this section, you may demonstrate compliance with the VOHAP emissions limit in §63.7690(a)(10) by establishing a site-specific TOC emissions limit that is correlated to the VOHAP emissions limit according to the procedures in paragraph (f)(2)(i) through (ix) of this section.

(i) Determine the VOHAP concentration for each test run according to the test methods in 40 CFR part 60, appendix A that are specified in paragraph (f)(2)(ii) through (vi) of this section.

(ii) Method 1 or 1A to select sampling port locations and the number of traverse points in each stack or duct. Sampling sites must be located at the outlet of the control device (or at the outlet of the emissions source if no control device is present) prior to any releases to the atmosphere.

(iii) Method 2, 2A, 2C, 2D, 2F, or 2G to determine the volumetric flow rate of the stack gas.

(iv) Method 3, 3A, or 3B to determine the dry molecular weight of the stack gas.

(v) Method 4 to determine the moisture content of the stack gas.

(vi) Method 18 to determine the VOHAP concentration. Alternatively, you may use Method 25 to determine the concentration of TGNMO using hexane as the calibration gas.

(vii) Using the CEMS required in §63.7740(g), measure and record the concentration of total hydrocarbons (as hexane) during each of the Method 18 (or Method 25) sampling runs. You must measure emissions at the outlet of the control device (or at the outlet of the emissions source if no control device is present) prior to any releases to the atmosphere.

(viii) Calculate the average VOHAP (or TGNMO) concentration for the source test as the arithmetic average of the concentrations measured for the individual test runs, and determine the average concentration of total hydrocarbon (as hexane) as measured by the CEMS during all test runs.

(ix) Calculate the site-specific VOC emissions limit using Equation 2 of this section:

$$VOC_{limit} = 20 \times \frac{C_{VOHAP,avg}}{C_{CEM}} \qquad (Eq.\ 2)$$

Where:

$C_{VOHAP,avg}$= Average concentration of VOHAP for the source test in ppmv as measured by Method 18 in 40 CFR part 60, appendix A or the average concentration of TGNMO for the source test in ppmv as hexane as measured by Method 25 in 40 CFR part 60, appendix A; and

$C_{CEM}$= Average concentration of total hydrocarbons in ppmv as hexane as measured using the CEMS during the source test.

(3) For two or more exhaust streams from one or more automated conveyor and pallet cooling lines or automated shakeout lines, compute the flow-weighted average concentration of VOHAP emissions for each combination of exhaust streams using Equation 3 of this section:

$$C_w = \frac{\sum_{i=1}^{n} C_i Q_i}{\sum_{i=1}^{n} Q_i} \qquad (Eq.\ 3)$$

Where:

$C_w$= Flow-weighted concentration of VOHAP or VOC, ppmv (as hexane);

$C_i$= Concentration of VOHAP or VOC from exhaust stream "i", ppmv (as hexane);

n = Number of exhaust streams sampled; and

$Q_i$= Volumetric flow rate of effluent gas from exhaust stream "i," in dry standard cubic feet per minute (dscfm).

(g) To determine compliance with the emissions limit or standard in §63.7690(a)(11) for a TEA cold box mold or core making line, follow the test methods in 40 CFR part 60, appendix A, specified in paragraphs (g)(1) through (4) of this section.

(1) Determine the TEA concentration for each test run according to the test methods in 40 CFR part 60, appendix A that are specified in paragraphs (g)(1)(i) through (v) of this section.

(i) Method 1 or 1A to select sampling port locations and the number of traverse points in each stack or duct. If you elect to meet the 99 percent reduction standard, sampling sites must be located both at the inlet to the control device and at the outlet of the control device prior to any releases to the atmosphere. If you elect to meet the concentration limit, the sampling site must be located at the outlet of the control device (or at the outlet of the emissions source if no control device is present) prior to any releases to the atmosphere.

(ii) Method 2, 2A, 2C, 2D, 2F, or 2G to determine the volumetric flow rate of the stack gas.

(iii) Method 3, 3A, or 3B to determine the dry molecular weight of the stack gas.

(iv) Method 4 to determine the moisture content of the stack gas.

(v) Method 18 to determine the TEA concentration. The Method 18 sampling option and time must be sufficiently long such that either the TEA concentration in the field sample is at least 5 times the limit of detection for the analytical method or the test results calculated using the laboratory's reported analytical detection limit for the specific field samples are less than1/5of the applicable emissions limit. The adsorbent tube approach, as described in Method 18, may be required to achieve the necessary analytical detection limits. The sampling time must be at least 1 hour in all cases.

(2) Conduct the test as soon as practicable after adding fresh acid solution and the system has reached normal operating conditions.

(3) If you use a wet acid scrubber that is subject to the operating limit in §63.7690(b)(5)(ii) for pH level, determine the pH of the scrubber blowdown using the procedures in paragraph (g)(3)(i) or (ii) of this section.

(i) Measure the pH of the scrubber blowdown with the CPMS required in §63.7740(f)(2) during each TEA sampling run in intervals of no more than 15 minutes. Determine and record the 3-hour average; or

(ii) Measure and record the pH level using the probe and meter required in §63.7740(f)(2) once each sampling run. Determine and record the average pH level for the three runs.

(4) If you are subject to the 99 percent reduction standard, calculate the mass emissions reduction using Equation 4 of this section:

$$\%\ \text{reduction} = \frac{E_i - E_o}{E_i} \times 100\% \quad (Eq.\ 4)$$

Where:

$E_i$= Mass emissions rate of TEA at control device inlet, kg/hr; and

$E_o$= Mass emissions rate of TEA at control device outlet, kg/hr.

(h) To determine compliance with the PM or total metal HAP emissions limits in §63.7690(a)(1) through (6) when one or more regulated emissions sources are combined with either another regulated emissions source subject to a different emissions limit or other non-regulated emissions sources, you may demonstrate compliance using one of the procedures in paragraphs (h)(1) through (3) of this section.

(1) Meet the most stringent applicable emissions limit for the regulated emissions sources included in the combined emissions stream for the combined emissions stream.

(2) Use the procedures in paragraphs (h)(2)(i) through (iii) of this section.

(i) Determine the volumetric flow rate of the individual regulated streams for which emissions limits apply.

(ii) Calculate the flow-weighted average emissions limit, considering only the regulated streams, using Equation 3 of this section, except $C_w$is the flow-weighted average emissions limit for PM or total metal HAP in the exhaust stream, gr/dscf; and $C_i$is the concentration of PM or total metal HAP in exhaust stream "i", gr/dscf.

(iii) Meet the calculated flow-weighted average emissions limit for the regulated emissions sources included in the combined emissions stream for the combined emissions stream.

(3) Use the procedures in paragraphs (h)(3)(i) through (iii) of this section.

(i) Determine the PM or total metal HAP concentration of each of the regulated streams prior to the combination with other exhaust streams or control device.

(ii) Measure the flow rate and PM or total metal HAP concentration of the combined exhaust stream both before and after the control device and calculate the mass removal efficiency of the control device using Equation 4 of this section, except $E_i$is the mass emissions rate of PM or total metal HAP at the control device inlet, lb/hr and $E_o$is the mass emissions rate of PM or total metal HAP at the control device outlet, lb/hr

(iii) Meet the applicable emissions limit based on the calculated PM or total metal HAP concentration for the regulated emissions source using Equation 5 of this section:

$$C_{released} = C_i \times \left(1 - \frac{\%\ \text{reduction}}{100}\right) \qquad (Eq.\ 5)$$

Where:

$C_{released}$= Calculated concentration of PM (or total metal HAP) predicted to be released to the atmosphere from the regulated emissions source, in gr/dscf; and

$C_i$= Concentration of PM (or total metal HAP) in the uncontrolled regulated exhaust stream, in gr/dscf.

*§ 63.7733 What procedures must I use to establish operating limits?*

(a) For each capture system subject to operating limits in §63.7690(b)(1)(ii), you must establish site-specific operating limits in your operation and maintenance plan according to the procedures in paragraphs (a)(1) through (3) of this section.

(1) Concurrent with applicable emissions and opacity tests, measure and record values for each of the operating limit parameters in your capture system operation and maintenance plan according to the monitoring requirements in §63.7740(a).

(2) For any dampers that are manually set and remain at the same position at all times the capture system is operating, the damper position must be visually checked and recorded at the beginning and end of each run.

(3) Review and record the monitoring data. Identify and explain any times the capture system operated outside the applicable operating limits.

(b) For each wet scrubber subject to the operating limits in §63.7690(b)(2) for pressure drop and scrubber water flow rate, you must establish site-specific operating limits according to the procedures specified in paragraphs (b)(1) and (2) of this section.

(1) Using the CPMS required in §63.7740(c), measure and record the pressure drop and scrubber water flow rate in intervals of no more than 15 minutes during each PM test run.

(2) Compute and record the 3-hour average pressure drop and average scrubber water flow rate for each sampling run in which the applicable emissions limit is met.

(c) For each combustion device applied to emissions from a scrap preheater or TEA cold box mold or core making line subject to the operating limit in §63.7690(b)(4) for combustion zone temperature, you must establish a site-specific operating limit according to the procedures specified in paragraphs (c)(1) and (2) of this section.

(1) Using the CPMS required in §63.7740(e), measure and record the combustion zone temperature during each sampling run in intervals of no more than 15 minutes.

(2) Compute and record the 3-hour average combustion zone temperature for each sampling run in which the applicable emissions limit is met.

(d) For each acid wet scrubber subject to the operating limit in §63.7690(b)(5), you must establish a site-specific operating limit for scrubbing liquid flow rate according to the procedures specified in paragraphs (d)(1) and (2) of this section.

(1) Using the CPMS required in §63.7740(f), measure and record the scrubbing liquid flow rate during each TEA sampling run in intervals of no more than 15 minutes.

(2) Compute and record the 3-hour average scrubbing liquid flow rate for each sampling run in which the applicable emissions limit is met.

(e) You may change the operating limits for a capture system, wet scrubber, acid wet scrubber, or combustion device if you meet the requirements in paragraphs (e)(1) through (3) of this section.

(1) Submit a written notification to the Administrator of your request to conduct a new performance test to revise the operating limit.

(2) Conduct a performance test to demonstrate compliance with the applicable emissions limitation in §63.7690.

(3) Establish revised operating limits according to the applicable procedures in paragraphs (a) through (d) of this section.

(f) You may use a previous performance test (conducted since December 22, 2002) to establish an operating limit provided the test meets the requirements of this subpart.

*§ 63.7734 How do I demonstrate initial compliance with the emissions limitations that apply to me?*

(a) You have demonstrated initial compliance with the emissions limits in §63.7690(a) if:

(1) For each electric arc metal melting furnace, electric induction metal melting furnace, or scrap preheater at an existing iron and steel foundry,

(i) The average PM concentration in the exhaust stream, determined according to the performance test procedures in §63.7732(b), did not exceed 0.005 gr/dscf; or

(ii) The average total metal HAP concentration in the exhaust stream, determined according to the performance test procedures in §63.7732(c), did not exceed 0.0004 gr/dscf.

(2) For each cupola metal melting furnace at an existing iron and steel foundry,

(i) The average PM concentration in the exhaust stream, determined according to the performance test procedures in §63.7732(b), did not exceed 0.006 gr/dscf; or

(ii) The average total metal HAP concentration in the exhaust stream, determined according to the performance test procedures in §63.7732(c), did not exceed 0.0005 gr/dscf.

(3) For each cupola metal melting furnace or electric arc metal melting furnace at a new iron and steel foundry,

(i) The average PM concentration in the exhaust stream, determined according to the performance test procedures in §63.7732(b), did not exceed 0.002 gr/dscf; or

(ii) The average total metal HAP concentration in the exhaust stream, determined according to the performance test procedures in §63.7732(c), did not exceed 0.0002 gr/dscf.

(4) For each electric induction metal melting furnace or scrap preheater at a new iron and steel foundry,

(i) The average PM concentration in the exhaust stream, determined according to the performance test procedures in §63.7732(b), did not exceed 0.001 gr/dscf; or

(ii) The average total metal HAP concentration in the exhaust stream, determined according to the performance test procedures in §63.7732(c), did not exceed 0.00008 gr/dscf.

(5) For each pouring station at an existing iron and steel foundry,

(i) The average PM concentration in the exhaust stream, measured according to the performance test procedures in §63.7732(b), did not exceed 0.010 gr/dscf; or

(ii) The average total metal HAP concentration in the exhaust stream, determined according to the performance test procedures in §63.7732(c), did not exceed 0.0008 gr/dscf.

(6) For each pouring area or pouring station at a new iron and steel foundry,

(i) The average PM concentration in the exhaust stream, measured according to the performance test procedures in §63.7732(b), did not exceed 0.002 gr/dscf; or

(ii) The average total metal HAP concentration in the exhaust stream, determined according to the performance test procedures in §63.7732(c), did not exceed 0.0002 gr/dscf.

(7) For each building or structure housing any emissions source at the iron and steel foundry, the opacity of fugitive emissions discharged to the atmosphere, determined according to the performance test procedures in §63.7732(d), did not exceed 20 percent (6-minute average), except for one 6-minute average per hour that did not exceed 27 percent opacity.

(8) For each cupola metal melting furnace at a new or existing iron and steel foundry, the average VOHAP concentration, determined according to the performance test procedures in §63.7732(e), did not exceed 20 ppmv corrected to 10 percent oxygen.

(9) For each scrap preheater at an existing iron and steel foundry that does not meet the work practice standards in §63.7700(e)(1) or (2) and for each scrap preheater at a new iron and steel foundry that does not meet the work practice standard in §63.7700(f), the average VOHAP concentration determined according to the performance test procedures in §63.7732(e), did not exceed 20 ppmv.

(10) For one or more automated conveyor and pallet cooling lines that use a sand mold system or automated shakeout lines that use a sand mold system at a new foundry,

(i) You have reduced the data from the CEMS to 3-hour averages according to the performance test procedures in §63.7732(f)(1) or (2); and

(ii) The 3-hour flow-weighted average VOHAP concentration, measured according to the performance test procedures in §63.7332(f)(1) or (2), did not exceed 20 ppmv.

(11) For each TEA cold box mold or core making line in a new or existing iron and steel foundry, the average TEA concentration, determined according to the performance test procedures in §63.7732(g) did not exceed 1 ppmv or was reduced by 99 percent.

(b) You have demonstrated initial compliance with the operating limits in §63.7690(b) if:

(1) For each capture system subject to the operating limit in §63.7690(b)(1)(ii),

(i) You have established appropriate site-specific operating limits in your operation and maintenance plan according to the requirements in §63.7710(b); and

(ii) You have a record of the operating parameter data measured during the performance test in accordance with §63.7733(a); and

(2) For each wet scrubber subject to the operating limits in §63.7690(b)(2) for pressure drop and scrubber water flow rate, you have established appropriate site-specific operating limits and have a record of the pressure drop and scrubber water flow rate measured during the performance test in accordance with §63.7733(b).

(3) For each combustion device subject to the operating limit in §63.7690(b)(3) for combustion zone temperature, you have a record of the combustion zone temperature measured during the performance test in accordance with §63.7732(e)(4).

(4) For each combustion device subject to the operating limit in §63.7690(b)(4) for combustion zone temperature, you have established appropriate site-specific operating limits and have a record of the combustion zone temperature measured during the performance test in accordance with §63.7733(c).

(5) For each acid wet scrubber subject to the operating limits in §63.7690(b)(5) for scrubbing liquid flow rate and scrubber blowdown pH,

(i) You have established appropriate site-specific operating limits for the scrubbing liquid flow rate and have a record of the scrubbing liquid flow rate measured during the performance test in accordance with §63.7733(d); and

(ii) You have a record of the pH of the scrubbing liquid blowdown measured during the performance test in accordance with §63.7732(g)(3).

*§ 63.7735 How do I demonstrate initial compliance with the work practice standards that apply to me?*

(a) For each iron and steel foundry subject to the certification requirement in §63.7700(b), you have demonstrated initial compliance if you have certified in your notification of compliance status that: "At all times, your foundry will purchase and use only metal ingots, pig iron, slitter, or other materials that do not include post-consumer automotive body scrap, post-consumer engine blocks, post-consumer oil filters, oily turnings, lead components, mercury switches, plastics, or free organic liquids."

(b) For each iron and steel foundry subject to the requirements in §63.7700(c) for a scrap inspection and selection plan, you have demonstrated initial compliance if you have certified in your notification of compliance status that:

(1) You have submitted a written plan to the Administrator for approval according to the requirements in §63.7700(c); and

(2) You will operate at all times according to the plan requirements.

(c) For each furan warm box mold or core making line in a new or existing foundry subject to the work practice standard in §63.7700(d), you have demonstrated initial compliance if you have certified in your notification of compliance status that:

(1) You will meet the no methanol requirement for the catalyst portion of each binder chemical formulation; and

(2) You have records documenting your certification of compliance, such as a material safety data sheet (provided that it contains appropriate information), a certified product data sheet, or a manufacturer's hazardous air pollutant data sheet, onsite and available for inspection.

(d) For each scrap preheater at an existing iron and steel foundry subject to the work practice standard in §63.7700(e)(1) or (2), you have demonstrated initial compliance if you have certified in your notification of compliance status that:

(1) You have installed a gas-fired preheater where the flame directly contacts the scrap charged, you will operate and maintain each gas-fired scrap preheater such that the flame directly contacts the scrap charged, and you have records documenting your certification of compliance that are onsite and available for inspection; or

(2) You will charge only material that is subject to and in compliance with the scrap certification requirements in §63.7700(b) and you have records documenting your certification of compliance that are onsite and available for inspection.

(e) For each scrap preheater at a new iron and steel foundry subject to the work practice standard in §63.7700(f), you have demonstrated initial compliance if you have certified in your notification of compliance status that you will charge only material that is subject to and in compliance with the scrap certification requirements in §63.7700(b) and you have records documenting your certification of compliance that are onsite and available for inspection.

[69 FR 21923, Apr. 22, 2004, as amended at 70 FR 29404, May 20, 2005]

*§ 63.7736 How do I demonstrate initial compliance with the operation and maintenance requirements that apply to me?*

(a) For each capture system subject to an operating limit in §63.7690(b), you have demonstrated initial compliance if you have met the conditions in paragraphs (a)(1) and (2) of this section.

(1) You have certified in your notification of compliance status that:

(i) You have submitted the capture system operation and maintenance plan to the Administrator for approval according to the requirements of §63.7710(b); and

(ii) You will inspect, operate, and maintain each capture system according to the procedures in the plan.

(2) You have certified in your performance test report that the system operated during the test at the operating limits established in your operation and maintenance plan.

(b) For each control device subject to an operating limit in §63.7690(b), you have demonstrated initial compliance if you have certified in your notification of compliance status that:

(1) You have submitted the control device operation and maintenance plan to the Administrator for approval according to the requirements of §63.7710(b); and

(2) You will inspect, operate, and maintain each control device according to the procedures in the plan.

(c) For each bag leak detection system, you have demonstrated initial compliance if you have certified in your notification of compliance status that:

(1) You have submitted the bag leak detection system monitoring plan to the Administrator for approval according to the requirements of §63.7710(b);

(2) You will inspect, operate, and maintain each bag leak detection system according to the procedures in the plan; and

(3) You will follow the corrective action procedures for bag leak detection system alarms according to the requirements in the plan.

(d) For each pouring area and pouring station in a new or existing foundry, you have demonstrated initial compliance if you have certified in your notification of compliance status report that:

(1) You have submitted the mold vent ignition plan to the Administrator for approval according to the requirements in §63.7710(b); and

(2) You will follow the procedures for igniting mold vent gases according to the requirements in the plan.

*Continuous Compliance Requirements*
*§ 63.7740 What are my monitoring requirements?*

(a) For each capture system subject to an operating limit in §63.7690(b)(1), you must install, operate, and maintain a CPMS according to the requirements in §63.7741(a) and the requirements in paragraphs (a)(1) and (2) of this section.

(1) If you use a flow measurement device to monitor the operating limit parameter, you must at all times monitor the hourly average rate ( *e.g.,* the hourly average actual volumetric flow rate through each separately ducted hood or the average hourly total volumetric flow rate at the inlet to the control device).

(2) Dampers that are manually set and remain in the same position are exempt from the requirement to install and operate a CPMS. If dampers are not manually set and remain in the same position, you must make a visual check at least once every 24 hours to verify that each damper for the capture system is in the same position as during the initial performance test.

(b) For each negative pressure baghouse or positive pressure baghouse equipped with a stack that is applied to meet any PM or total metal HAP emissions limitation in this subpart, you must at all times monitor the relative change in PM loadings using a bag leak detection system according to the requirements in §63.7741(b) and conduct inspections at their specified frequencies according to the requirements specified in paragraphs (b)(1) through (8) of this section.

(1) Monitor the pressure drop across each baghouse cell each day to ensure pressure drop is within the normal operating range identified in the manual.

(2) Confirm that dust is being removed from hoppers through weekly visual inspections or other means of ensuring the proper functioning of removal mechanisms.

(3) Check the compressed air supply for pulse-jet baghouses each day.

(4) Monitor cleaning cycles to ensure proper operation using an appropriate methodology.

(5) Check bag cleaning mechanisms for proper functioning through monthly visual inspection or equivalent means.

(6) Make monthly visual checks of bag tension on reverse air and shaker-type baghouses to ensure that bags are not kinked (kneed or bent) or lying on their sides. You do not have to make this check for shaker-type baghouses using self-tensioning (spring-loaded) devices.

(7) Confirm the physical integrity of the baghouse through quarterly visual inspections of the baghouse interior for air leaks.

(8) Inspect fans for wear, material buildup, and corrosion through quarterly visual inspections, vibration detectors, or equivalent means.

(c) For each wet scrubber subject to the operating limits in §63.7690(b)(2), you must at all times monitor the 3-hour average pressure drop and scrubber water flow rate using CPMS according to the requirements in §63.7741(c).

(d) For each combustion device subject to the operating limit in §63.7690(b)(3), you must at all times monitor the 15-minute average combustion zone temperature using a CPMS according to the requirements of §63.7741(d).

(e) For each combustion device subject to the operating limit in §63.7690(b)(4), you must at all times monitor the 3-hour average combustion zone temperature using CPMS according to the requirements in §63.7741(d).

(f) For each wet acid scrubber subject to the operating limits in §63.7690(b)(5),

(1) You must at all times monitor the 3-hour average scrubbing liquid flow rate using CPMS according to the requirements of §63.7741(e)(1); and

(2) You must at all times monitor the 3-hour average pH of the scrubber blowdown using CPMS according to the requirements in §63.7741(e)(2) or measure and record the pH of the scrubber blowdown once per production cycle using a pH probe and meter according to the requirements in §63.7741(e)(3).

(g) For one or more automated conveyor and pallet cooling lines and automated shakeout lines at a new iron and steel foundry subject to the VOHAP emissions limit in §63.7690(a)(10), you must at all times monitor the 3-hour average VOHAP concentration using a CEMS according to the requirements of §63.7741(g).

*§ 63.7741 What are the installation, operation, and maintenance requirements for my monitors?*

(a) For each capture system subject to an operating limit in §63.7690(b)(1), you must install, operate, and maintain each CPMS according to the requirements in paragraphs (a)(1) through (3) of this section.

(1) If you use a flow measurement device to monitor an operating limit parameter for a capture system, you must meet the requirements in paragraphs (a)(1)(i) through (iv) of this section.

(i) Locate the flow sensor and other necessary equipment such as straightening vanes in a position that provides a representative flow and that reduces swirling flow or abnormal velocity distributions due to upstream and downstream disturbances.

(ii) Use a flow sensor with a minimum measurement sensitivity of 2 percent of the flow rate.

(iii) Conduct a flow sensor calibration check at least semiannually.

(iv) At least monthly, inspect all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage.

(2) If you use a pressure measurement device to monitor the operating limit parameter for a capture system, you must meet the requirements in paragraphs (a)(2)(i) through (vi) of this section.

(i) Locate the pressure sensor(s) in or as close to a position that provides a representative measurement of the pressure and that minimizes or eliminates pulsating pressure, vibration, and internal and external corrosion.

(ii) Use a gauge with a minimum measurement sensitivity of 0.5 inch of water or a transducer with a minimum measurement sensitivity of 1 percent of the pressure range.

(iii) Check the pressure tap for pluggage daily.

(iv) Using a manometer, check gauge calibration quarterly and transducer calibration monthly.

(v) Conduct calibration checks any time the sensor exceeds the manufacturer's specified maximum operating pressure range, or install a new pressure sensor.

(vi) At least monthly, inspect all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage.

(3) Record the results of each inspection, calibration, and validation check.

(b) You must install, operate, and maintain a bag leak detection system according to the requirements in paragraphs (b)(1) through (7) of this section.

(1) The system must be certified by the manufacturer to be capable of detecting emissions of particulate matter at concentrations of 10 milligrams per actual cubic meter (0.0044 grains per actual cubic foot) or less.

(2) The bag leak detection system sensor must provide output of relative particulate matter loadings and the owner or operator shall continuously record the output from the bag leak detection system using electronic or other means ( *e.g.,* using a strip chart recorder or a data logger).

(3) The system must be equipped with an alarm that will sound when an increase in relative particulate loadings is detected over the alarm set point established in the operation and maintenance plan, and the alarm must be located such that it can be heard by the appropriate plant personnel.

(4) The initial adjustment of the system must, at 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 (if applicable).

(5) Following the initial adjustment, do not adjust the sensitivity or range, averaging period, alarm set point, or alarm delay time without approval from the Administrator. Except, once per quarter, you may adjust the sensitivity of the bag leak detection system to account for seasonable effects including temperature and humidity according to the procedures in the operation and maintenance plan required by §63.7710(b).

(6) For negative pressure, induced air baghouses, and positive pressure baghouses that are discharged to the atmosphere through a stack, the bag leak detector sensor must be installed downstream of the baghouse and upstream of any wet scrubber.

(7) Where multiple detectors are required, the system's instrumentation and alarm may be shared among detectors.

(c) For each wet scrubber subject to the operating limits in §63.7690(b)(2), you must install and maintain CPMS to measure and record the pressure drop and scrubber water flow rate according to the requirements in paragraphs (c)(1) and (2) of this section.

(1) For each CPMS for pressure drop you must:

(i) Locate the pressure sensor in or as close as possible to a position that provides a representative measurement of the pressure drop and that minimizes or eliminates pulsating pressure, vibration, and internal and external corrosion.

(ii) Use a gauge with a minimum measurement sensitivity of 0.5 inch of water or a transducer with a minimum measurement sensitivity of 1 percent of the pressure range.

(iii) Check the pressure tap for pluggage daily.

(iv) Using a manometer, check gauge calibration quarterly and transducer calibration monthly.

(v) Conduct calibration checks any time the sensor exceeds the manufacturer's specified maximum operating pressure range, or install a new pressure sensor.

(vi) At least monthly, inspect all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage.

(2) For each CPMS for scrubber liquid flow rate, you must:

(i) Locate the flow sensor and other necessary equipment in a position that provides a representative flow and that reduces swirling flow or abnormal velocity distributions due to upstream and downstream disturbances.

(ii) Use a flow sensor with a minimum measurement sensitivity of 2 percent of the flow rate.

(iii) Conduct a flow sensor calibration check at least semiannually according to the manufacturer's instructions.

(iv) At least monthly, inspect all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage.

(d) For each combustion device subject to the operating limit in §63.7690(b)(3) or (4), you must install and maintain a CPMS to measure and record the combustion zone temperature according to the requirements in paragraphs (d)(1) through (8) of this section.

(1) Locate the temperature sensor in a position that provides a representative temperature.

(2) For a noncryogenic temperature range, use a temperature sensor with a minimum tolerance of 2.2 °C or 0.75 percent of the temperature value, whichever is larger.

(3) For a cryogenic temperature range, use a temperature sensor with a minimum tolerance of 2.2 °C or 2 percent of the temperature value, whichever is larger.

(4) Shield the temperature sensor system from electromagnetic interference and chemical contaminants.

(5) If you use a chart recorder, it must have a sensitivity in the minor division of at least 20 °F.

(6) Perform an electronic calibration at least semiannually according to the procedures in the manufacturer's owners manual. Following the electronic calibration, conduct a temperature sensor validation check, in which a second or redundant temperature sensor placed nearby the process temperature sensor must yield a reading within 16.7 °C of the process temperature sensor's reading.

(7) Conduct calibration and validation checks any time the sensor exceeds the manufacturer's specified maximum operating temperature range, or install a new temperature sensor.

(8) At least monthly, inspect all components for integrity and all electrical connections for continuity, oxidation, and galvanic corrosion.

(e) For each wet acid scrubber subject to the operating limits in §63.7690(b)(5), you must:

(1) Install and maintain CPMS to measure and record the scrubbing liquid flow rate according to the requirements in paragraph (c)(2) of this section; and

(2) Install and maintain CPMS to measure and record the pH of the scrubber blowdown according to the requirements in paragraph (e)(2)(i) through (iv) of this section.

(i) Locate the pH sensor in a position that provides a representative measurement of the pH and that minimizes or eliminates internal and external corrosion.

(ii) Use a gauge with a minimum measurement sensitivity of 0.1 pH or a transducer with a minimum measurement sensitivity of 5 percent of the pH range.

(iii) Check gauge calibration quarterly and transducer calibration monthly using a manual pH gauge.

(iv) At least monthly, inspect all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage.

(3) As an alternative to the CPMS required in paragraph (e)(2) of this section, you may use a pH probe to extract a sample for analysis by a pH meter that meets the requirements in paragraphs (e)(3)(i) through (iii) of this section.

(i) The pH meter must have a range of at least 1 to 5 or more;

(ii) The pH meter must have an accuracy of ±0.1; and

(iii) The pH meter must have a resolution of at least 0.1 pH.

(f) You must operate each CPMS used to meet the requirements of this subpart according to the requirements specified in paragraphs (f)(1) through (3) of this section.

(1) Each CPMS must complete a minimum of one cycle of operation for each successive 15-minute period. You must have a minimum of three of the required four data points to constitute a valid hour of data.

(2) Each CPMS must have valid hourly data for 100 percent of every averaging period.

(3) Each CPMS must determine and record the hourly average of all recorded readings and the 3-hour average of all recorded readings.

(g) For each automated conveyor and pallet cooling line and automated shakeout line at a new iron and steel foundry subject to the VOHAP emissions limit in §63.7690(a)(10), you must install, operate, and maintain a CEMS to measure and record the concentration of VOHAP emissions according to the requirements in paragraphs (g)(1) through (3) of this section.

(1) You must install, operate, and maintain each CEMS according to Performance Specification 8 in 40 CFR part 60, appendix B.

(2) You must conduct a performance evaluation of each CEMS according to the requirements of §63.8 and Performance Specification 8 in 40 CFR part 60, appendix B.

(3) You must operate each CEMS according to the requirements specified in paragraph (g)(3)(i) through (iv) of this section.

(i) As specified in §63.8(c)(4)(ii), each CEMS must complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period.

(ii) You must reduce CEMS data as specified in §63.8(g)(2).

(iii) Each CEMS must determine and record the 3-hour average emissions using all the hourly averages collected for periods during which the CEMS is not out-of-control.

(iv) Record the results of each inspection, calibration, and validation check.

*§ 63.7742 How do I monitor and collect data to demonstrate continuous compliance?*

(a) Except for monitoring malfunctions, associated repairs, and required quality assurance or control activities (including as applicable, calibration checks and required zero and span adjustments), you must monitor continuously (or collect data at all required intervals) any time a source of emissions is operating.

(b) You may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities in data averages and calculations used to report emissions or operating levels or to fulfill a minimum data availability requirement, if applicable. You must use all the data collected during all other periods in assessing compliance.

(c) A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

*§ 63.7743 How do I demonstrate continuous compliance with the emissions limitations that apply to me?*

(a) You must demonstrate continuous compliance by meeting the applicable conditions in paragraphs (a)(1) through (12) of this section:

(1) For each electric arc metal melting furnace, electric induction metal melting furnace, or scrap preheater at an existing iron and steel foundry,

(i) Maintaining the average PM concentration in the exhaust stream at or below 0.005 gr/dscf; or

(ii) Maintaining the average total metal HAP concentration in the exhaust stream at or below 0.0004 gr/dscf.

(2) For each cupola metal melting furnace at an existing iron and steel foundry,

(i) Maintaining the average PM concentration in the exhaust stream at or below 0.006 gr/dscf; or

(ii) Maintaining the average total metal HAP concentration in the exhaust stream at or below 0.0005 gr/dscf.

(3) For each cupola metal melting furnace or electric arc metal melting furnace at new iron and steel foundry, (i) Maintaining the average PM concentration in the exhaust stream at or below 0.002 gr/dscf; or

(ii) Maintaining the average total metal HAP concentration in the exhaust stream at or below 0.0002 gr/dscf.

(4) For each electric induction metal melting furnace or scrap preheater at a new iron and steel foundry,

(i) Maintaining the average PM concentration in the exhaust stream at or below 0.001 gr/dscf; or

(ii) Maintaining the average total metal HAP concentration in the exhaust stream at or below 0.00008 gr/dscf.

(5) For each pouring station at an existing iron and steel foundry,

(i) Maintaining the average PM concentration in the exhaust stream at or below 0.010 gr/dscf; or

(ii) Maintaining the average total metal HAP concentration in the exhaust stream at or below 0.0008 gr/dscf.

(6) For each pouring area or pouring station at a new iron and steel foundry,

(i) Maintaining the average PM concentration in the exhaust stream at or below 0.002 gr/dscf; or

(ii) Maintaining the average total metal HAP concentration in the exhaust stream at or below 0.0002 gr/dscf.

(7) For each building or structure housing any emissions source at the iron and steel foundry, maintaining the opacity of any fugitive emissions discharged to the atmosphere at or below 20 percent opacity (6-minute average), except for one 6-minute average per hour that does not exceed 27 percent opacity.

(8) For each cupola metal melting furnace at a new or existing iron and steel foundry, maintaining the average VOHAP concentration in the exhaust stream at or below 20 ppmv corrected to 10 percent oxygen.

(9) For each scrap preheater at an existing new iron and steel foundry that does not comply with the work practice standard in §63.7700(e)(1) or (2) and for each scrap preheater at a new iron and steel foundry that does not comply with the work practice standard in §63.7700(f), maintaining the average VOHAP concentration in the exhaust stream at or below 20 ppmv.

(10) For one or more automated conveyor and pallet cooling lines or automated shakeout lines that use a sand mold system at a new iron and steel foundry,

(i) Maintaining the 3-hour flow-weighted average VOHAP concentration in the exhaust stream at or below 20 ppmv;

(ii) Inspecting and maintaining each CEMS according to the requirements of §63.7741(g) and recording all information needed to document conformance with these requirements; and

(iii) Collecting and reducing monitoring data for according to the requirements of §63.7741(g) and recording all information needed to document conformance with these requirements.

(11) For each TEA cold box mold or core making line at a new or existing iron and steel foundry, maintaining a 99 percent reduction in the VOHAP concentration in the exhaust stream or maintaining the average VOHAP concentration in the exhaust stream at or below 1 ppmv.

(12) Conducting subsequent performance tests at least every 5 years for each emissions source subject to an emissions limit for PM, total metal HAP, VOHAP, or TEA in §63.7690(a) and subsequent performance tests at least every 6 months for each building or structure subject to the opacity limit in §63.7690(a)(7).

(b) You must demonstrate continuous compliance for each capture system subject to an operating limit in §63.7690(b)(1) by meeting the requirements in paragraphs (b)(1) and (2) of this section.

(1) Operating the capture system at or above the lowest values or settings established for the operating limits in your operation and maintenance plan; and

(2) Monitoring the capture system according to the requirements in §63.7740(a) and collecting, reducing, and recording the monitoring data for each of the operating limit parameters according to the applicable requirements in this subpart.

(c) For each baghouse equipped with a bag leak detection system,

(1) Maintaining records of the times the bag leak detection system alarm sounded, and for each valid alarm, the time you initiated corrective action, the corrective action taken, and the date on which corrective action was completed; and

(2) Inspecting and maintaining each baghouse according to the requirements of §63.7740(b)(1) through (8) and recording all information needed to document conformance with these requirements.

(d) For each wet scrubber that is subject to the operating limits in §63.7690(b)(2), you must demonstrate continuous compliance by:

(1) Maintaining the 3-hour average pressure drop and 3-hour average scrubber water flow rate at levels no lower than those established during the initial or subsequent performance test;

(2) Inspecting and maintaining each CPMS according to the requirements of §63.7741(c) and recording all information needed to document conformance with these requirements; and

(3) Collecting and reducing monitoring data for pressure drop and scrubber water flow rate according to the requirements of §63.7741(f) and recording all information needed to document conformance with these requirements.

(e) For each combustion device that is subject to the operating limit in §63.7690(b)(3), you must demonstrate continuous compliance by:

(1) Maintaining the 15-minute average combustion zone temperature at a level no lower than 1,300 °F;

(2) Inspecting and maintaining each CPMS according to the requirements of §63.7741(d) and recording all information needed to document conformance with these requirements; and

(3) Collecting and reducing monitoring data for combustion zone temperature according to the requirements of §63.7741(f) and recording all information needed to document conformance with these requirements.

(f) For each combustion device that is subject to the operating limit in §63.7690(b)(4), you must demonstrate continuous compliance by:

(1) Maintaining the 3-hour average combustion zone temperature at a level no lower that established during the initial or subsequent performance test;

(2) Inspecting and maintaining each CPMS according to the requirements of §63.7741(d) and recording all information needed to document conformance with these requirements; and

(3) Collecting and reducing monitoring data for combustion zone temperature according to the requirements of §63.7741(f) and recording all information needed to document conformance with these requirements.

(g) For each acid wet scrubber subject to the operating limits in §63.7690(b)(5), you must demonstrate continuous compliance by:

(1) Maintaining the 3-hour average scrubbing liquid flow rate at a level no lower than the level established during the initial or subsequent performance test;

(2) Maintaining the 3-hour average pH of the scrubber blowdown at a level no higher than 4.5 (if measured by a CPMS) or maintaining the pH level of the scrubber blowdown during each production shift no higher than 4.5;

(3) Inspecting and maintaining each CPMS according to the requirements of §63.7741(e) and recording all information needed to document conformance with these requirements; and

(4) Collecting and reducing monitoring data for scrubbing liquid flow rate and scrubber blowdown pH according to the requirements of §63.7741(f) and recording all information needed to document conformance with these requirements. If the pH level of the scrubber blowdown is measured by a probe and meter, you must demonstrate continuous compliance by maintaining records that document the date, time, and results of each sample taken for each production shift.

*§ 63.7744 How do I demonstrate continuous compliance with the work practice standards that apply to me?*

(a) You must maintain records that document continuous compliance with the certification requirements in §63.7700(b) or with the procedures in your scrap selection and inspection plan required in §63.7700(c). Your records documenting compliance with the scrap selection and inspection plan must include a copy (kept onsite) of the procedures used by the scrap supplier for either removing accessible mercury switches or for purchasing automobile bodies that have had mercury switches removed, as applicable.

(b) You must keep records of the chemical composition of all catalyst binder formulations applied in each furan warm box mold or core making line at a new or existing iron and steel foundry to demonstrate continuous compliance with the requirements in §63.7700(d).

(c) For a scrap preheater at an existing iron and steel foundry, you must operate and maintain each gas-fired preheater such that the flame directly contacts the scrap charged to demonstrate continuous compliance with the requirement §63.7700(e)(1). If you choose to meet the work practice standard in §63.7700(e)(2), you must keep records to document that the scrap preheater charges only material that is subject to and in compliance with the scrap certification requirements in §63.7700(b).

(d) For a scrap preheater at a new iron and steel foundry, you must keep records to document that each scrap preheater charges only material that is subject to and in compliance with the scrap certification requirements in §63.7700(b) to demonstrate continuous compliance with the requirement in §63.7700(f).

*§ 63.7745 How do I demonstrate continuous compliance with the operation and maintenance requirements that apply to me?*

(a) For each capture system and control device for an emissions source subject to an emissions limit in §63.7690(a), you must demonstrate continuous compliance with the operation and maintenance requirements of §63.7710 by:

(1) Making monthly inspections of capture systems and initiating corrective action according to §63.7710(b)(1) and recording all information needed to document conformance with these requirements;

(2) Performing preventative maintenance for each control device according to the preventive maintenance plan required by §63.7710(b)(3) and recording all information needed to document conformance with these requirements;

(3) Operating and maintaining each bag leak detection system according to the site-specific monitoring plan required by §63.7710(b)(4) and recording all information needed to demonstrate conformance with these requirements;

(4) Initiating and completing corrective action for a bag leak detection system alarm according to the corrective action plan required by §63.7710(b)(5) and recording all information needed to document conformance with these requirements; and

(5) Igniting gases from mold vents according to the procedures in the plan required by §63.7710(b)(6). (Any instance where you fail to follow the procedures is a deviation that must be included in your semiannual compliance report.)

(b) You must maintain a current copy of the operation and maintenance plans required by §63.7710(b) onsite and available for inspection upon request. You must keep the plans for the life of the iron and steel foundry or until the iron and steel foundry is no longer subject to the requirements of this subpart.

*§ 63.7746 What other requirements must I meet to demonstrate continuous compliance?*

(a) *Deviations.* You must report each instance in which you did not meet each emissions limitation in §63.7690 (including each operating limit) that applies to you. This requirement includes periods of startup, shutdown, and malfunction. You also must report each instance in which you did not meet each work practice standard in §63.7700 and each operation and maintenance requirement of §63.7710 that applies to you. These instances are deviations from the emissions limitations, work practice standards, and operation and maintenance requirements in this subpart. These deviations must be reported according to the requirements of §63.7751.

(b) *Startups, shutdowns, and malfunctions.* (1) Consistent with the requirements of §§63.6(e) and 63.7(e)(1), deviations that occur during a period of startup, shutdown, or malfunction are not violations if you demonstrate to the Administrator's satisfaction that you were operating in accordance with §63.6(e)(1).

(2) The Administrator will determine whether deviations that occur during a period of startup, shutdown, or malfunction are violations according to the provisions in §63.6(e).

[69 FR 21923, Apr. 22, 2004, as amended at 71 FR 20468, Apr. 20, 2006]

*§ 63.7747 How do I apply for alternative monitoring requirements for a continuous emissions monitoring system?*

(a) You may request an alternative monitoring method to demonstrate compliance with the VOHAP emissions limits in §63.7690(a)(10) for automated pallet cooling lines or automated shakeout lines at a new iron and steel foundry according to the procedures in this section.

(b) You can request approval to use an alternative monitoring method in the notification of construction or reconstruction for new sources, or at any time.

(c) You must submit a monitoring plan that includes a description of the control technique or pollution prevention technique, a description of the continuous monitoring system or method including appropriate operating parameters that will be monitored, test results demonstrating compliance with the emissions limit, operating limit(s) (if applicable) determined according to the test results, and the frequency of measuring and recording to establish continuous compliance. If applicable, you must also include operation and maintenance requirements for the monitors.

(d) The monitoring plan is subject to approval by the Administrator. Use of the alternative monitoring method must not begin until approval is granted by the Administrator.

*Notifications, Reports, and Records*
*§ 63.7750 What notifications must I submit and when?*

(a) You must submit all of the notifications required by §§63.6(h)(4) and (5), 63.7(b) and (c); 63.8(e); 63.8(f)(4) and (6); 63.9(b) through (h) that apply to you by the specified dates.

(b) As specified in §63.9(b)(2), if you start up your iron and steel foundry before April 22, 2004, you must submit your initial notification no later than August 20, 2004.

(c) If you start up your new iron and steel foundry on or after April 22, 2004, you must submit your initial notification no later than 120 calendar days after you become subject to this subpart.

(d) If you are required to conduct a performance test, you must submit a notification of intent to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin as required by §63.7(b)(1).

(e) If you are required to conduct a performance test or other initial compliance demonstration, you must submit a notification of compliance status according to the requirements of §63.9(h)(2)(ii).

(1) For each initial compliance demonstration that does not include a performance test, you must submit the notification of compliance status before the close of business on the 30th calendar day following completion of the initial compliance demonstration.

(2) For each initial compliance demonstration that does include a performance test, you must submit the notification of compliance status, including the performance test results, before the close of business on the 60th calendar day following the completion of the performance test according to the requirement specified in §63.10(d)(2).

*§ 63.7751 What reports must I submit and when?*

(a) Compliance report due dates. Unless the Administrator has approved a different schedule, you must submit a semiannual compliance report to your permitting authority according to the requirements specified in paragraphs (a)(1) through (5) of this section.

(1) The first compliance report must cover the period beginning on the compliance date that is specified for your iron and steel foundry by §63.7683 and ending on June 30 or December 31, whichever date comes first after the compliance date that is specified for your iron and steel foundry.

(2) The first compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date comes first after your first compliance report is due.

(3) Each subsequent compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(4) Each subsequent compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date comes first after the end of the semiannual reporting period.

(5) For each iron and steel foundry that is subject to permitting regulations pursuant to 40 CFR part 70 or 40 CFR part 71, and if the permitting authority has established dates for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), you may submit the first and subsequent compliance reports according to the dates the permitting authority has established instead of the dates specified in paragraphs (a)(1) through (4) of this section.

(b) Compliance report contents. Each compliance report must include the information specified in paragraphs (b)(1) through (3) of this section and, as applicable, paragraphs (b)(4) through (8) of this section.

(1) Company name and address.

(2) Statement by a responsible official, with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report.

(3) Date of report and beginning and ending dates of the reporting period.

(4) If you had a startup, shutdown, or malfunction during the reporting period and you took action consistent with your startup, shutdown, and malfunction plan, the compliance report must include the information in §63.10(d)(5)(i).

(5) If there were no deviations from any emissions limitations (including operating limit), work practice standards, or operation and maintenance requirements, a statement that there were no deviations from

the emissions limitations, work practice standards, or operation and maintenance requirements during the reporting period.

(6) If there were no periods during which a continuous monitoring system (including a CPMS or CEMS) was out-of-control as specified by §63.8(c)(7), a statement that there were no periods during which the CPMS was out-of-control during the reporting period.

(7) For each deviation from an emissions limitation (including an operating limit) that occurs at an iron and steel foundry for which you are not using a continuous monitoring system (including a CPMS or CEMS) to comply with an emissions limitation or work practice standard required in this subpart, the compliance report must contain the information specified in paragraphs (b)(1) through (4) and (b)(7)(i) and (ii) of this section. This requirement includes periods of startup, shutdown, and malfunction.

(i) The total operating time of each emissions source during the reporting period.

(ii) Information on the number, duration, and cause of deviations (including unknown cause) as applicable and the corrective action taken.

(8) For each deviation from an emissions limitation (including an operating limit) or work practice standard occurring at an iron and steel foundry where you are using a continuous monitoring system (including a CPMS or CEMS) to comply with the emissions limitation or work practice standard in this subpart, you must include the information specified in paragraphs (b)(1) through (4) and (b)(8)(i) through (xi) of this section. This requirement includes periods of startup, shutdown, and malfunction.

(i) The date and time that each malfunction started and stopped.

(ii) The date and time that each continuous monitoring system was inoperative, except for zero (low-level) and high-level checks.

(iii) The date, time, and duration that each continuous monitoring system was out-of-control, including the information in §63.8(c)(8).

(iv) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period.

(v) A summary of the total duration of the deviations during the reporting period and the total duration as a percent of the total source operating time during that reporting period.

(vi) A breakdown of the total duration of the deviations during the reporting period into those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and unknown causes.

(vii) A summary of the total duration of continuous monitoring system downtime during the reporting period and the total duration of continuous monitoring system downtime as a percent of the total source operating time during the reporting period.

(viii) A brief description of the process units.

(ix) A brief description of the continuous monitoring system.

(x) The date of the latest continuous monitoring system certification or audit.

(xi) A description of any changes in continuous monitoring systems, processes, or controls since the last reporting period.

(c) Immediate startup, shutdown, and malfunction report. If you had a startup, shutdown, or malfunction during the semiannual reporting period that was not consistent with your startup, shutdown, and

malfunction plan, you must submit an immediate startup, shutdown, and malfunction report according to the requirements of §63.10(d)(5)(ii).

(d) Part 70 monitoring report. If you have obtained a title V operating permit for an iron and steel foundry pursuant to 40 CFR part 70 or 40 CFR part 71, you must report all deviations as defined in this subpart in the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A). If you submit a compliance report for an iron and steel foundry along with, or as part of, the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), and the compliance report includes all the required information concerning deviations from any emissions limitation or operation and maintenance requirement in this subpart, submission of the compliance report satisfies any obligation to report the same deviations in the semiannual monitoring report. However, submission of a compliance report does not otherwise affect any obligation you may have to report deviations from permit requirements for an iron and steel foundry to your permitting authority.

*§ 63.7752 What records must I keep?*

(a) You must keep the records specified in paragraphs (a)(1) through (4) of this section:

(1) A copy of each notification and report that you submitted to comply with this subpart, including all documentation supporting any initial notification or notification of compliance status that you submitted, according to the requirements of §63.10(b)(2)(xiv).

(2) The records specified in §63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunction.

(3) Records of performance tests and performance evaluations as required by §63.10(b)(2)(viii).

(4) Records of the annual quantity of each chemical binder or coating material used to make molds and cores, the Material Data Safety Sheet or other documentation that provides the chemical composition of each component, and the annual quantity of HAP used at the foundry.

(b) You must keep the following records for each CEMS.

(1) Records described in §63.10(b)(2)(vi) through (xi).

(2) Previous ( *i.e.,* superseded) versions of the performance evaluation plan as required in §63.8(d)(3).

(3) Request for alternatives to relative accuracy tests for CEMS as required in §63.8(f)(6)(i).

(4) Records of the date and time that each deviation started and stopped, and whether the deviation occurred during a period of startup, shutdown, or malfunction or during another period.

(c) You must keep the records required by §§63.7743, 63.7744, and 63.7745 to show continuous compliance with each emissions limitation, work practice standard, and operation and maintenance requirement that applies to you.

*§ 63.7753 In what form and for how long must I keep my records?*

(a) You must keep your records in a form suitable and readily available for expeditious review, according to the requirements of §63.10(b)(1).

(b) As specified in §63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(c) You must keep each record onsite for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record according to the requirements in §63.10(b)(1). You can keep the records for the previous 3 years offsite.

*Other Requirements and Information*

*§ 63.7760 What parts of the General Provisions apply to me?*

Table 1 to this subpart shows which parts of the General Provisions in §§63.1 through 63.15 apply to you.

*§ 63.7761 Who implements and enforces this subpart?*

(a) This subpart can be implemented and enforced by us, the U.S. Environmental Protection Agency (EPA), or a delegated authority such as your State, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to your State, local, or tribal agency, then that agency, in addition to the U.S. EPA, has the authority to implement and enforce this subpart. You should contact your U.S. EPA Regional Office to find out if implementation and enforcement of this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under 40 CFR part 63, subpart E, the authorities contained in paragraph (c) of this section are retained by the Administrator of the U.S. EPA and are not transferred to the State, local, or tribal agency.

(c) The authorities that cannot be delegated to State, local, or tribal agencies are specified in paragraphs (c)(1) through (4) of this section.

(1) Approval of alternatives to non-opacity emissions limitations in §63.7690 and work practice standards in §63.7700 under §63.6(g).

(2) Approval of major alternatives to test methods under §63.7(e)(2)(ii) and (f) and as defined in §63.90.

(3) Approval of major alternatives to monitoring under §63.8(f) and as defined in §63.90.

(4) Approval of major alternatives to recordkeeping and reporting under §63.10(f) and as defined in §63.90.

*Definitions*

*§ 63.7765 What definitions apply to this subpart?*

Terms used in this subpart are defined in the Clean Air Act (CAA), in §63.2, and in this section.

*Automated conveyor and pallet cooling line* means any dedicated conveyor line or area used for cooling molds received from pouring stations.

*Automated shakeout line* means any mechanical process unit designed for and dedicated to separating a casting from a mold. These mechanical processes include, but are not limited to, shaker decks, rotary separators, and high-frequency vibration units. Automated shakeout lines do not include manual processes for separating a casting from a mold, such as personnel using a hammer, chisel, pick ax, sledge hammer, or jackhammer.

*Bag leak detection system* means a system that is capable of continuously monitoring relative particulate matter (dust) loadings in the exhaust of a baghouse to detect bag leaks and other upset conditions. A bag leak detection system includes, but is not limited to, an instrument that operates on triboelectric, electrodynamic, light scattering, light transmittance, or other effect to continuously monitor relative particulate matter loadings.

*Binder chemical* means a component of a system of chemicals used to bind sand together into molds, mold sections, and cores through chemical reaction as opposed to pressure.

*Capture system* means the collection of components used to capture gases and fumes released from one or more emissions points and then convey the captured gas stream to a control device or to the atmosphere. A capture system may include, but is not limited to, the following components as applicable to a given capture system design: duct intake devices, hoods, enclosures, ductwork, dampers, manifolds, plenums, and fans.

*Cold box mold or core making line* means a mold or core making line in which the formed aggregate is hardened by catalysis with a gas.

*Combustion device* means an afterburner, thermal incinerator, or scrap preheater.

*Conveyance* means the system of equipment that is designed to capture pollutants at the source, convey them through ductwork, and exhaust them using forced ventilation. A conveyance may, but does not necessarily include, control equipment designed to reduce emissions of the pollutants. Emissions that are released through windows, vents, or other general building ventilation or exhaust systems are not considered to be discharged through a conveyance.

*Cooling* means the process of molten metal solidification within the mold and subsequent temperature reduction prior to shakeout.

*Cupola* means a vertical cylindrical shaft furnace that uses coke and forms of iron and steel such as scrap and foundry returns as the primary charge components and melts the iron and steel through combustion of the coke by a forced upward flow of heated air.

*Deviation* means any instance in which an affected source or an owner or operator of such an affected source:

(1) Fails to meet any requirement or obligation established by this subpart including, but not limited to, any emissions limitation (including operating limits), work practice standard, or operation and maintenance requirement;

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any iron and steel foundry required to obtain such a permit; or

(3) Fails to meet any emissions limitation (including operating limits) or work practice standard in this subpart during startup, shutdown, or malfunction, regardless of whether or not such failure is permitted by this subpart.

*Electric arc furnace* means a vessel in which forms of iron and steel such as scrap and foundry returns are melted through resistance heating by an electric current flowing through the arcs formed between the electrodes and the surface of the metal and also flowing through the metal between the arc paths.

*Electric induction furnace* means a vessel in which forms of iron and steel such as scrap and foundry returns are melted though resistance heating by an electric current that is induced in the metal by passing an alternating current through a coil surrounding the metal charge or surrounding a pool of molten metal at the bottom of the vessel.

*Emissions limitation* means any emissions limit or operating limit.

*Exhaust stream* means gases emitted from a process through a conveyance as defined in this subpart.

*Free organic liquids* means material that fails the paint filter test by EPA Method 9095A (incorporated by reference—see §63.14). That is, if any portion of the material passes through and drops from the filter within the 5-minute test period, the material contains free liquids.

*Fresh acid solution* means a sulfuric acid solution used for the control of triethylamine emissions that has a pH of 2.0 or less.

*Fugitive emissions* means any pollutant released to the atmosphere that is not discharged through a *conveyance* as defined in this subpart.

*Furan warm box mold or core making line* means a mold or core making line in which the binder chemical system used is that system commonly designated as a furan warm box system by the foundry industry.

*Hazardous air pollutant* means any substance on the list originally established in 112(b)(1) of the CAA and subsequently amended as published in the *Code of Federal Regulations.*

*Iron and steel foundry* means a facility or portion of a facility that melts scrap, ingot, and/or other forms of iron and/or steel and pours the resulting molten metal into molds to produce final or near final shape products for introduction into commerce. Research and development facilities and operations that only produce non-commercial castings are not included in this definition.

*Metal melting furnace* means a cupola, electric arc furnace, or electric induction furnace that converts scrap, foundry returns, and/or other solid forms of iron and/or steel to a liquid state. This definition does not include a holding furnace, an argon oxygen decarburization vessel, or ladle that receives molten metal from a metal melting furnace, to which metal ingots or other material may be added to adjust the metal chemistry.

*Mold or core making line* means the collection of equipment that is used to mix an aggregate of sand and binder chemicals, form the aggregate into final shape, and harden the formed aggregate. This definition does not include a line for making green sand molds or cores.

*Mold vent* means an intentional opening in a mold through which gases containing pyrolysis products of organic mold and core constituents produced by contact with or proximity to molten metal normally escape the mold during and after metal pouring.

*Pouring area* means an area, generally associated with floor and pit molding operations, in which molten metal is brought to each individual mold. Pouring areas include all pouring operations that do not meet the definition of a pouring station.

*Pouring station* means the fixed location to which molds are brought in a continuous or semicontinuous manner to receive molten metal, after which the molds are moved to a cooling area.

*Responsible official* means responsible official as defined in §63.2.

*Scrap preheater* means a vessel or other piece of equipment in which metal scrap that is to be used as melting furnace feed is heated to a temperature high enough to eliminate moisture and other volatile impurities or tramp materials by direct flame heating or similar means of heating.

*Scrubber blowdown* means liquor or slurry discharged from a wet scrubber that is either removed as a waste stream or processed to remove impurities or adjust its composition or pH before being returned to the scrubber.

*Work practice standard* means any design, equipment, work practice, or operational standard, or combination thereof, that is promulgated pursuant to section 112(h) of the CAA.

[69 FR 21923, Apr. 22, 2004, as amended at 70 FR 29404, May 20, 2005]

*Table 1 to Subpart EEEEE of Part 63—Applicability of General Provisions to Subpart EEEEE*

[As stated in §63.7760, you must meet each requirement in the following table that applies to you.]

| Citation | Subject | Applies to Subpart EEEEE? | Explanation |
|---|---|---|---|
| 63.1 | Applicability | Yes | |
| 63.2 | Definitions | Yes | |
| 63.3 | Units and abbreviations | Yes | |
| 63.4 | Prohibited activities | Yes | |
| 63.5 | Construction/reconstruction | Yes | |
| 63.6(a)–(g) | Compliance with standards and maintenance requirements | Yes | |
| 63.6(h) | Opacity and visible emissions standards | Yes | |
| 63.6(i)–(j) | Compliance extension and Presidential compliance exemption | Yes | |
| 63.7(a)(1)–(a)(2) | Applicability and performance test dates | No | Subpart EEEEE specifies applicability and performance test dates. |
| 63.7(a)(3), (b)–(h) | Performance testing requirements | Yes | |
| 63.8(a)(1)–(a)(3), (b), (c)(1)–(c)(3), (c)(6)–(c)(8), (d), (e), (f)(1)–(f)(6), (g)(1)–(g)(4) | Monitoring requirements | Yes | Subpart EEEEE specifies requirements for alternative monitoring systems. |
| 63.8(a)(4) | Additional monitoring requirements for control devices in §63.11 | No | Subpart EEEEE does not require flares. |
| 63.8(c)(4) | Continuous monitoring system (CMS) requirements | No | Subpart EEEEE specifies requirements for operation of CMS and CEMS. |
| 63.8(c)(5) | Continuous opacity monitoring system (COMS) Minimum Procedures | No | Subpart EEEEE does not require COMS. |
| 63.8(g)(5) | Data reduction | No | Subpart EEEEE specifies data reduction requirements. |
| 63.9 | Notification requirements | Yes | |
| 63.10(a)–(b), (c)(1)–(6), (c)(9)–(15), (d)(1)–(2), (e)(1)–(2), (f) | Recordkeeping and reporting requirements | Yes | Additional records for CMS in §63.10(c)(1)–(6), (9)–(15) apply only to CEMS. |
| 63.10(c)(7)–(8) | Records of excess emissions and parameter monitoring exceedances for CMS | No | Subpart EEEEE specifies records requirements. |

| Citation | Subject | Applies to Subpart EEEEE? | Explanation |
|---|---|---|---|
| 63.10(d)(3) | Reporting opacity or visible emissions observations | Yes | |
| 63.10(e)(3) | Excess emissions reports | No | Subpart EEEEE specifies reporting requirements. |
| 63.10(e)(4) | Reporting COMS data | No | Subpart EEEEE data does not require COMS. |
| 63.11 | Control device requirements | No | Subpart EEEEE does not require flares. |
| 63.12 | State authority and delegations | Yes | |
| 63.13–63.15 | Addresses of State air pollution control agencies and EPA regional offices. Incorporation by reference. Availability of information and confidentiality | Yes | |

# INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
# OFFICE OF AIR QUALITY
# COMPLIANCE DATA SECTION

## Part 70 Quarterly Report

Source Name: ThyssenKrupp Waupaca, Inc. Plant 5
Source Address: 9856 State Highway 66, Tell City, IN 47586
Mailing Address: P.O. Box 189, Tell City, IN 47586
Part 70 Permit No.: T123-9234-00019
Facility: Paint Booths identified as P26A and P26B
Parameter: VOC emissions
Limit: The total paint input from Paint Booths P26A and P26B shall not exceed 25,000 gallons per consecutive 12 month period with compliance determined at the end of each month.

YEAR:

| Month | Column 1 | Column 2 | Column 1 + Column 2 |
|---|---|---|---|
| | Paint Input This Month (gallons) | Paint Input Previous 11 Months (gallons) | 12 Month Total of Paint Input (gallons) |
| Month 1 | | | |
| Month 2 | | | |
| Month 3 | | | |

☐ No deviation occurred in this quarter.

☐ Deviation/s occurred in this quarter.
Deviation has been reported on:

Submitted by:
Title / Position:
Signature:
Date:
Phone:

Attach a signed certification to complete this report.

# Indiana Department of Environmental Management
# Office of Air Quality

## Technical Support Document (TSD) for a Part 70 Significant Source/Permit Modification

### Source Description and Location

| | |
|---|---|
| Source Name: | ThyssenKrupp Waupaca, Inc. Plant 5 |
| Source Location: | 9856 State Highway 66, Tell City, Indiana 47586 |
| County: | Perry |
| SIC Code: | 3321 |
| Operation Permit No.: | T 123-9234-00019 |
| Operation Permit Issuance Date: | June 29, 2004 |
| Significant Source Modification No.: | 123-26878-00019 |
| Significant Permit Modification No.: | 123-26979-00019 |
| Permit Reviewer: | Josiah Balogun, Timothy R. Pettifor |

### Existing Approvals

The source was issued Part 70 Operating Permit No. T 123-9234-00019 on June 29, 2004. The source has since received the following approvals:

(a) Significant Permit Modification No. 123-20882-00019, issued on June 29 2005.

(b) Significant Source Modification No. 123-21238-00019, issued on December 22, 2005.

(c) Significant Permit Modification No. 123-21445-00019, issued on February 9, 2006.

(d) Significant Source Modification No. 123-25030-00019, issued on December 19, 2007.

(e) Significant Permit Modification No. 123-25309-00019, issued on January 4, 2008.

### County Attainment Status

The source is located in Perry County.

| Pollutant | Designation |
|---|---|
| $SO_2$ | Better than national standards. |
| CO | Unclassifiable or attainment effective November 15, 1990. |
| $O_3$ | Unclassifiable or attainment effective June 15, 2004, for the 8-hour ozone standard.[1] |
| $PM_{10}$ | Unclassifiable effective November 15, 1990. |
| $NO_2$ | Cannot be classified or better than national standards. |
| Pb | Not designated. |

[1]Unclassifiable or attainment effective October 18, 2000, for the 1-hour ozone standard which was revoked effective June 15, 2005.
Unclassifiable or attainment effective April 5, 2005, for PM2.5.

(a) Ozone Standards

(1) On October 25, 2006, the Indiana Air Pollution Control Board finalized a rule revision to 326 IAC 1-4-1 revoking the one-hour ozone standard in Indiana.

(2) On September 6, 2007, the Indiana Air Pollution Control Board finalized a temporary emergency rule to re-designate Allen, Clark, Elkhart, Floyd, LaPorte, and St. Joseph as attainment for the 8-hour ozone standard.

(3) On November 9, 2007, the Indiana Air Pollution Control Board finalized a temporary emergency rule to re-designate Boone, Clark, Elkhart, Floyd, LaPorte, Hamilton, Hancock, Hendricks, Johnson, Madison, Marion, Morgan, Shelby, and St. Joseph as attainment for the 8-hour ozone standard.

(4) Volatile organic compounds (VOC) and Nitrogen Oxides (NOx) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC and NOx emissions are considered when evaluating the rule applicability relating to ozone. Perry County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

(b) PM2.5
Perry County has been classified as attainment for PM2.5. On May 8, 2008 U.S. EPA promulgated the requirements for Prevention of Significant Deterioration (PSD) for PM2.5 emissions, and the effective date of these rules was July 15$^{th}$, 2008. Indiana has three years from the publication of these rules to revise its PSD rules, 326 IAC 2-2, to include those requirements. The May 8, 2008 rule revisions require IDEM to regulate PM10 emissions as a surrogate for PM2.5 emissions until 326 IAC 2-2 is revised.

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

(d) Since this source is classified as a secondary metal production plant, it is considered one of the twenty-eight (28) listed source categories, as specified in 326 IAC 2-2-1(gg)(1).

(e) Fugitive Emissions
Since this type of operation is in one of the twenty-eight (28) listed source categories under 326 IAC 2-2 or 326 IAC 2-3, fugitive emissions are counted toward the determination of PSD.

## Source Status

The table below summarizes the potential to emit of the entire source, prior to the proposed modification, after consideration of all enforceable limits established in the effective permits:

| **Pollutant** | **Emissions** (ton/yr) |
|---|---|
| PM | > 100 |
| $PM_{10}$ | > 100 |
| $SO_2$ | < 100 |
| VOC | > 100 |
| CO | > 100 |
| $NO_X$ | > 100 |

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

(b) These emissions are based upon Significant Source Modification T 123-25303-00019, issued on December 19, 2007.

The table below summarizes the potential to emit HAPs for the entire source, prior to the proposed modification, after consideration of all enforceable limits established in the effective permits:

| **HAPs** | **Potential To Emit** (ton/yr) |
|---|---|
| Single HAP | greater than 10 |
| Total HAPs | greater than 25 |

This existing source is a major source of HAPs, as defined in 40 CFR 63.2, because HAP emissions are greater than ten (10) tons per year for a single HAP and greater than twenty-five (25) tons per year for a combination of HAPs. Therefore, this source is a major source under Section 112 of the Clean Air Act (CAA).

## Description of Proposed Modification

The Office of Air Quality (OAQ) has reviewed a modification application, submitted by ThyssenKrupp Waupaca, Inc. Plant 5 on August 15, 2008, relating to the construction of new core machines and core drying ovens, and the modification of the existing sand mixing and handling operations and the spray painting operation. The following is a list of the proposed and modified emission unit(s) and pollution control device(s):

(a) one (1) phenolic-urethane core machine, identified as P45A, to be constructed in 2008, with a maximum capacity of 6 tons per hour, with emissions controlled by existing scrubber C14 and exhausting through stack S14; and

(b) one (1) phenolic-urethane core machine, identified as P45B, to be constructed in 2008, with a maximum capacity of 6 tons per hour, with emissions controlled by existing scrubber C17 and exhausting through stack S17.

(c) two (2) natural gas-fired core dry oven, to be constructed in 2008, identified as P48A and P48B, with a maximum capacity of 2.5 MMBtu/hr each, with emissions exhausting in to the building.

(d) One (1) phenolic-urethane core sand handling system, identified as P42, constructed in

1998 and modified in 2008, with a maximum production capacity of 32 tons of cores per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C08, that exhausts to Stack S08.

(e) One (1) phenolic-urethane core sand handling system, identified as P46, approved for construction in 2005 and modified in 2008, with a maximum production capacity of 51 tons of cores per hour. Particulate matter emissions are controlled by one (1) baghouse, identified as C18, exhausting indoors.

(f) Two (2) paint booths, one identified as P26A, constructed in 2007 and modified in 2008, and one identified as P26B approved for construction in 2008, used to coat metal castings for rust protection, using spray guns with a combined maximum capacity of 16 (sixteen**)** gallons per hour, using overspray filters for PM control, exhausting to stacks S26A and S26B, respectively.

(g) One (1) autogrinder operation, to be constructed in 2008, identified as P87, with a maximum capacity of 22.5 tons of castings per hour, with emissions controlled by existing Baghouse C16 and exhausting to stack S16.

## Enforcement Issues

There are no pending enforcement actions related to this modification.

## Emission Calculations

See Appendix A of this Technical Support Document for detailed emission calculations.

## Permit Level Determination – Part 70

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as "the maximum capacity of a stationary source or emission unit 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, IDEM, or the appropriate local air pollution control agency."

The following table is used to determine the appropriate permit level under 326 IAC 2-7-10.5. This table reflects the PTE before controls. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

| Pollutant | Potential To Emit (tons/year) |
|---|---|
| PM | > 100 |
| PM10 | > 100 |
| $SO_2$ | < 100 |
| VOC | > 100 |
| CO | < 100 |
| $NO_x$ | < 100 |

| HAPs | Potential To Emit (tons/year) |
|---|---|
| Single HAP | less than 10 |
| Total HAPs | less than 25 |

This source modification is subject to 326 IAC 2-7-10.5(f)(4) because the potential to emit PM/PM10 and VOC is greater than twenty-five (25) tons per year before control. Additionally, the modification will be incorporated into the Part 70 Operating Permit through a significant permit

modification issued pursuant to 326 IAC 2-7-12, because the modification requires a case by case determination of the emission limits.

**Permit Level Determination – PSD or Emission Offset**

The table below summarizes the potential to emit, reflecting all limits, of the emission units. Any control equipment is considered federally enforceable only after issuance of this Part 70 source/permit modification, and only to the extent that the effect of the control equipment is made practically enforceable in the permit.

| | **Potential to Emit** (ton/yr) | | | | | |
|---|---|---|---|---|---|---|
| **Process / Emission Unit** | **PM** | **$PM_{10}$** | **$SO_2$** | **VOC** | **CO** | **$NO_X$** |
| P45A/Core Machine | -- | -- | -- | 10.51 | -- | -- |
| P45B/Core Machine | -- | -- | -- | 10.51 | -- | -- |
| P48A/B/Core Ovens | 0.04 | 0.2 | 0 | 0.1 | 1.8 | 2.2 |
| P42/Sand Handling | 2.63 | 2.63 | -- | -- | -- | -- |
| P46/Sand Handling | 2.63 | 2.63 | -- | -- | -- | -- |
| P26A/B/Spray Booth | 1.1 | 1.1 | -- | 17.5 | -- | -- |
| P87/Autogrinder | 2.63 | 2.63 | -- | -- | -- | -- |
| Total for Modification | 9.00 | 9.2 | 0 | 38.62 | 1.8 | 2.2 |
| Major Source Threshold or Significant Level | 25 | 15 | 40 | 40 | 100 | 40 |

This modification to an existing major stationary source is not major because the emissions increase is less than the PSD significant levels. Therefore, pursuant to 326 IAC 2-2, the PSD requirements do not apply.

**Federal Rule Applicability Determination**

**NSPS:**

(a) There are no New Source Performance Standards (NSPS)(326 IAC 12 and 40 CFR Part 60) applicable to this proposed modification.

**NESHAP:**

(b) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs) (326 IAC 14, 326 IAC 20 and 40 CFR Part 63) applicable to this proposed modification or new source.

(c) The phenolic urethane core making operations being installed in this modification do not use TEA as a catalyst. Therefore the requirements of the NESHAP for Iron and Steel Foundries (40CFR 63, Subpart EEEE), which only apply to triethylamine (TEA) cold box or core making lines at iron and steel foundries are not applicable to this modification.

(d) The source has chosen to use the exemption listed at 40 CFR 63.3881(c)(1) to render the requirements of 40 CFR 63, Subpart MMMM not applicable to the paint booths identified as P26A and P26B. According to the Permittee, the coatings, thinners, and other additives, and cleaning materials used in P26A and P26B do not contain any organic HAP rendering 40 CFR 63, Subpart MMMM not applicable to the painting operations.

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

(1) has a potential to emit before controls equal to or greater than the Part 70 major source threshold for the pollutant involved;

(2) is subject to an emission limitation or standard for that pollutant; and

(3) uses a control device, as defined in 40 CFR 64.1, to comply with that emission limitation or standard.

The following table is used to identify the applicability of each of the criteria, under 40 CFR 64.1, to each new or modified emission unit involved:

| CAM Applicability Analysis | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Emission Unit** | **Control Device Used** | **Emission Limitation** (Y/N) | **Uncontrolled PTE** (ton/yr) | **Controlled PTE** (ton/yr) | **Part 70 Major Source Threshold** (ton/yr) | **CAM Applicable** (Y/N) | **Large Unit** (Y/N) |
| P45A/ VOC | Scrubber (C17) | Y | 62.02 | 10.51 | 100 | N | N |
| P45B/VOC | Scrubber (C17) | Y | 62.02 | 10.51 | 100 | N | N |
| P42/PM10 | Baghouse (C08) | Y | 91.10 | 2.63 | 100 | N | N |
| P46/PM10 | Baghouse (C18) | Y | 145.20 | 2.63 | 100 | Y | N |
| P46/PM | Baghouse (C18) | Y | 145.20 | 2.63 | 100 | Y | N |
| P87/PM | Baghouse (C16) | Y | >100 | 2.63 | 100 | Y | N |
| P87/PM10 | Baghouse (C16) | Y | >100 | 2.63 | 100 | Y | N |

Based on this evaluation, the requirements of 40 CFR Part 64, CAM are applicable to the sand handling system P46 and the autogrinder P87 for PM and PM10 upon issuance of the Title V Renewal. ThyssenKrupp Waupaca has submitted a CAM plan as part of their renewal application which IDEM received on September 30, 2008.

The paint booths, identified as P26 have a combined PM emission of over 100 tons per year. Individually the PM emissions are less than 100 tons per year. Therefore, the requirements of 40 CFR Part 64 are not applicable to these paint booths.

## State Rule Applicability Determination

The following state rules are applicable to the source due to the modification:

326 IAC 2-2 (PSD)
The uncontrolled PM and $PM_{10}$ emissions from the sand handling operations is more than 25 and 15 tons per year, respectively. The following limit for PM and $PM_{10}$ emissions has been established for this emission unit.

(a) The PM and $PM_{10}$ emissions from the sand handling operations identified as P42 and P46 shall not exceed 0.6 lbs/hour, each.

(b) The PM and $PM_{10}$ emissions from the autogrinder identified as P87 shall not exceed 0.6 lbs/hour.

Compliance with these limits will limit the potential PM and PM10 emissions from the sand handling operations and the autogrinder to less than 25 and 15 tons per year and render the requirements of 326 IAC 2-2 not applicable to the sand handling operations and the autogrinder.

(b) The uncontrolled VOC emissions from the paint booths identified as P26A and P26B and the core machines identified as P45A and P45B are more than 25 tons per year. The VOC emissions from the paint booth operations shall be limited as follows:

The VOC input to paint booths P26A and P26B shall not exceed 17.5 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

Compliance with this limit will limit the potential VOC emissions from the paint booths, identified as P26A and P26B and the core machines identified to less than 40 tons per year and render the requirements of 326 IAC 2-2 not applicable to the paint booths.

326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))
The operation of the core machines, core ovens, sand handling operations, and paint booth will emit less than ten (10) tons per year for a single HAP and less than twenty-five (25) tons per year for a combination of HAPs. Therefore, 326 IAC 2-4.1 does not apply.

326 IAC 8-1-6 (New Facilities, General Reduction Requirements)
(a) Pursuant to 326 IAC 8-1-6 (New Facilities, General Reduction Requirements) and SSM 123-26878-00019, IDEM has established the following as BACT for volatile organic compounds (VOC) for the two (2) core machines.

(1) The total VOC emissions (including DMIPA) from the mixers and core machines identified as P43 shall not exceed 0.4 pound per ton of cores.

(2) The packed bed scrubbers C14 and C17 controlling the DMIPA emissions from the core machines identified as P45A and P45B, respectively, shall maintain a 100% capture of the DMIPA emissions, using a permanent total enclosure that complies with the requirements of 40 CFR Part 51, Appendix M, Method 24. The scrubber shall achieve at least 98% overall control efficiency of the DMIPA.

(3) The DMIPA emissions from the scrubbers controlling the core machines identified as P45A and P45B shall not exceed 0.04 pound per ton of cores, and 0.24 pounds per hour each.

(4) The Permittee shall only use dimethylisopropylamine (DMIPA) as a catalyst for the core machines identified as P45A and P45B.

326 IAC 8-2-9 (Miscellaneous Metal Coating)
The painting operation, P26, will be used to coat metal castings for rust protection and is subject to 326 IAC 8-2-9 as this source belongs to an industrial category which coats metal parts or products under the Standard Industrial Classification Code of major group #33. Pursuant to 326 IAC 8-2-9(d)(3), for extreme performance coatings, the volatile organic compound (VOC) content of coating delivered to the applicator at the painting operation, identified as P26, shall be limited to 3.5 pounds of VOC per gallon of coating less water.

In addition, pursuant to 326 IAC 8-2-9(f), solvent sprayed from application equipment during cleanup or color changes shall be directed into containers. Such containers shall be closed as soon as such solvent spraying is complete, and the waste solvent shall be disposed of in such a manner that evaporation is minimized.

326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)

(a) Pursuant to 326 IAC 6-3-2, the particulate matter (PM) from the sand handling operation identified as P42 shall not exceed 40.5 pounds per hour when operating at a process weight rate of 32 tons per hour.

(b) Pursuant to 326 IAC 6-3-2, the particulate matter (PM) from the sand handling operation identified as P46 shall not exceed 44.8 pounds per hour when operating at a process weight rate of 51 tons per hour. The pound per hour limitation was calculated with the following equation:

Interpolation and extrapolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

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

Baghouse C08 shall be in operation at all times the sand handling operation identified as P42 is in operation, in order to comply with this limit.

Baghouse C18 shall be in operation at all times the sand handling operation identified as P46 is in operation, in order to comply with this limit.

(c) Pursuant to 326 IAC 6-3-2, the particulate matter (PM) from the autogrinder operation identified as P87 shall not exceed 33.0 pounds per hour when operating at a process weight rate of 22.5 tons per hour. This limit was calculated using the following equations:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10 P^{0.67}$ where E = rate of emission in pounds per hour and
P = process weight rate in tons per hour

Baghouse C16 shall be in operation at all times the autogrinder identified as P87 is in operation, in order to comply with this limit.

## Compliance Determination and Monitoring Requirements

Permits issued under 326 IAC 2-7 are required to ensure that sources can demonstrate compliance with all applicable state and federal rules on a continuous basis. All state and federal rules contain compliance provisions; however, these provisions do not always fulfill the requirement for a continuous demonstration. When this occurs, IDEM, OAQ, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-7-5. As a result, Compliance Determination Requirements are included in the permit. The Compliance Determination Requirements in Section D of the permit are those conditions that are found directly within state and federal rules and the violation of which serves as grounds for enforcement action.

If the Compliance Determination Requirements are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also in Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

The compliance monitoring requirements applicable to this source are as follows:

| Control | Frequency | Monitoring |
|---|---|---|
| Dry Filters for P26B | Daily | Inspection shall be performed to verify the placement, integrity, and particle loading of the dry filters. |
| Dry Filters for P26B | Weekly | Observation shall be made of the over spray from the spray booth stack to monitor the performance of the dry filters. |
| Dry Filters for P26B | Monthly | Inspection shall be performed of the coating emissions from the stack and the presence of over spray on the rooftops and the nearby ground. |

**Proposed Changes**

The changes listed below have been made to Part 70 Operating Permit No. T 123-9234-00019. Deleted language appears as ~~strikethroughs~~ and new language appears in **bold**:

Change 1: The emission unit descriptions in Condition A.2 have been revised to reflect the addition of the new emission units and the modifications to existing 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 consists of the following emission units and pollution control devices:

...

Phase I

...

(d) ~~One (1)~~ **Two (2)** paint booth**s**, **one** identified as P26**A** , ~~approved for construction~~ **constructed** in 2007 **and modified in 2008**, **and one identified as P26B, approved for construction in 2008**, used to coat metal castings for rust protection, using spray guns with a **combined** maximum capacity of ~~five (5)~~ **16 (sixteen)** gallons per hour, using overspray filters for PM control **and** exhausting to stack**s** S26**A and S26B, respectively**.

...

Phase II

...

(c) Sand handling operations and ancillary operations, each constructed in 1998, consisting of the following:

....

(9) One (1) phenolic-urethane core sand handling system, identified as P42, **constructed in 1998 and modified in 2008,** with a maximum production capacity of ~~20~~ **32** tons of cores per hour. Particulate matter emissions are controlled by

one (1) baghouse system, identified as C08, that exhausts to Stack S08~~B~~;

...

**(d) One (1) autogrinder operation, to be constructed in 2008, identified as P87, with a maximum capacity of 22.5 tons of castings per hour, with emissions controlled by existing Baghouse C16 and exhausting to stack S16.**

Core Room Expansion **I**

(a) One (1) phenolic-urethane core sand handling system, identified as P46, ~~to begin construction~~ **constructed** in 2005 **and modified in 2008**, with a maximum production capacity of ~~45~~ **51** tons of cores per hour. Particulate matter emissions are controlled by one (1) baghouse, identified as C18 **and** exhausting ~~to Stack S18~~ **inside the building**;

...

**Core Room Expansion II**

**(a) one (1) phenolic-urethane core machine, identified as P45A, to be constructed in 2008, with a maximum capacity of 6 tons per hour, with emissions controlled by existing scrubber C14 and exhausting through stack S14;**

**(b) one (1) phenolic-urethane core machine, identified as P45B, to be constructed in 2008, with a maximum capacity of 6 tons per hour, with emissions controlled by existing scrubber C17 and exhausting through stack S17; and**

**(c) two (2) natural gas-fired core dry oven, to be constructed in 2008, identified as P48A and P48B, with a maximum capacity of 2.5 MMBtu/hr each, with emissions exhausting in to the building.**

…

Change 2: The limits for the autogrinder have been added as Conditions D.3.9 and D.3.10. The subsequent conditions in Section D.3 have been renumbered. Condition D.3.13 has also been modified. Finally, the headings of Conditions 3.1, 3.2, 3.3 3.14, and 3.15 have also been revised.

D.3.1 Particulate Matter ~~Emissions Limitations~~ **PSD BACT Limits** [326 IAC 2-2-3(a)(3)]

...

D.3.2 Lead ~~Emission Limitations~~ **PSD BACT Limits** [326 IAC 2-2-3(a)(3)] [326 IAC 2-4.1-1]

...

D.3.3 Beryllium ~~Emission Limitations~~ **PSD BACT Limits** [326 IAC 2-2-3(a)(3)] [326 IAC 2-4.1-1]

...

**D.3.9 PSD Minor Limit [326 IAC 2-2]**

**The PM and PM10 emissions from the autogrinder process exhausting tostack S18 shall not exceed 0.60 pounds per hour.**

**Compliance with these limits will limit the potential PM and PM10 emissions from the sand handling operations and the autogrinder to less than 25 and 15 tons per year and render the requirements of 326 IAC 2-2 not applicable to the sand handling operations and the autogrinder**.

**D.3.10 Particulate Emission Limitations for Manufacturing Processes [326 IAC 6-3-2]**

**Pursuant to 326 IAC 6-3-2, the particulate matter (PM) from the autogrinder operation identified as P87 shall not exceed 33.0 pounds per hour when operating at a process weight rate of 22.5 tons per hour. This limit was**

**calculated using the following equations:**

**Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:**

$$E = 4.10\ P^{0.67}$$

**where E = rate of emission in pounds per hour and**
**P = process weight rate in tons per hour**

D.3.~~9~~ **11** Preventive Maintenance Plan [326 IAC 2-7-5(13)]

...

D.3.~~10~~ **12** Testing Requirements [326 IAC 2-7-6(1),(6)] [326 IAC 2-1.1-11]

...

D.3.~~11~~ **13** Particulate Matter (PM/PM-10) [326 IAC 2-7-6(6)]

(a) Pursuant to CP-123-8451-00019, issued on February 4, 1998, and 326 IAC 2-2 (Prevention of Significant Deterioration (PSD) Rules), the PM, lead, and beryllium emissions shall be controlled by baghouses C15 (Stack S15), and C16 (Stack S16) at all times when the associated processes are in operation.

**(b) In order to comply with Conditions D.3.9 and D.3.10, the Baghouse C16 for particulate control shall be in operation and control emissions from the autogrinder identified as P87 at all times the autogrinder is in operation.**

~~(b)~~ **(c)** In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

D.3.~~12~~ **14** Visible Emission Notations **[40 CFR 64]**

...

D.3.~~13~~ **15** Baghouse Parametric Monitoring **[40 CFR 64]**

...

D.3.~~14~~ **16** Broken or Failed Bag Detection

...

D.3.~~15~~ **17** Record Keeping Requirement

...

Change 3: The facility description in Section D.4 has also been revised to reflect the increase in capacity of P42 and the new Core Room emission units.

SECTION D.4 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]
Facilities Exhausting to Stacks S08, S11, and S14
...

Phase II
(b) sand handling operations and ancillary operations, each constructed in 1998, consisting of the following:
...

(1) One (1) phenolic-urethane core sand handling system, identified as P42, **constructed in 1998 and modified in 2008,** with a maximum production capacity of ~~26~~ **32** tons of cores per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C08, that exhausts to Stack S08;
...

**Core Room Expansion II**

**(a) one (1) phenolic-urethane core machine, identified as P45A, to be constructed in 2008, with a maximum capacity of 6 tons per hour, with emissions controlled by existing scrubber C14 and exhausting through stack S14;**

**(b) one (1) phenolic-urethane core machine, identified as P45B, to be constructed in 2008, with a maximum capacity of 6 tons per hour, with emissions controlled by existing scrubber C17 and exhausting through stack S17; and**

**(c) two (2) natural gas-fired core dry oven, to be constructed in 2008, identified as P48A and P48B, with a maximum capacity of 2.5 MMBtu/hr each, and with emissions exhausting in to the building.**

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

Change 4: Condition D.4.2 has been modified to include the new emission limits for P45A and P45B. A new Condition D.4.3 has also been added to the permit. Subsequent conditions have been renumbered.

D.4.2 VOC **BACT Limits** ~~Emissions Limitations~~ [326 IAC 2-2-3(a)(3)] [326 IAC 8-1-6]

Pursuant to CP-123-4593-00019, issued on January 19, 1996, CP-123-8451-00019, issued on February 4, 1998, SSM 123-12948-00019, issued on June 5, 2001, ~~and~~ SSM 123-16456, issued on May 13, 2003, **and SSM 123-26878-00019, issued in 2008,** 326 IAC 8-1-6 (BACT), and 326 IAC 2-2-3(a)(3) (Prevention of Significant Deterioration (PSD) Rules), the Permittee shall comply with the following requirements:

....

(g) The total VOC emissions (including DMIPA) from the mixers and core machines identified as P43 shall not exceed ~~0.36~~ **0.4** pound per ton of cores.

(h) The scrubber controlling the DMIPA emissions from the core machines identified as P43, ~~and~~ P44**, P45A, and P45B** shall maintain a 100% capture of the DMIPA emissions, using a permanent total enclosure that complies with the requirements of 40 CFR Part 51, Appendix M, Method 24. The scrubber shall achieve at least 98% overall control efficiency of the DMIPA.

(i) The DMIPA emissions from the scrubber controlling the core machines identified as P43 and P44 shall not exceed 0.04 pound per ton of cores and 1.04 pounds per hour. Compliance with limit is also necessary to render the requirements of 326 IAC 2-4.1-1 (New Source Toxics Control) not applicable.

**(j) The DMIPA emissions from the scrubber controlling the core machines Identified as P45A and P45B shall not exceed 0.04 pound per ton of cores and 0.24 pounds per hour.**

~~(j)~~ **(k)** The Permittee shall only use dimethylisopropylamine (DMIPA) as a catalyst for the core machines identified as P43 ~~and~~ P44**, P45A, and P45B**.

**D.4.3 Particulate Emission Limitations for Manufacturing Processes [326 IAC 6-3-2]**

**Pursuant to 326 IAC 6-3-2, the particulate matter (PM) from the sand handling operation identified as P42 shall not exceed 40.5 pounds per hour when operating at a process weight rate of 32 tons per hour. This limit was calculated using the following equations:**

**Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:**

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

...

Change 5: The facility description in Section D.7 has also been revised to reflect the increased capacity of P46. Condition D.7.3 has also been updated.

SECTION D.7 FACILITY OPERATION CONDITIONS

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

Core Room Expansion **I**

(a) One (1) phenolic-urethane core sand handling system, identified as P46~~, to begin construction~~ **constructed** in 2005 **and modified in 2008**, with a maximum production capacity of ~~45~~ **51** tons of cores per hour. Particulate matter emissions are controlled by one (1) baghouse, identified as C18 **and** exhausting ~~to Stack S18~~ **inside the building**;

(b) One (1) phenolic-urethane core making process, identified as P47, to begin construction in 2005, consisting of 3 mixers and 3 core machines, each with a maximum capacity of 15 tons per hour. DMIPA catalyst emissions are controlled by one (1) packed bed scrubber, identified as C17. The gases are then exhausted to Stack S17;

(c) Three (3) natural gas-fired core drying ovens and natural gas-fired air make-up units, identified as P48, to begin construction in 2005, with the core drying ovens having a combined maximum heat input capacity of 9.0 MMBtu per hour and the air make-up units having a combined maximum heat input capacity of 3.2 MMBtu per hour, exhausting inside the building.

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

...

D.7.3 Particulate [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the allowable particulate emission rate from the core sand handling system (P46) shall not exceed ~~43.6~~ **44.8** pounds per hour when operating at a process weight rate of ~~45~~ **51** tons per hour. The pounds per hour limitation was calculated using the following equation:

Interpolation and extrapolation of the data for the process weight rate in excess of 60,000 pounds per hour shall be accomplished by use of the equation:

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

...

Change 6: Since baghouse C18 will vent indoors, Conditions 7.10 and 7.13(e) have been removed. The subsequent conditions have been renumbered.

~~D.7.10 Visible Emissions Notations~~

~~(a) Visible emission notations of the baghouse C18 stack exhaust shall be performed once per day during normal daylight operations when exhausting to the atmosphere. 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, eighty percent (80%) of the time 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) If abnormal emissions are observed, the Permittee shall take reasonable response steps in accordance with Section C- Response to Excursions or Exceedances. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances shall be considered a deviation from this permit.~~

D.7.~~11~~ **10** Parametric Monitoring

...

D.7.~~12~~ **11** Broken or Failed Bag Detection

...

D.7.~~13~~ **12** Record Keeping Requirements

...

~~(e) To document compliance with Condition D.7.10 the Permittee shall maintain records of visible emission notations of the baghouse stack exhaust once per day. The Permittee shall include in its daily record when a visible emission notation is not taken and the reason for the lack of visible emission notation (e.g. the process did not operate that day).~~

~~(f)~~ **(e)** To document compliance with Condition D.7.11 the Permittee shall maintain records of the pressure drop across the baghouse once per day. The Permittee shall include in its daily record when a pressure drop reading is not taken and the reason for the lack of pressure drop reading (e.g. the process did not operate that day).

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

...

D.7.~~14~~ **13** Reporting Requirements

...

Change 7: The emission unit description in Section D.8 has be revised to reflect the modification to P26.

**SECTION D.8 FACILITY OPERATION CONDITIONS**

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

(a) ~~One (1)~~ **Two (2)** paint booth**s**, **one** identified as P26**A** ~~approved for construction~~ **constructed** in 2007**and modified in 2008**, **and one identified as P26B approved for construction in 2008,** used to coat metal castings for rust protection, using spray guns with a **combined** maximum capacity of ~~five (5)~~ **sixteen (16)** gallons per hour, using overspray filters for PM control **and** exhausting to stack**s** S26**A and S26B, respectively**.

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

Change 8: Conditions D.8.1, D.8.6(b), and D.8.7 have been added to reflect the new annual VOC limit for paint booths P26A and P26B. The other conditions in Section D.8 have been renumbered.

**D.8.1 PSD Minor Limit [326 IAC 2-2]**

**(a) The VOC emissions from the paint booths P26A and P26B shall not exceed 1.4 pounds of VOC per gallon of paint used.**

**(b) The paint input to booths P26A and P26B shall not exceed 25,000 gallons of paint per twelve (12) consecutive month period.**

**Compliance with the above limits in addition to the limits in Condition D.4.2 (h) and (j) shall limit the VOC emissions for this modification to less than 40 tons per year and render the requirements of 326 IAC 2-2 to the 2008 modification.**

D.8.~~1~~ **2** Volatile Organic Compound (VOC) [326 IAC 8-2-9]

...

D.8.~~2~~ **3** Particulate [326 IAC 6-3-2(d)]

Pursuant to 326 IAC 6-3-2(d), particulate from paint booth**s** P26**A and P26B** shall be controlled by a dry particulate filter, and the Permittee shall operate the control device in accordance with manufacturer's specifications.

D.8.~~3~~ **4** Volatile Organic Compounds

...

~~D.8.4~~ **D.8.5** Particulate Monitoring

(a) Daily inspections shall be performed to verify the placement, integrity and particle loading of the filters. To monitor the performance of the dry filters, weekly observations shall be made of the overspray from the surface coating booth stack**s** S26**A and S26B** while the booth is operation. If a condition exists which should result in a response step, the Permittee shall take reasonable response steps in accordance with Section C - Response to Excursions or Exceedances. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances, shall be considered a deviation from this permit.

...

D.8.~~5~~ **6** Record Keeping Requirements

(a) To document compliance with Condition**s** 8.1 **and 8.2**, the Permittee shall maintain records of the VOC content of each coating material and solvent used. Records shall include purchase orders, invoices, and material safety data sheets (MSDS) necessary to verify the type and amount used.

**(b) To document compliance with Condition 8.1.1, the Permittee shall maintain a record of the amount of paint used per twelve consecutive month period.**

...

**D.8.7 Reporting Requirements**

**A quarterly summary of the information to document compliance with Condition D.8.1 shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).**

...

Change 9: The emission unit descriptions in Section E.1 have also been updated.

SECTION E.1 FACILITY OPERATION CONDITIONS

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

Phase II
...

(c) Sand handling operations and ancillary operations, each constructed in 1998, consisting of the following:
...

(9) One (1) phenolic-urethane core sand handling system, identified as P42, **constructed in 1998 and modified in 2008,** with a maximum production capacity of ~~20~~ **32** tons of cores per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C08, that exhausts to Stack S08~~B~~;
...

Core Room Expansion

(a) One (1) phenolic-urethane core sand handling system, identified as P46, ~~to begin construction~~ **constructed** in 2005 **and modified in 2008**, with a maximum production capacity of ~~45~~ **51** tons of cores per hour. Particulate matter emissions are controlled by one (1) baghouse, identified as C18, **and** exhausting ~~to Stack S18~~ **inside the building**;
...

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

Change 10: A reporting form has been added to the end of the permit due to the new limit for the paint booth operations.

**COMPLIANCE DATA SECTION**

**Part 70 Quarterly Report**

**Source Name:** **ThyssenKrupp Waupaca, Inc. Plant 5**
**Source Address:** **9856 State Highway 66, Tell City, IN 47586**
**Mailing Address:** **P.O. Box 189, Tell City, IN 47586**
**Part 70 Permit No.:** **T123-9234-00019**
**Facility:** **Paint Booths identified as P26A and P26B**
**Parameter:** **VOC emissions**
**Limit:** **The total paint input from Paint Booths P26A and P26B shall not exceed 25,000 gallons per consecutive 12 month period with compliance determined at the end of each month.**

**YEAR:**

| Month | Column 1 | Column 2 | Column 1 + Column 2 |
|---|---|---|---|
| | Paint Input This Month (gallons) | Paint Input Previous 11 Months (gallons) | 12 Month Total of Paint Input (gallons) |
| Month 1 | | | |
| Month 2 | | | |
| Month 3 | | | |

☐ **No deviation occurred in this quarter.**

☐ **Deviation/s occurred in this quarter.**
**Deviation has been reported on:**

**Submitted by:**
**Title / Position:**
**Signature:**
**Date:**
**Phone:**

**Attach a signed certification to complete this report.**

**Conclusion and Recommendation**

The construction and operation of this proposed modification shall be subject to the conditions of the attached proposed Part 70 Significant Source Modification No. 123-26878-00019 and Significant Permit Modification No. 123-26979-00002. The staff recommends to the Commissioner that this Part 70 Significant Source and Significant Permit Modification be approved.

**Appendix A: Emissions Calculations**

**Emission Summary**

**Source Name:** ThyssenKruup Waupaca, Inc. Plant 5
**Source Location:** 9856 State Highway 66, Tell City, IN 47586
**Permit Number:** SSM123-26878-00019
**Permit Reviewer:** Josiah Balogun
**Date:** 14-Oct-08

**Uncontrolled Potential Emissions**

| | PM (tons/yr) | $PM_{10}$ (tons/yr) | $SO_2$ (tons/yr) | VOC (tons/yr) | CO (tons/yr) | NOx (tons/yr) | HAPs (tons/yr) |
|---|---|---|---|---|---|---|---|
| **Emission Unit** | | | | | | | |
| Core Machine - P45A | 0 | 0 | 0 | 218.6 | 0 | 0 | 0 |
| Core Machine - P45B | 0 | 0 | 0 | 218.6 | 0 | 0 | 0 |
| Sand Mixing Handling P42 | 91.1 | 91.1 | 0 | 0 | 0 | 0 | 0 |
| Sand Mixing Handling P46 | 145.2 | 145.2 | 0 | 0 | 0 | 0 | 0 |
| Spray Booth P25 | 119.14 | 119.14 | 0 | 98.1 | 0 | 0 | 0 |
| Autogrinder P87 | >100 | >100 | 0 | 0 | 0 | 0 | 0.004 |
| Core Ovens P48A and P48B | 0.04 | 0.2 | 0 | 0.1 | 1.8 | 2.2 | 0.04 |
| Total Emissions | 355.5 | 355.6 | 0 | 535.4 | 1.8 | 2.2 | Single HAP <10 Combined HAPs < 25 |

Note: The autogrinder emissions are supplied by the source.

**Appendix A: Emissions Calculations**

**Emission Summary**

**Source Name:** ThyssenKruup Waupaca, Inc. Plant 5
**Source Location:** 9856 State Highway 66, Tell City, IN 47586
**Permit Number:** SSM123-26878-00019
**Permit Reviewer:** Josiah Balogun
**Date:** 14-Oct-08

**Limited Potential Emissions**

| | PM (tons/yr) | $PM_{10}$ (tons/yr) | $SO_2$ (tons/yr) | VOC (tons/yr) | CO (tons/yr) | NOx (tons/yr) | HAPs (tons/yr) |
|---|---|---|---|---|---|---|---|
| **Emission Unit** | | | | | | | |
| Core Machine - P45A | 0 | 0 | 0 | 10.51 | 0 | 0 | 0 |
| Core Machine - P45B | 0 | 0 | 0 | 10.51 | 0 | 0 | 0 |
| Sand Mixing Handling P42 | 2.63 | 2.63 | 0 | 0 | 0 | 0 | 0 |
| Sand Mixing Handling P46 | 2.63 | 2.63 | 0 | 0 | 0 | 0 | 0 |
| Spray Booth P25 | 1.1 | 1.1 | 0 | 17.5 | 0 | 0 | 0 |
| Autogrinder P87 | 2.63 | 2.63 | 0 | 0 | 0 | 0 | 0.004 |
| Core Ovens P48A and P48B | 0.04 | 0.2 | 0 | 0.1 | 1.8 | 2.2 | 0.04 |
| Total Emissions | 9.0 | 9.2 | 0 | 38.62 | 1.8 | 2.2 | Single HAP <10 Combined HAPs < 25 |

Note: The autogrinder emissions are supplied by the source.

**Appendix A: Emission Calculations**
**Core Machine P45A**

**Company Name:** ThyssenKruup Waupaca, Inc. Plant 5
**Plant Location:** 9856 State Highway 66, Tell City, IN 47586
**Permit Number** SSM123-26878-00019
**Permit Reviewer:** Josiah Balogun
**Date** 14-Oct-08

| Process | Rate (tons/hr) | Pollutant | Ef (lb/ton) | Ebc (tons/yr) | Eac (tons/yr) | Type of Control | Control Efficiency (%) |
|---|---|---|---|---|---|---|---|
| Core machine P45A | 6 | VOC | 2.36 | 62.02 | | | |
| | | | | | | | |
| Catalyst (DMIPA) | | VOC | 2.00 | 52.56 | 1.05 | Scrubber | 98.00% |
| | | | | | | | |
| Resin | | VOC | 0.36 | 9.46 | | | |
| | | | | | | | |
| Resin (Core Machine) | | VOC | 0.31 | 8.15 | | | |
| | | | | | | | |
| Resin (Mixer) | | VOC | 0.05 | 1.31 | | | |

Methodology

Uncontrolled Emissions = Capacity (tons/hr)*Emission Factor (lb/ton)*8760hrs/yr *1ton/2000lb

Controlled Emissions = Uncontrolled Emissions*(1- Control Efficiency)

**Appendix A: Emission Calculations**
**Core Machine P45B**
**Company Name:** ThyssenKruup Waupaca, Inc. Plant 5
**Plant Location:** 9856 State Highway 66, Tell City, IN 47586
**Permit Number** SSM123-26878-00019
**Permit Reviewer:** Josiah Balogun
**Date** 14-Oct-08

| Process | Rate (tons/hr) | Pollutant | Ef (lb/ton) | Ebc (tons/yr) | Eac (tons/yr) | Type of Control | Control Efficiency (%) |
|---|---|---|---|---|---|---|---|
| Core machine P45A | 6 | VOC | 2.36 | 62.02 | 62.02 | | |
| | | | | | | | |
| Catalyst (DMIPA) | | VOC | 2 | 52.56 | 1.05 | Scrubber | 98.00% |
| | | | | | | | |
| Resin | | VOC | 0.36 | 9.46 | 9.46 | | |
| | | | | | | | |
| Resin (Core Machine) | | VOC | 0.31 | 8.15 | 8.15 | | |
| | | | | | | | |
| Resin (Mixer) | | VOC | 0.05 | 1.31 | 1.31 | | |

Methodology

Uncontrolled Emissions = Capacity (tons/hr)*Emission Factor (lb/ton)*8760hrs/yr *1ton/2000lb

Controlled Emissions = Uncontrolled Emissions*(1- Control Efficiency)

**Appendix A: Emission Calculations**
**Sand Mixing Handling P42**
**Company Name:** ThyssenKruup Waupaca, Inc. Plant 5
**Plant Location:** 9856 State Highway 66, Tell City, IN 47586
**Permit Number** SSM123-26878-00019
**Permit Reviewer:** Josiah Balogun
**Date** 14-Oct-08

| Process | Rate (tons/hr) | Pollutant | Ef (lb/ton) | Ebc (tons/yr) | Eac (tons/yr) | Type of Control | Control Efficiency (%) |
|---|---|---|---|---|---|---|---|
| Sand Mixing Handling P42 | 32.0 | PM | 0.65 | 91.10 | 91.1 | None | None |
| | | PM-10 | 0.65 | 91.10 | 91.1 | None | None |
| | | SO2 | 0.00 | 0.00 | 0.00 | None | None |
| | | NOx | 0.00 | 0.00 | 0.00 | None | None |
| | | VOC | 0.00 | 0.00 | 0.00 | None | None |
| | | CO | 0.00 | 0.00 | 0.00 | None | None |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |

Methodology

Uncontrolled Emissions = Capacity (tons/hr)*Emission Factor (lb/ton)*8760hrs/yr *1ton/2000lb

Controlled Emissions = Uncontrolled Emissions*(1- Control Efficiency)

**Appendix A: Emission Calculations**
**Sand Mixing Handling P46**
**Company Name:** ThyssenKruup Waupaca, Inc. Plant 5
**Plant Location:** 9856 State Highway 66, Tell City, IN 47586
**Permit Number** SSM123-26878-00019
**Permit Reviewer:** Josiah Balogun
**Date** 14-Oct-08

| Process | Rate (tons billets/hr) | Pollutant | Ef (lb/ton produced) | Ebc (tons/yr) | Eac (tons/yr) | Type of Control | Control Efficiency (%) |
|---|---|---|---|---|---|---|---|
| Sand Mixing Handling P46 | 51.0 | PM | 0.65 | 145.20 | 145.20 | None | None |
| | | PM-10 | 0.65 | 145.20 | 145.20 | None | None |
| | | SO2 | 0 | 0.00 | 0.00 | None | None |
| | | NOx | 0 | 0.00 | 0.00 | None | None |
| | | VOC | 0 | 0.00 | 0.00 | None | None |
| | | CO | 0 | 0.00 | 0.00 | None | None |

Methodology

Uncontrolled Emissions = Capacity (tons/hr)*Emission Factor (lb/ton)*8760hrs/yr *1ton/2000lb

Controlled Emissions = Uncontrolled Emissions*(1- Control Efficiency)

**Appendix A: Emission Calculations**
**Spray Booths P26**
**Company Name:** ThyssenKruup Waupaca, Inc. Plant 5
**Plant Location:** 9856 State Highway 66, Tell City, IN 47586
**Permit Number** SSM123-26878-00019
**Permit Reviewer:** Josiah Balogun
**Date** 14-Oct-08

| Process | Rate (gal/hr) | Pollutant | Ef (lbs/gal) | Ebc (tons/yr) | Eac (tons/yr) | Type of Control | Control Efficiency (%) |
|---|---|---|---|---|---|---|---|
| Two Spray booths | 16.0 | PM | 1.70 | 119.14 | 5.96 | Dry filter | 95.00% |
| | | PM-10 | 1.70 | 119.14 | 5.96 | | 95.00% |
| | | SO2 | 0.00 | 0.00 | 0.00 | None | None |
| | | NOx | 0.00 | 0.00 | 0.00 | None | None |
| | | VOC | 1.40 | 98.11 | 98.11 | None | None |
| | | CO | 0.00 | 0.00 | 0.00 | None | None |

Methodology

Uncontrolled Emissions = Capacity (tons/hr)*Emission Factor (lb/ton)*8760hrs/yr *1ton/2000lb

Controlled Emissions = Uncontrolled Emissions*(1- Control Efficiency)

**References:**

A - Proposed catalyst usage for dimethylisopropylamine (DMIPA)
B - Resin VOC loss measurements by Ashland Chemical using OCMA Method on Sigmacure 305/705 resin.
C - Estimated resin VOC loss distribution of 15% from mixing and 85% from core machine.
D - PM emissions based on 0.005 gr/acf outlet loading from baghouse.
E - USEPA, Compilation of Air Pollutant Emission Factors, Table 1.4-1 & 1.4-2, July, 1998
F - PM emission factor for spray booth based on 4.85 lbs solids/gal and 65% transfer efficiency.

**Appendix A: Emissions Calculations**
**Natural Gas Combustion Only**
**MM BTU/HR <100**
**Core Ovens P48A and P48B**

**Company Name:** ThyssenKruup Waupaca, Inc. Plant 5
**Address City IN Zip:** 9856 State Highway 66, Tell City, IN 47586
**Permit Number:** SSM123-26878-00019
**Reviewer:** Josiah Balogun
**Date:** 14-Oct-08

| Heat Input Capacity MMBtu/hr | Potential Throughput MMCF/yr |
|---|---|
| 5.0 | 43.8 |

| | Pollutant | | | | | |
|---|---|---|---|---|---|---|
| | PM* | PM10* | SO2 | NOx | VOC | CO |
| Emission Factor in lb/MMCF | 1.9 | 7.6 | 0.6 | 100.0 **see below | 5.5 | 84.0 |
| Potential Emission in tons/yr | 0.04 | 0.2 | 0.0 | 2.2 | 0.1 | 1.8 |

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

**Methodology**

All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

See page 9 for HAPs emissions calculations.

**Appendix A: Emissions Calculations**
**Natural Gas Combustion Only**
**MM BTU/HR <100**
**Core Ovens P48A and P48B**
**HAPs Emissions**

**Company Name:** ThyssenKruup Waupaca, Inc. Plant 5
**Address City IN Zip:** 9856 State Highway 66, Tell City, IN 47586
**Permit Number:** SSM123-26878-00019
**Reviewer:** Josiah Balogun
**Date:** 14-Oct-08

| | HAPs - Organics | | | | |
|---|---|---|---|---|---|
| | Benzene | Dichlorobenzene | Formaldehyde | Hexane | Toluene |
| Emission Factor in lb/MMcf | 2.1E-03 | 1.2E-03 | 7.5E-02 | 1.8E+00 | 3.4E-03 |
| Potential Emission in tons/yr | 4.599E-05 | 2.628E-05 | 1.643E-03 | 3.942E-02 | 7.446E-05 |

| | HAPs - Metals | | | | |
|---|---|---|---|---|---|
| | Lead | Cadmium | Chromium | Manganese | Nickel |
| Emission Factor in lb/MMcf | 5.0E-04 | 1.1E-03 | 1.4E-03 | 3.8E-04 | 2.1E-03 |
| Potential Emission in tons/yr | 1.095E-05 | 2.409E-05 | 3.066E-05 | 8.322E-06 | 4.599E-05 |

Methodology is the same as page 8.

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

# Indiana Department of Environmental Management
# Office of Air Quality

Appendix B – BACT Analyses
Technical Support Document (TSD)
Significant Source Modification (SSM) of a Part 70 Source
Significant Permit Modification (SPM) of Part 70 Operating Permit

## Source Background and Description

| | |
|---|---|
| Source Name: | **ThyssenKrupp Waupaca, Inc. Plant 5** |
| Source Location: | **9856 State Highway 66, Tell City, IN 47586** |
| County: | **Perry** |
| SIC Code: | **3321** |
| Operation Permit No.: | **T 123-9234-00019** |
| Operation Permit Issuance Date: | **June 29, 2004** |
| Significant Source Modification No.: | **SSM 123-26878-00019** |
| Significant Permit Modification No.: | **SPM 123-26979-00019** |
| Permit Reviewer: | **Josiah Balogun** |

## Proposed Expansion

On August 15, 2008, the Office of Air Quality (OAQ) received an application from ThyssenKrupp Waupaca, Inc Plant 5 for the construction of two (2) new Core Machines and two (2) new natural gas-fired core ovens and the modification of existing core sand mixing and handling operations and existing spray painting operation, located at 9856 State Highway 66, Tell City, Indiana.

## Requirement for Best Available Control Technology (BACT)

The requirements of 326 IAC 8-1-6 (New Facilities, General Reduction Requirements) applies to facilities located anywhere in the state that were constructed on or after January 1, 1980, which have potential volatile organic compounds (VOC) emissions greater than 25 tons per year, and which are not otherwise regulated by other provisions of 326 IAC 8 rule, and requires the reduction of VOC emissions using Best Available Control Technology (BACT). The proposed two (2) phenolic-urethane core machines, identified as P45A and P45B, have potential VOC emissions of greater than 25 tons per year and is therefore subject to this rule.

326 IAC 8-1-6 requires a best available control technology (BACT) review to be performed on the proposed modification for the following emission units:

(a) one (1) phenolic-urethane core machine, identified as P45A, to be constructed in 2008, with a maximum capacity of 6 tons per hour, with emissions controlled by existing scrubber C14 and exhausting through stack S14; and

(b) one (1) phenolic-urethane core machine, identified as P45B, to be constructed in 2008, with a maximum capacity of 6 tons per hour, with emissions controlled by existing scrubber C17 and exhausting through stack S17.

## Summary of the Best Available Control Technology (BACT) Process

BACT is a mass emission limitation based on the maximum degree of pollution reduction of emissions, which is achievable on a case-by-case basis. 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.

Federal guidance on BACT requires an evaluation that follows a "top down" process. IDEM has adopted this process for BACT analysis required under 326 IAC 8-1-6. In this approach, the applicant identifies the best-controlled similar source on the basis of controls required by regulation or permit, or controls achieved in practice. The highest level of control is then evaluated for technical feasibility.

The five (5) basic steps of a top-down BACT analysis are listed below:

*Step 1: Identify Potential Control Technologies*

The first step is to identify potentially "available" control options for each emission unit and for each pollutant under review. Available options should consist of a comprehensive list of those technologies with a potentially practical application to the emissions unit in question. The list should include lowest achievable emission rate (LAER) technologies, innovative technologies, and controls applied to similar source categories.

*Step 2: Eliminate Technically Infeasible Options*

The second step is to eliminate technically infeasible options from further consideration. To be considered feasible, a technology must be both available and applicable. It is important in this step that any presentation of a technical argument for eliminating a technology from further consideration be clearly documented based on physical, chemical, engineering, and source-specific factors related to safe and successful use of the controls. Innovative control means a control that has not been demonstrated in a commercial application on similar units. Only available and proven control technologies are evaluated. A control technology is considered available when there are sufficient data indicating that the technology results in a reduction in emissions of regulated pollutants.

*Step 3: Rank the Remaining Control Technologies by Control Effectiveness*

The third step is to rank the technologies not eliminated in Step 2 in order of descending control effectiveness for each pollutant of concern. 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. If the highest ranked technology is proposed as BACT, it is not necessary to perform any further technical or economic evaluation, except for the environmental analyses.

*Step 4: Evaluate the Most Effective Controls and Document the Results*

The fourth step entails an evaluation of energy, environmental, and economic impacts for determining a final level of control. The evaluation begins with the most stringent control option and continues until a technology under consideration cannot be eliminated based on adverse energy, environmental, or economic impacts.

*Step 5: Select BACT*

The fifth and final step is to select as BACT the most effective of the remaining technologies under consideration for each pollutant of concern. For the technologies determined to be feasible, 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. BACT must, at a minimum, be no less stringent than the level of control required by any applicable New Source Performance Standard (NSPS) and National Emissions Standard for Hazardous Air Pollutants (NESHAP) or state regulatory standards applicable to the emission units included in the permits.

## Volatile Organic Compounds (VOC) BACT – Core Machines

*Step 1: Identify Potential Control Technologies*

The emissions of VOC are generally controlled by the following control devices.

(1) Refrigeration

(2) Carbon adsorption;

(3) Regenerative Incineration; and

(4) Packed bed scrubber system.

*Step 2: Eliminate Technically Infeasible Options*

**Refrigeration**

Refrigeration, condensation, and cryogenic systems remove organic vapor by making them condense on cold surfaces. There are no foundries known to be using refrigeration for the control of VOC emissions from core making operations. In its *OAQPS Cost Control Manual,* USEPA states that: *refrigerated condensers are used as air pollution control devices for treating emission streams with high VOC, concentrations (usually > 5,000 ppmv) in applications involving gasoline bulk terminals, storage, etc.* USEPA also suggests that refrigeration is applicable to high VOC concentrations (i.e. > 500 ppm) where there are three or less VOC constituents to be recovered.

The DMIPA catalyst represents approximately 85% of the uncontrolled VOC emissions, (i.e. 2 lbs/ton / 2.36 lbs/ton = 85%). Its molecular weight is 87.2. The estimated uncontrolled VOC concentration in the exhaust gas from the sand and resin mixing operations is 2 ppm. The estimated uncontrolled VOC concentration in the exhaust gas from the core machines is 28 ppm. The uncontrolled VOC emissions are actually a mixture of the DMIPA catalyst and other VOC evaporated from the core making resins. As a result, the catalyst recovered through refrigeration could not be reused.

Due to the low VOC concentration and the inability to reuse the recovered catalyst, refrigeration is not considered a technically feasible control alternative and is eliminated from further consideration for either the core mixing or core machine operations.

### Carbon Adsorption

With adsorption, the exhaust gases pass through a bed of activated carbon, zeolite, or organic polymer where the VOC adsorb weakly onto the surfaces of the adsorbent and are later desorbed. There are no foundries known to be using carbon adsorption for the control of VOC emissions from core making operations. This control alternative is considered unproven for this application.

During evaluation of carbon adsorption for the core room project at Plant 5 in 2001, a representative of Calgon Carbon concluded that the VOC emitted from core making operations could be captured by a carbon adsorption system (April 16, 2001 email from Craig Nitchman - Calgon Carbon to S. Klafka - Wingra Engineering, S.C). Though this technology has not been proven for this application, to be conservative, it will be considered technically feasible for this BACT analysis.

### Packed Bed Scrubber

A packed bed scrubber is composed of one or more beds of packing material, which is coated with scrubbing liquid flowing downward over the packing. Scrubbers are currently used at Plant 5 and many other foundries to control the catalyst emissions from core machines. Scrubbers have been shown to be a reliable and demonstrated control method in the foundry industry. An advantage of using a scrubber is the ability to recover and recycle the catalyst used in the core making process. The scrubber uses a sulfuric acid solution to capture the spent catalyst, which can be recovered offsite.

The disadvantage associated with the use of scrubbers is that only the catalyst emissions are controlled. Scrubbers are not designed to control the other VOC emissions emitted from the evaporation of VOC during the mixing, handling and storage of binder resins. For this reason, the scrubber system is not a technically viable option for controlling the VOC emissions generated by the core mixing operations or the resin evaporation emissions that occur at the core machines.

It is assumed that a packed bed scrubber would be capable of controlling 98% of the DMIPA catalyst. Overall VOC control efficiency based on no control of the evaporative VOC emissions from the resin is 85%.

On April 22, 2004, USEPA promulgated the Maximum Available Control Technology or MACT regulations for the control of hazardous air pollutants from iron and steel foundries under 40 CFR Part 63 Subpart EEEEE–National Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries. Under the new MACT regulations, a packed bed scrubber is the control technology when TEA is used as a catalyst for core making operations. The DMIPA catalyst proposed for this project is not regulated under MACT. However, it is proposed that the same control method required as MACT will be used to control catalyst emissions.

### Regenerative Incineration (RTO)

In a thermal oxidizer or incinerator, the exhaust gases are heated to temperatures several hundred degrees Fahrenheit above the auto-ignition temperatures of the VOC that need to be oxidized. Incinerator types include recuperative, catalytic and regenerative. While use of incineration to control foundry VOC emissions is limited, one core making operation has been identified which has used incineration for the control of core machine VOC emissions. Wheland Foundry in Chattanooga, Tennessee received an air quality permit in November 1998 requiring a regenerative thermal oxidizer (RTO) system to control 98% of the VOC emissions from the core machines. Wheland has since closed. The core machines and RTO were operated and found in compliance with the overall VOC limit based on a stack test conducted on July 31, 2000. The VOC destruction efficiency was measured at 99.2%. Since this technology has been

demonstrated to be effective for controlling VOC emissions from core machines at another iron foundry, it is considered to be technically feasible.

It is assumed that an RTO would be capable of controlling 98% of the VOC emissions, including those from the catalyst and resin. This is the efficiency requirement approved for Wheland. Use of an RTO is considered a feasible control alternative for both the core mixing and core machine operations.

*Step 3: Rank the Remaining Control Technologies by Control Effectiveness*

The former Wheland Foundry has demonstrated that the use of a RTO to control at least 98% of the core machine VOC emissions is technically feasible. Therefore, an RTO is considered the most effective add-on control. Carbon adsorption is also expected to control 98% of all of the VOC in the gas stream. While most of the VOC will be DMIPA, not all the resin VOC constituents are known, so the adsorption efficiency could potentially be less if some constituents are difficult to capture. A scrubber is expected to control 98% of the catalyst emissions, none of the resin VOC, and 85% of the total VOC exhausted through the core machine. For all three control alternatives, it is assumed that the VOC emissions will be captured by 100%.

The following table ranks the viable control options for the core mixing and core machine operations:

| **Ranking of Control Options** | | | | | |
|---|---|---|---|---|---|
| Rank | Control Device | Core Mixing Operations Control Efficiency (%) | | Core Machine Operations Control Efficiency (%) | |
| | | DMIPA | Total VOC | DMIPA | Total VOC |
| 1 | RTO | 98 | 98 | 98 | 98 |
| 2 | Carbon Adsorption | 98 | 98 | 98 | 98 |
| 3 | Packed Bed Scrubber | 0 | 0 | 98 | 85 |

*Step 4: Evaluate the Most Effective Controls and Document the Results*

The following table lists the proposed VOC BACT determination along with the existing VOC BACT determinations for Core Machines. The table below summarizes these BACT determinations for iron foundries in the United States, as provided by the RBLC and other IDEM permits.

| **Table 1: Existing VOC BACT Limits – Core Machines** | | |
|---|---|---|
| **Company Name / Operation** | **VOC Limit** | **Control Technology** |
| **PROPOSAL** | | |
| ***ThyssenKrupp Waupaca, Inc*** – ***Tell City***, IN<br>(Proposed permit 123-26878-00019)<br>Two (2) core machines (P45A & P45B)<br>Capacity 6 tons per hour<br>(Proposed date 2008) | VOC emissions (including DMIPA) is 0.4 lbs/ton of core.<br><br>Catalyst (DMIPA) emissions from scrubber controlling P45A and P45B shall not exceed 0.04 lbs/ton of cores and 0.24 lbs/hr each. | Acid scrubber for control of catalyst emissions with 98% overall control efficiency for catalyst emissions from core machines |

| **Table 1: Existing VOC BACT Limits – Core Machines** | | |
|---|---|---|
| **Company Name / Operation** | **VOC Limit** | **Control Technology** |
| **COMPARABLE BACT DETERMINATIONS (List in Top-Down Order by Control Efficiency)** | | |
| ThyssenKrupp Waupaca, Inc. Plant 5 – Tell City, IN<br>(permit 123-21238-00019, issued 12/22/2005)<br>Core machines and mixers<br>Capacity 45 tons/hr | Core Machine: 15.6 lbs/hr<br>(0.35 lbs/ton of core)<br><br>Core Mixing: 2.43 lbs/hr<br>(0.05 lbs/ton of core) | Acid scrubber for control of catalyst emissions with 98% overall control efficiency for catalyst emissions from core machines. Core mixing has no control. |
| Grede Foundries, Inc – Iron Mountain, MI<br>12 Core machines<br>73,320 tons/yr of cores<br>Permit issued 11/25/2004) | VOC emissions limited to 4.8 lbs/hr and 21.02 tons/yr.<br>(2.7 lbs/ton of core) | Acid scrubber for control of VOC emissions from core machines. |
| Ardmore, Inc – Ardmore, OK<br>2 Core machines<br>permit issued 09/04/2001 | VOC emissions limited to 8.68 lbs/hr and 3.40 tons/yr | Acid scrubber for control of VOC emissions from core machines. |
| ThyssenKrupp Waupaca, Inc. Plant 6 – Etowah, TN<br>Capacity: 20 tons/hour of core<br>Core machines<br>Permit issued 08/24/2001 | VOC emissions limited to 15.06 lbs/hr and 5.5 tons/month<br>(0.753 lbs/ton of core) | Acid scrubber for control of VOC emissions from core machines. |
| ThyssenKrupp Waupaca, Inc. Plant 5 – Tell City, IN<br>(permit 123-212948-00019, issued 6/5/2001)<br>Core machines and mixers<br>Capacity: 3 tons/hr | Core Machine: 0.36 lbs/hr<br>(0.06 lbs TEA/ton of core)<br><br>Core Mixing: 0.324 lbs/hr<br>(0.02 lbs/lb of resin) | Acid scrubber for control of catalyst emissions with 98% overall control efficiency for catalyst emissions from core machines.<br>Core mixing has no control. |

The following table summarizes the economic, environmental, and energy impacts of the three feasible control options for the core mixing operations. Each of these operations assumes the use of the low emission core resin and DMIPA catalyst.

| Economic, Environmental and Energy Impact for Core Mixing Operations VOC Control Alternatives | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Control Option | VOC Emissions After Control (tons/yr) | Emissions Reduction (tons/yr) | Overall Control Efficiency (%) | Economic Impacts | | | Collateral Environmental Impacts[b] | Energy Impact |
| | | | | Total Annual Cost ($/year) | Average Cost Effectiveness ($/ton) | Incremental Cost Effectiveness ($/ton)[a] | | |
| RTO | 0.05 | 2.6 | 98 | $293,440 | $113,938 | n/a | Catalyst is destroyed instead of recovered | 13 MMCF nat gas usage 134 mw-hr |
| Carbon Adsorption | 0.05 | 2.6 | 98 | $112,623 | $43,730 | n/a | Catalyst/resin mixture must be disposed of as hazardous waste | 0.02 MMCF nat gas usage 1658 mw-hr |

The average cost effectiveness of the carbon adsorption option is $43,730 per ton of VOC removed and the RTO control option is $113,938 per ton of VOC. Either of these estimates is considered economically infeasible. The high costs are due to the high flow rate required to capture the dust generated by the core mixing operations and the low level of VOC emissions.

The following table summarizes the economic, environmental, and energy impacts of the three add-on control options for the core machine operations. Each of these operations assumes the use of the low emission core resin and DMIPA catalyst.

| Economic, Environmental and Energy Impact for Core Machine VOC Alternatives | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Control Option | VOC Emissions After Control (tons/yr) | Emissions Reduction (tons/yr) | Overall Control Efficiency (%) | Economic Impacts | | | Collateral Environmental Impacts[b] | Energy Impact |
| | | | | Total Annual Cost ($/year) | Average Cost Effectiveness ($/ton) | Incremental Cost Effectiveness ($/ton)[a] | | |
| Carbon Adsorption | 2.4 | 119 | 98 | $889,359 | $7,475 | $44,117 | Catalyst/resin mixture must be disposed as of hazardous waste GHG =79TYP NOx = 0.1TYP | 0.8 MMCF nat gas usage 92 mw-hr |
| RTO | 2.4 | 119 | 98 | $460,611 | $3,871 | $16,953 | Catalyst destroyed instead of recycled GHG =1,910 TPY NOx = 2.0 TPY | 28 MMCF nat gas usage 343 mw-hr |
| Scrubber | 18.2 | 103.2 | 85 | $193,034 | $1,870 | n/a | Catalyst in spent Scrubber solution must be periodically recycled GHG = 62 TPY | 93 mw-hr |

The average cost effectiveness for the packed bed scrubber system is $1,870 per ton of VOC removed. This estimate is well below the $5,000 to $8,000 per ton range at which a control option is considered economically feasible, so this option is an economically feasible control alternative. It will have the environmental benefit of allowing the catalyst to be recycled. It will require 93 mw-hrs of electricity to operate.

The average cost effectiveness for the RTO is $3,871 per ton of VOC removed. This estimate is lower than $5,000 to $8000 per ton range at which a control option is considered economically infeasible.
The only advantage of using an RTO versus the packed bed scrubber is that the RTO will control 98% of all VOC emissions including those generated by both the catalyst and resin. The incremental cost to change from the scrubber to the RTO in order to control the resin VOC is estimated to be $16,953 per ton of VOC removed. This incremental cost is well above the threshold considered reasonable as BACT. This option will not allow the recycling of the catalyst since it will be destroyed. It will require significantly more

energy to operate compared to the scrubber and carbon systems, using 28 million cubic feet of natural gas and 343 mw-hrs of electricity. Future natural gas costs are expected to increase faster than inflation, thereby increasing the cost of operating the RTO. Natural gas usage will also increase the emissions of pollutants associated with combustion These include 2.0 TPY of $NO_x$, an ozone and acid rain precursor, and 1,910 TPY of Green House Gases.

The average cost effectiveness for the carbon adsorption system is $7,475 per ton of VOC removed. This estimate is within the $5,000 to $8,000 per ton range at which a control option is considered economically infeasible.

Similar to the RTO system, an advantage of using a carbon adsorption system versus the packed bed scrubber is that the carbon system may control 98% of all VOC emissions including those generated by both the catalyst and resin. The scrubber will control 98% of the DMIPA catalyst emissions, but not the resin VOC.

However, the incremental cost to change from the scrubber to the carbon system in order to control the resin VOC is estimated to be $44,117 per ton of VOC removed. This incremental cost is well above the range considered reasonable as BACT. Unlike the scrubber, this option will not allow the recycling of the catalyst. Its contamination with other resin VOC will require disposal as hazardous waste. It will require 0.8 million cubic of natural gas for on-site carbon regeneration and 93 mw-hrs of electricity to operate. Natural gas use will increase the emissions of pollutants associated with combustion. These include 0.1 TPY of $NO_x$, an ozone and acid rain precursor, and 79 TPY of Green House Gases.

The core mixing associated with the proposed P45A and P45B core machines will have similar emissions with the ThyssenKrupp permit No. 123-21238-00019 issued on December 22, 2005.

Resin emission is 0.31lb/ton from core machine and 0.05 lbs/ton from the mixing operation.

Catalyst usage = 0.04 lbs/ton

Resin usage = 0.36 lbs/ton

Total = 0.4 lbs/ton.

It is concluded that BACT control method for the core machine operations is the use of the packed bed scrubber system. Selection of the packed bed scrubber control system is consistent with the core making control requirements under the recently promulgated MACT for iron and steel foundries.

*Step 5: Select BACT*

Pursuant to 326 IAC 8-1-6 (New Facilities, General Reduction Requirements), IDEM has established the following as BACT for volatile organic compounds (VOC) for the two (2) core machines.

(1) The total VOC emissions (including DMIPA) from the mixers and core machines identified as P43 shall not exceed 0.4 pound per ton of cores.

(2) The packed bed scrubbers C14 and C17 controlling the DMIPA emissions from the core machines identified as P45A and P45B, respectively, shall maintain a 100% capture of the DMIPA emissions, using a permanent total enclosure that complies with the requirements of 40 CFR Part 51, Appendix M, Method 24. The scrubber shall achieve at least 98% overall control efficiency of the DMIPA.

(3) The DMIPA emissions from the scrubbers controlling the core machines identified as P45A and P45B shall not exceed 0.04 pound per ton of cores, and 0.24 pounds per hour each.

(4) The Permittee shall only use dimethylisopropylamine (DMIPA) as a catalyst for the core machines identified as P45A and P45B.

**Appendix B - TKW Plant 5 - Air Pollution Control Cost Estimates**
**ThyssenKrupp Waupaca, Inc Plant 5**
**PSD/Significant Source Modification No. 123--26878-00019**
**Permit Reviewer: Josiah Balogun**
**Incinerator Cost**

**PACKED BED SCRUBBER COST ESTIMATE**

| **Process Specifications** | | |
|---|---|---|
| Operation Type | Mixing | Core Machine |
| Flow Rate (actual cubic feet per minute) = Q1 | n/a | 10000 |
| Process Flue Gas Temperature (degrees F) = T1 | | 68 |
| Production Rate (tons per hour) | | 12 |
| Production Rate (tons per year) | | 105120 |
| | | |
| **Labor and Energy Parameters** | | |
| Maintenance Labor Cost, Wages and Benefits ($/hr) | | 20.00 |
| Natural Gas Cost ($/Therm) | | 1.00 |
| Electrical Cost ($/kw-hr) | | 0.05 |
| Operating Hours per Year | | 8760 |
| | | |
| **Process Emissions** | | |
| Uncontrolled Emission Factor (lbs per ton) | | 2.31 |
| Uncontrolled Emissions (lbs per hour) | | 27.72 |
| Uncontrolled Emissions (tons per year) | | 121.41 |
| Controlled Emission Factor (lbs per ton) | | 0.35 |
| Controlled Emissions (lbs per hour) | | 4.16 |
| Controlled Emissions (tons per year) | | 18.21 |
| VOC Removed (lbs per hour) | | 23.56 |
| VOC Removed (tons per year) | | 103.20 |
| | | |
| **Control Equipment Specifications** | | |
| Control System Capture Efficiency (%) = NC | | 100.0 |
| Control System Destruction Efficiency (%) = ND | | 85.0 |
| Control System Combined Efficiency (%) = NC * ND | | 85.0 |
| | | |
| **Cost Estimate Results** | | |
| Total Annualized Cost (2007 $ per year) | | $193,034 |
| Cost Effectiveness ($ per ton of VOC Removed) | | $1,870 |
| | | |
| **Cost Estimate Assumptions** | | |
| | | |
| Quenched Gas Temperature (degrees F) | | 68 |
| Quenched Flow Rate (degrees F) | | 10000 |
| Control System Pressure Drop (inches wc) | | 2.6 |
| Operating Shifts per Year | | 1095 |
| Induced Draft Fan/Motor Efficiency (%) | | 60 |

| | | |
|---|---|---|
| Recycle Pump Power (horsepower) | | 7.50 |
| Feed Pump Power (horsepower) | | 0.00 |
| Total Pump Power (horsepower) | | 7.50 |
| Acid Usage (gph) | | 0.95 |
| Acid Cost ($/gallon) | | 1.30 |
| Acid Disposal Rate (gallons per year) | | 923.0 |
| Makeup Water Cost ($/1000 gallons) | | 0.00 |
| Acid Disposal Cost ($ per gallon) | | 0.00 |
| Equipment Life (Years) | | 10 |
| Interest Rate (%) | | 8 |
| Capital Recovery Factor for 10 Year Period | | 0.1490 |
| Vatavuk Air Pollution Control Index for 1998 | | 110.8 |
| Vatavuk Air Pollution Control Index for 3rd Quarter 2006 | | 136.1 |
| | | |
| DIRECT COSTS FOR EQUIPMENT AND INSTALLATION | | |
| Purchased Equipment Costs as Provided by Vendor | | |
| Packed Bed Scrubber | | $261,000 |
| Auxiliary Equipment | | $0 |
| Auxiliary Equipment | | $0 |
| Equipment Cost (Adjusted for Inflation to 2007 Dollars) | (A) | $261,000 |
| Instrumentation | (0.10A) | |
| Sales Tax | (0.05A) | |
| Freight | (0.05A) | |
| Subtotal | (0.20A) | $52,200 |
| Purchased Equipment Costs | (1.20A=B) | $313,200 |
| | | |
| Direct Installation Costs | | |
| Foundation & Supports | (0.06B) | |
| Handling & Erection | (0.40B) | |
| Electrical | (0.01B) | |
| Piping | (0.05B) | |
| Insulation for Ductwork | (0.03B) | |
| Painting | (0.01B) | |
| Subtotal | (0.56B) | $175,392 |
| Site Preparation | | $0 |
| Buildings | | $0 |
| | | |
| INDIRECT COSTS FOR EQUIPMENT AND INSTALLATION | | |
| Engineering | (0.10B) | |
| Construction & Field Expenses | (0.10B) | |
| Contractor Fees | (0.10B) | |
| Start-up | (0.01B) | |
| Performance Tests | (0.01B) | |
| Contingencies | (0.03B) | |
| TOTAL INDIRECT COSTS | (0.35B) | $109,620 |
| | | |
| TOTAL CAPITAL INVESTMENT, TCI | (1.91B) | $598,212 |

| | | |
|---|---|---|
| DIRECT OPERATING COSTS | | |
| Operating Labor | | |
| Operator (0.5 hrs/shift x shifts/yr x $/hr) | | $10,950 |
| Supervisor (15% x operating labor) | | $1,643 |
| Maintenance Labor and Materials | | |
| Labor (0.5 hrs/shift) | | $10,950 |
| Material (100% of Maintenance Labor) | | $10,950 |
| Subtotal (Direct Cost O & M) | | $34,493 |
| Utilities | | |
| Electricity for Fan = (1.17xE-04)(Flow Rate)(Delta P) | | |
| x (hrs/yr)(Electrical Cost) | | |
| / (Fan-Motor Efficiency) | | $2,221 |
| Electricity for Pumps = (Power)(hrs/yr)( 0.746 kw/hp )(Elec. Cost) | | $2,451 |
| Total Electrical Cost | | $4,671 |
| Electrical usage (kw-hrs/yr) = | 93,425 | |
| Acid Cost = (Usage)(hrs/yr)(Cost/gallon) | | $10,819 |
| Makeup Water | | $0 |
| Waste Disposal = (Disposal Rate)(Cost/gallon) | | $0 |
| TOTAL DIRECT OPERATING COSTS | | $49,982 |
| | | |
| INDIRECT OPERATING COSTS INCLUDING TCI | | |
| Overhead (60% x Direct Cost O & M) | | $29,989 |
| Adminstrative (2% x TCI) | | $11,964 |
| Insurance (1% x TCI) | | $5,982 |
| Property Taxes (1% x TCI) | | $5,982 |
| Capital Recovery (Recovery Factor x TCI) | | $89,134 |
| TOTAL INDIRECT OPERATING COSTS INCLUDING TCI | | $143,051 |
| | | |
| TOTAL ANNUALIZED COST (2007 $ per year) | | $193,034 |

**Appendix B - TKW Plant 5 - Air Pollution Control Cost Estimates**
**ThyssenKrupp Waupaca, Inc Plant 5**
**PSD/Significant Source Modification No. 123--26878-00019**
**Permit Reviewer: Josiah Balogun**
**Incinerator Cost**

**REGENERATIVE INCINERATION COST ESTIMATE**

| **Process Specifications** | | | |
|---|---|---|---|
| Operation | | Mixing | Core Machine |
| Assumptions: | | | |
| Flow Rate (actual cubic feet per minute) = Q1 | | 3900 | 10000 |
| Process Flue Gas Temperature (degrees F) = T1 | | 68 | 68 |
| Maximum Production Rate (tons per hour) | | 12 | 12 |
| Annual Production (tons per year) | | 105120 | 105120 |
| | | | |
| **Labor and Energy Parameters** | | | |
| Maintenance Labor Cost, Wages and Benefits ($/hr) | | 20.00 | 20.00 |
| Natural Gas Cost ($/Therm) | | 0.77 | 0.77 |
| Electrical Cost ($/kw-hr) | | 0.06 | 0.06 |
| Operating Hours per Year | | 8760 | 8760 |
| | | | |
| **Control Equipment Specifications** | | | |
| Control System Capture Efficiency (%) = NC | | 100.0 | 100.0 |
| Control System Destruction Efficiency (%) = ND | | 98.0 | 98.0 |
| Control System Combined Efficiency (%) = NC * ND | | 98.0 | 98.0 |
| | | | |
| **Process Emissions** | | | |
| VOC Emission Factor (lbs per ton) | | 0.05 | 2.31 |
| Uncontrolled Emissions (lbs per hour) | | 0.60 | 27.72 |
| Uncontrolled Emissions (tons per year) | | 2.63 | 121.41 |
| Uncontrolled Emissions (molecular weight) | | 87.2 | 87.2 |
| Uncontrolled Emissions (ppm) | | 11 | 204 |
| Uncontrolled Emissions (LEL in ppm) | | 10,000 | 10,000 |
| Uncontrolled Emissions (% of LEL) | | 0.11% | 2.0% |
| Controlled Emissions (lbs per hour) | | 0.01 | 0.55 |
| Controlled Emissions (tons per year) | | 0.05 | 2.43 |
| VOC Removed (lbs per hour) | | 0.59 | 27.17 |
| VOC Removed (tons per year) | | 2.58 | 118.99 |
| | | | |
| **Cost Estimate Results** | | | |
| Total Annualized Cost ($ per year) | | $293,440 | $460,611 |
| Cost Effectiveness ($/ton of VOC Removed) | | $113,938 | $3,871 |
| | | | |
| **Cost Estimate Assumptions** | | | |
| | | | |
| Carbon Monoxide Emissions (lbs per hour) | | 0 | 0 |
| Flow Rate (SCFM) = Q2 | | 3900 | 10000 |
| Heat Exchanger Efficiency (%) = & | Ref. 1, p. 146 | 90 | 90 |
| Flue Gas Inlet Temp (F) = T1 | Ref. 1, p. 146 | 68 | 68 |
| Incinerator Combustion Temp (F) = T5 | Ref. 1, p. 146 | 1600 | 1600 |
| Heat Exchanger Outlet Temp (F) = T2 = T1 + [(T5 - T1] * & | Ref. 1, p. 146 | 1447 | 1447 |
| Heat Capacity @ Combustion Temp, T5 (BTU/scf F) = CP5 | Ref. 1, p. 146 | 0.01935 | 0.01935 |
| Heat Capacity @ HE Outlet Temp, T2 (BTU/scf F) = CP2 | Ref. 1, p. 146 | 0.01921 | 0.01921 |
| VOC Energy Value (BTU/hr) = EVOC @ 19,314 BTU/lbs | Ref. 2, p. 4-29 | 11588 | 535384 |
| CO Energy Value (BTU/hr) = ECO @ 4,346 BTU/lbs | Ref. 2, p. 4-29 | 0 | 0 |
| Energy from CO/VOC (BTU/scf) = h1 = (EVOC+ECO)/Q2/60 | Ref. 1, p. 146 | 0.05 | 0.89 |
| Fuel Heat Content (BTU/scf) = h3 | Natural Gas | 1000 | 1000 |

| | | | |
|---|---|---|---|
| Fuel Variable X = 1.1 * CP5(T5-T1) - CP2(T2-T1) - h1 | Ref. 1, p. 146 | 6.1 | 5.2 |
| Fuel Variable Y = h3 - 1.1 * CP5(T5-T1) | Ref. 1, p. 146 | 967 | 967 |
| Fuel Consumption (scfm) = Q2 * X / Y | Ref. 1, p. 146 | 24 | 54 |
| Incinerator Pressure Drop (inches wc) | Ref. 1, p. 148 | | |
| Heat Exchanger Pressure Drop (inches wc) | Ref. 1, p. 149 | | |
| Total Pressure Drop (inches wc) = DP | Ref. 1, p. 149 | 20 | 20 |
| Operating Shifts per Year = Operating Hours / 8 hours per shift | | 1095 | 1095 |
| Fan and Motor Efficiency (%) = NF | | 60 | 60 |
| Electrical Usage (kw-hrs) = 0.746 * Q1 * DP * OP / 6356 / NF | Ref 3., Eq 3.37 | 133660 | 342719 |
| Equipment Life (Years) | | 10 | 10 |
| Interest Rate (%) | | 8 | 8 |
| Capital Recovery Factor for 10 Year Period @ 7% | Ref. 4., p. 448 | 0.1490 | 0.1490 |
| Capital Recovery Factor for 5 Year Period | Ref. 4., p. 448 | 0.2505 | 0.2505 |
| Capital Recovery Factor for 2 Year Period | Ref. 4., p. 448 | 0.5608 | 0.5608 |
| Vatavuk Air Pollution Control Index for 1988 | Ref. 5., p.20-21 | 100.0 | 100.0 |
| Vatavuk Air Pollution Control Index for 1994 | Ref. 5., p.20-21 | 108.9 | 108.9 |
| Vatavuk Air Pollution Control Index for Current Period (1994=100) | Chemical Engr | 138.8 | 138.8 |
| Vatavuk Air Pollution Control Index Current Time Period | | 3rd Quarter 2006 | 3rd Quarter 2006 |
| | | | |
| DIRECT COSTS FOR EQUIPMENT AND INSTALLATION | | | |
| Purchased Equipment Costs | | | |
| Equipment Cost (USEPA Estimate Cost in 1988 Dollars) | Ref. 3, p. 3-41 | $265,523 | $336,100 |
| Equipment Cost (Adjusted for Inflation to 2007 Dollars) | | $401,347 | $508,026 |
| Subtotal | (A) | $401,347 | $508,026 |
| | | | |
| Instrumentation | (0.1A if ncluded) | $0 | $0 |
| Sales Tax | (0.03A) | $12,040 | $15,241 |
| Freight | (0.05A) | $20,067 | $25,401 |
| Subtotal | | $32,108 | $40,642 |
| | | | |
| Purchased Equipment Cost (PEC) | (B) | $433,454 | $548,668 |
| | | | |
| Direct Installation Costs | | | |
| Foundation & Supports | (0.08B) | | |
| Handling & Erection | (0.14B) | | |
| Electrical | (0.04B) | | |
| Piping | (0.02B) | | |
| Insulation for Ductwork | (0.00B) | | |
| Painting | (0.01B) | | |
| Subtotal | (0.29B) | $125,702 | $159,114 |
| Site Preparation | | $0 | $0 |
| Buildings | | $0 | $0 |
| | | | |
| INDIRECT COSTS FOR EQUIPMENT AND INSTALLATION | | | |
| Engineering | (0.10B) | | |
| Construction & Field Expenses | (0.05B) | | |
| Contractor Fees | (0.10B) | | |
| Start-up | (0.02B) | | |
| Performance Tests | (0.01B) | | |
| Contingencies | (0.03B) | | |
| TOTAL INDIRECT COSTS | (0.31B) | $134,371 | $170,087 |
| | | | |
| TOTAL CAPITAL INVESTMENT, TCI | | $693,527 | $877,869 |
| | | | |
| DIRECT OPERATING COSTS | | | |
| Operating Labor | | | |
| Operator (0.5 hrs/shift)(shifts/yr)($/hr) | | $10,950 | $10,950 |
| Supervisor (15% x operating labor) | | $1,643 | $1,643 |
| Maintenance Labor and Materials | | | |

| | | | |
|---|---|---|---|
| Labor (0.5 hrs/shift x shifts/yr x $/hr) | | $10,950 | $10,950 |
| Material (100% of Labor) | | $10,950 | $10,950 |
| Subtotal (Direct Cost O & M) | | $34,493 | $34,493 |
| Utilities | | | |
| Fuel Cost for Incinerators = Usage Calculated Above * Cost | | $99,156 | $218,943 |
| Annual Fuel Usage (cf6/yr) = | | 13 | 28 |
| | | | |
| Electrical Cost for Fan = Usage Calculated Above * Cost | | $8,020 | $20,563 |
| Annual Electrical Usage (kw-hrs/yr) = | | 133660 | 342719 |
| | | | |
| TOTAL DIRECT OPERATING COSTS | | $141,668 | $273,998 |
| | | | |
| INDIRECT OPERATING COSTS INCLUDING TCI | | | |
| Overhead (60% x Direct Cost O & M) | | $20,696 | $20,696 |
| Adminstrative (2% x TCI) | | $13,871 | $17,557 |
| Property Taxes (1% x TCI) | | $6,935 | $8,779 |
| Insurance (1% x TCI) | | $6,935 | $8,779 |
| Capital Recovery (Recovery Factor x TCI) | | $103,335 | $130,802 |
| TOTAL INDIRECT OPERATING COSTS INCLUDING TCI | | $151,772 | $186,613 |
| | | | |
| TOTAL ANNUALIZED COST (2007 $ per year) | | $293,440 | $460,611 |
| | | | |
| Packed Bed Scrubber Annualized Cost ($ per year) | | | $193,034 |
| Packed Bed Scrubber VOC Removed (tons per year) | | | 103.20 |
| Scrubber to RTO Incremental Cost Effectiveness ($ per ton) | | | $16,953 |

**Appendix B - TKW Plant 5 - Air Pollution Control Cost Estimates**
**ThyssenKrupp Waupaca, Inc Plant 5**
**PSD/Significant Source Modification No. 123--26878-00019**
**Permit Reviewer: Josiah Balogun**
**Incinerator Cost**

CARBON ADSORBERS

TOTAL ANNUAL COST SPREADSHEET PROGRAM--CARBON ADSORBERS [1]

| | | | | | | |
|---|---|---|---|---|---|---|
| COST BASE DATE: Third Quarter 1989 [2] | | | | | | |
| VAPCCI (Average for 2001): [3] | | | | 112.9 | | 112.9 |
| | | | | 162.1 | | 162.1 |
| | | | | | | |
| INPUT PARAMETERS: | | | | Mixing | | Core Machine |
| -- Inlet stream flowrate (acfm): | | | | 3900 | | 10000 |
| -- Inlet stream temperature (oF): | | | | 68 | | 68 |
| -- Inlet stream pressure (atm): | | | | 1 | | 1 |
| -- VOC to be condensed: | | | | DMIPA | | DMIPA |
| -- Inlet VOC Emission Factor (lb/ton): | | | | 0.05 | | 2.31 |
| -- Production Rate (TPH) | | | | 12 | | 12 |
| -- Production Rate (TPY) | | | | 105120 | | 105120 |
| -- Inlet VOC flowrate (lb/hr): | | | | 0.60 | | 27.72 |
| --Inlet Annual Emissions (TPY) | | | | 2.63 | | 121.41 |
| -- Outlet Annual Emissions (TPY) | | | | 0.05 | | 2.43 |
| -- Captured Emissions (TPY) | | | | 2.58 | | 118.99 |
| -- VOC molecular weight (lb/lb-mole): | | | | 87.20 | | 87.20 |
| -- VOC inlet volume fraction: | | | | 1.13E-05 | | 2.04E-04 |
| -- VOC inlet concentration (ppmv): | | | | 11 | | 204 |
| -- VOC inlet partial pressure (psia): | | | | 0.00017 | | 0.00300 |
| -- Required VOC removal (fraction): | | | | 0.980 | | 0.980 |
| -- Freundlich isotherm equation constants for VOC (see Table 1 below): | | | | | | |
| VOC number (enter Table 1 # or zero, if no data): | | | | 1001 | | 1001 |
| | | | K: | 0.597 | K: | 0.597 |
| | | | M: | 0.176 | M: | 0.176 |
| -- Yaws isotherm equation constants (see Table 2 below): | | | | | | |
| VOC number (enter Table 2 #or zero, if no data): | | | | 341 | | 341 |
| | | | A: | 0.81119 | A | 0.81119 |
| | | | B: | 0.28864 | B | 0.28864 |
| | | | C: | -0.02378 | C | -0.02378 |
| -- Adsorption time (hr): | | | | 12.0 | | 12.0 |
| -- Desorption time (hr): | | | | 4.0 | | 4.0 |
| -- Number of adsorbing vessels: | | | | 1 | | 2 |
| -- Superficial carbon bed velocity (ft/min): | | | | 75 | | 75 |
| -- Carbon price ($/lb): | | | | 2.00 | | 2.00 |
| -- Material of construction (see list below):[4] | | | | 1 | | 1 |
| | | | | | | |
| DESIGN PARAMETERS: | | | | | | |
| -- Carbon equilibrium capacity--Freundlich (lb VOC/lb carb): | | | | 0.1291 | | 0.2148 |
| " " " -- Yaws et al " " " " | | | | 0.1228 | | 0.2244 |
| -- Carbon working capacity (lb VOC/lb carbon): | | | | 0.0614 | | 0.1074 |
| -- Number of desorbing vessels: | | | | 1 | | 1 |
| -- Total number of vessels: | | | | 2 | | 3 |
| -- Carbon requirement, total (lb): | | | | 235 | | 4646 |
| -- Carbon requirement per vessel (lb): | | | | 117 | | 1549 |
| -- Gas flowrate per vessel (acfm): | | | | 3900 | | 5000 |
| -- Adsorber vessel diameter (ft): | | | | 8.137 | | 9.213 |
| -- Adsorber vessel length (ft): | | | | 4.075 | | 4.774 |
| -- Adsorber vessel surface area (ft2): | | | | 208.17 | | 271.52 |
| -- Carbon bed thickness (ft): | | | | 0.075 | | 0.774 |
| -- Carbon bed pressure drop (in. w.c.): [5] | | | | 0.254 | | 2.619 |

| | | | | | | |
|---|---|---|---|---|---|---|
| CAPITAL COSTS | | | | | | |
| Equipment Costs ($): | | | | | | |
| -- Adsorber vessels (Core machine vessel costs obtained from vendor by Wingra Engineer | | | | 34,493 | | 1,232,814 |
| -- Carbon | | | | 469 | | 0 |
| -- Other equipment (condenser, decanter, etc.) | | | | 32,788 | | 0 |
| Total equipment cost ($)--based on USEPA estimate method: | | | | 67,750 | | 1,232,814 |
| ' ' ' '--escalated: | | | | 121,794 | | 1,770,054 |
| Desorbing Boiler Cost Obtained from Vendor by Wingra Engineering in 2001 | | | | 18,300 | | 18,300 |
| Desorbing Boiler Cost escalated | | | | 26,275 | | 26,275 |
| Combined Carbon System and Boiler Cost | | | | 148,069 | | 1,796,329 |
| Purchased Equipment Cost ($): | | | | 159,915 | | 1,940,036 |
| Total Capital Investment ($): | | | | 257,462 | | 3,123,457 |
| " " " ($/acfm): | | | | 66.0 | | 312.3 |
| | | | | | | |
| ANNUAL COST INPUTS: | | | | | | |
| Operating factor (hr/yr): | | | | 8760 | | 8760 |
| Operating labor rate ($/hr): | | | | 20.00 | | 20.00 |
| Maintenance labor rate ($/hr): | | | | 22.00 | | 22.00 |
| Operating labor factor (hr/sh): | | | | 0.5 | | 0.5 |
| Maintenance labor factor (hr/sh): | | | | 0.5 | | 0.5 |
| Electricity price ($/kWhr): | | | | 0.05 | | 0.05 |
| Recovered VOC value or disposal cost ($/lb): | | | | -0.96 | | -0.96 |
| Steam price ($/1000 lb) = 120% of fuel cost: | | | | 9.25 | | 9.25 |
| Cooling water price ($/1000 gal): | | | | 0.20 | | 0.20 |
| Carbon replacement labor ($/lb): | | | | 0.05 | | 0.05 |
| Overhead rate (fraction): | | | | 0.6 | | 0.6 |
| Annual interest rate (fraction): | | | | 0.08 | | 0.08 |
| Control system life (years): | | | | 10 | | 10 |
| Capital recovery factor (system): | | | | 0.1490 | | 0.1490 |
| Carbon life (years): | | | | 5 | | 5 |
| Capital recovery factor (carbon): | | | | 0.2505 | | 0.2505 |
| Taxes, insurance, admin. factor: | | | | 0.04 | | 0.04 |
| | | | | | | |
| ANNUAL COSTS: | | | | | | |
| Item | | | Wt. Factor | Cost ($/yr) | Wt. Factor | Cost ($/yr) |
| Operating labor | | | 0.102 | 10,950 | 0.017 | 10,950 |
| Supervisory labor | | | 0.015 | 1,643 | 0.002 | 1,643 |
| Maintenance labor | | | 0.112 | 12,045 | 0.018 | 12,045 |
| Maintenance materials | | | 0.112 | 12,045 | 0.018 | 12,045 |
| Electricity | | | 0.001 | 83 | 0.003 | 2,304 |
| Steam | | | 0.002 | 170 | 0.012 | 7,862 |
| Cooling water | | | 0.000 | 13 | 0.001 | 583 |
| Carbon replacement | | | 0.001 | 130 | 0.004 | 2,572 |
| Overhead | | | 0.204 | 22,010 | 0.033 | 22,010 |
| Taxes, insurance, administrative | | | 0.096 | 10,298 | 0.189 | 124,938 |
| Capital recovery | | | 0.356 | 38,292 | 0.702 | 463,957 |
| Total Annual Cost (without credits) | | | 1.000 | 107,678 | 1.000 | 660,908 |
| Recovery credits (-) or disposal cost (+) | | | | 4,945 | | 228,452 |
| Total Annual Cost (with credits) | | | | 112,623 | | 889,359 |
| " " " ($/million acf) | | | | 54.94 | | 169.21 |
| Cost Effectiveness ($/ton of VOC) | | | | 43730 | | 7475 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| Electrical Energy Usage (kw-hr) | | | | 1658 | | 46078 |
| Fuel Energy Usage (cf6/year) | | | | 0.02 | | 0.8 |
| | | | | | | |
| Packed Bed Scrubber Annualized Cost ($ per year) | | | | | | $193,034 |
| VOC Removed (tons per year) | | | | | | 103.20 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Incremental Cost Effectiveness ($ per ton) | | | | | | $44,117 |
| | | | | | | |

Notes:

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[1] This program has been based on data and procedures in Chapter 4 of the OAQPS CONTROL COST MANUAL (5th edition).

[2] Base equipment costs reflect this date.

[3] VAPCCI = Vatavuk Air Pollution Control Cost Index (for carbon adsorbers) corresponding to year and quarter shown. Base equipment cost, purchased equipment cost, and total capital investment have been escalated to this date via the VAPCCI and control equipment vendor data.

[4] Enter one of the following: carbon steel--'1'; 316 stainless steel--'1.3'; Carpenter 20 (CB-3)--'1.9'; Monel-400--'2.3'; Nickel-200--'3.2'; titanium--'4.5'.

[5] This is the carbon bed pressure drop ONLY. There will be additional pressure drop through the ductwork . For estimating ductwork pressure losses, see Chapter 10 of the OAQPS CONTROL COST MANUAL (5th edition).

[6] Minor changes to the original USEPA spreadsheet have been made by Wingra Engineering, S.C.

[7] The desorbing vessel and carbon cost of $500000 for the core machine was from a 2001 vendor quotation obtained by Wingra Engineering for 8,000 acfm This cost was increased for the proposed 36,000 acfm flow using the 6-tenths rule, where: $500,000 x (36,000 acfm / 8,000 acfm ) ^ 0.6 = $1,232,814

| VOC name | VOC number | K | M | Temperature (F | Correlation Range (psia) Minimum | Maximum |
|---|---|---|---|---|---|---|
| Benzene | 1001 | 0.597 | 0.176 | 77 | 0.0001 | 0.05 |
| Chlorobenzene | 1002 | 1.05 | 0.188 | 77 | 0.0001 | 0.01 |
| Cyclohexane | 1003 | 0.508 | 0.210 | 100 | 0.0001 | 0.05 |
| Dichloroethane | 1004 | 0.976 | 0.281 | 77 | 0.0001 | 0.04 |
| Phenol | 1005 | 0.855 | 0.153 | 104 | 0.0001 | 0.03 |
| Trichloroethane | 1006 | 1.06 | 0.161 | 77 | 0.0001 | 0.04 |
| Vinyl chloride | 1007 | 0.200 | 0.477 | 100 | 0.0001 | 0.05 |
| m-Xylene (low-pressure range) | 1008 | 0.708 | 0.113 | 77 | 0.0001 | 0.001 |
| m-Xylene (high-pressure range) | 1009 | 0.527 | 0.0703 | 77 | 0.001 | 0.05 |
| Acrylonitrile | 1010 | 0.935 | 0.424 | 100 | 0.0001 | 0.015 |
| Acetone | 1011 | 0.412 | 0.389 | 100 | 0.0001 | 0.05 |
| Toluene | 1012 | 0.551 | 0.110 | 77 | 0.0001 | 0.05 |

[6] These constants fit the following equation:

Q = K(P)^M

where: Q = equilibrium adsorption capacity (lb/lb carbon)
P = VOC partial pressure (psia at 1 atm & listed temperature)

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Table 2. Correlation Constants for Yaws Isotherm Equation [7]

| VOC name | VOC number | A | B | C | Correlation Ranges (ppmv) Minimum | Maximum |
|---|---|---|---|---|---|---|
| Phosgene | 6 | -0.64469 | 0.60428 | -0.02986 | 10 | 10000 |
| Carbon tetrachloride | 9 | 1.07481 | 0.28186 | -0.02273 | 10 | 10000 |
| Chloroform | 11 | 0.67102 | 0.36148 | -0.02288 | 10 | 10000 |
| Formaldehyde | 18 | -2.48524 | 0.69123 | -0.00375 | 10 | 10000 |
| Methyl chloride | 21 | -1.91871 | 0.62053 | -0.00549 | 10 | 10000 |
| Carbon disulfide | 35 | -0.18899 | 0.47093 | -0.01481 | 10 | 10000 |
| Tetrachloroethylene | 39 | 1.40596 | 0.20802 | -0.02097 | 10 | 10000 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Vinyl chloride | 55 | -0.98889 | 0.66564 | -0.04320 | 10 | 10000 |
| 1,1,2-Trichloroethane | 59 | 1.17163 | 0.27791 | -0.02746 | 10 | 10000 |
| Acetonitrile | 60 | -0.79666 | 0.63512 | -0.02598 | 10 | 10000 |
| Methyl isocyanate | 61 | -1.07579 | 0.85881 | -0.06876 | 10 | 10000 |
| Acetaldehyde | 69 | -1.17047 | 0.62766 | -0.02475 | 10 | 10000 |
| Ethylene glycol | 84 | 1.40474 | 0.18738 | -0.02663 | 10 | 121 |
| Ethyl mercaptan | 87 | 0.00552 | 0.40506 | -0.01802 | 10 | 10000 |
| Acrylonitrile | 93 | 0.07669 | 0.49986 | -0.03500 | 10 | 10000 |
| Acrolein | 97 | -0.29632 | 0.49437 | -0.02471 | 10 | 10000 |
| 1,3-Butadiene | 168 | -0.03359 | 0.34764 | -0.01297 | 10 | 10000 |
| Methyl ethyl ketone | 194 | 0.46525 | 0.37688 | -0.02801 | 10 | 10000 |
| n-Butane | 213 | 0.03071 | 0.34304 | -0.01596 | 10 | 10000 |
| 1,2,4-Trichlorobenzene | 331 | 1.68304 | 0.09456 | -0.00998 | 10 | 566 |
| Chlorobenzene | 336 | 1.02705 | 0.30619 | -0.03353 | 10 | 10000 |
| Nitrobenzene | 340 | 1.64859 | 0.06109 | 0 | 10 | 329 |
| Benzene | 341 | 0.81119 | 0.28864 | -0.02378 | 10 | 10000 |
| Phenol | 345 | 1.45599 | 0.10349 | -0.01086 | 10 | 10000 |
| Toluene | 466 | 1.11466 | 0.20795 | -0.02016 | 10 | 10000 |
| m-Cresol | 469 | 1.61982 | 0.04926 | 0 | 10 | 149 |
| o-Toluidine | 474 | 1.58104 | 0.05475 | 0 | 10 | 339 |
| Styrene | 528 | 1.35701 | 0.13495 | -0.01451 | 10 | 8044 |
| m-Xylene | 533 | 1.31522 | 0.14019 | -0.01457 | 10 | 10000 |
| o-Xylene | 534 | 1.33404 | 0.13931 | -0.01494 | 10 | 8722 |
| p-Xylene | 535 | 1.31115 | 0.14069 | -0.01458 | 10 | 10000 |

[7] Constants fit the following equation: $Q = 0.01*10^{A + B(\log[y]) + C(\log[y])^2}$

where: Q = equilibrium adsorption capacity (lb/lb carbon)

y = VOC concentration (ppmv at 77 F, 1 atm)

Source: Yaws, Carl L. et al., "Determining VOC Adsorption Capacity," Pollution Engineering, February 1995, pp. 34-37.