



Mitchell E. Daniels, Jr.
Governor

Thomas W. Easterly
Commissioner

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

TO: Interested Parties / Applicant
DATE: September 12, 2007
RE: Crosbie Foundry Company, Inc. / 039-23278-00202
FROM: Nisha Sizemore
Chief, Permits Branch
Office of Air Quality

Notice of Decision: Approval - Effective Immediately

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

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

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

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

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

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

Enclosures
FNPER.dot 03/23/06



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100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251
(317) 232-8603
(800) 451-6027
www.in.gov/idem

Minor Source Operating Permit Renewal OFFICE OF AIR QUALITY

**Crosbie Foundry Company, Inc.
1600 Mishawaka Street
Elkhart, Indiana 46514**

(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.

Indiana statutes from IC 13 and rules from 326 IAC, quoted 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 MSOP under 326 IAC 2-6.1.

This permit is issued to the above mentioned company under the provisions of 326 IAC 2-1.1, 326 IAC 2-6.1 and 40 CFR 52.780, with conditions listed on the attached pages.

Operation Permit No.: MSOP 039-23278-00202	
Issued by: <i>Original document signed by</i> Nisha Sizemore, Chief Permits Branch Office of Air Quality	Issuance Date: September 12, 2007 Expiration Date: September 12, 2012

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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 and A.2 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this permit pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

A.1 General Information [326 IAC 2-5.1-3(c)] [326 IAC 2-6.1-4(a)]

The Permittee owns and operates a bronze, aluminum, and brass foundry.

Source Address:	1600 Mishawaka Street, Elkhart, Indiana 46514
Mailing Address:	1600 Mishawaka Street, Elkhart, Indiana 46514
General Source Phone Number:	574-262-1502
SIC Code:	3369
County Location:	Elkhart
Source Location Status:	Nonattainment for the 8-hour ozone standard Attainment for all other criteria pollutants
Source Status:	Minor Source Operating Permit Program Minor Source, under PSD and Emission Offset Rules Minor Source, Section 112 of the Clean Air Act Not 1 of 28 Source Categories

A.2 Emission Units and Pollution Control Equipment Summary

This stationary source consists of the following emission units and pollution control devices:

- (a) One (1) bronze castings process, maximum throughput: 320 pounds (0.160 tons) of bronze per hour, consisting of the following equipment:
 - (1) Two (2) natural gas-fired crucible pot furnaces, identified as CF-16 and CF-17, constructed in 1986 and 1987, respectively, equipped with two (2) baghouses, identified as CB-4 and CB-5, exhausting to Stacks C-3 and C-4, heat input capacity: 0.950 million British thermal units per hour, each.
 - (2) One (1) barrel shot blast, identified as CF-24, constructed in 1981, equipped with a baghouse, identified as CB-8, exhausting to Stack V-8.
 - (3) Six (6) polish lathes, identified as CF-30, 31, 33, 34, 36 and 37, all installed in 1960 and equipped with a cyclone, identified as CC-1, connected in series to two (2) baghouses, identified as CB-1 and CB-2, exhausting to Stacks C-6A and C-6B.
 - (4) Two (2) grinding lathes, identified as CF-32 and CF-35, all installed in 1960 and equipped with a cyclone, identified as CC-1, connected in series to two (2) baghouses, identified as CB-1 and CB-2, exhausting to Stacks C-6A and C-6B.
 - (5) One (1) pouring and cooling line, identified as CF-PC1, equipped with two (2) baghouses, identified as CB-4 and CB-5, exhausting to Stacks C-3 and C-4.
- (b) One (1) aluminum and brass castings process, with a maximum throughput of 540 pounds (0.270 tons) of aluminum and 1,000 pounds (0.500 tons) of brass per hour, consisting of the following equipment:

- (1) Two (2) electric induction furnaces, identified as CF-18 and CF-19, constructed in 1995, equipped with two (2) baghouses, identified as CB-4 and CB-5, exhausting to Stacks C-3 and C-4.
 - (2) Three (3) grind lathes, identified as CF-38 through CF-40, installed in 1985, and one (1) sand blaster, identified as CF-27, constructed in 1999, all equipped with a cyclone, identified as CC-5, exhausting to Stack C-7.
 - (3) One (1) cabinet shot blaster, identified as CF-25, constructed in 1995, and one (1) polisher, identified as CF-29, equipped with a cyclone, identified as CC-2, connected in series to a baghouse, identified as CB-3, exhausting to Stack C-7.
 - (4) One (1) belted shot blast, identified as CF-26, installed in 1995, equipped with a baghouse, identified as CB-7, exhausted to the general ventilation.
 - (5) One (1) abrasive cut off saw, identified as CF-28, constructed in 1968, equipped with a cyclone, identified as CC-3, connected in series to a baghouse, identified as CB-6, exhausting to Stack C-8.
 - (6) One (1) shake out area, identified as CF-SA, constructed in 1981, equipped with a cyclone, identified as CC-6, exhausting to Stack V-4.
 - (7) One (1) pouring and cooling line, identified as CF-PC2, equipped with two (2) baghouses, identified as CB-4 and CB-5, exhausting to Stacks C-3 and C-4.
- (c) One (1) sand casting process, constructed in 1981, maximum throughput: 6,664 pounds of bank sand, clay and core sand per hour, consisting of the following equipment:
- (1) One (1) natural gas-fired core machine, identified as CF-15, installed in 1981, exhausting to Stack S-1, with a throughput of 30 pounds of core sand per hour, heat input capacity: 0.108 million British thermal units per hour.
 - (2) Three (3) sand mullers, identified as CF-20, CF-21, and CF-22, constructed in 1981, exhausting to Stack V-5, with a throughput of 2,042 pounds of bank sand and clay per hour, total.
 - (3) One (1) ring muller, identified as CF-23, constructed in 1981, controlled by a cyclone, identified as CC-4, exhausting to Stack C-1, with a throughput of 4,593 pounds of bank sand and clay per hour.
- (d) One (1) natural gas-fired water heater, identified as CF-1, constructed in 1999, heat input capacity: 0.034 million British thermal units per hour.
- (e) Four (4) natural gas-fired furnaces, identified as CF-2 through CF-5, CF-2 and CF-3 constructed in 1981, CF-4 constructed in 1992, and CF-5 constructed in 1995, heat input capacity: 0.0825, 0.100, 0.080, and 0.125 million British thermal units per hour, respectively.
- (f) Five (5) natural gas-fired infrared heaters, identified as CF-6 through CF-10, constructed in 1981, heat input capacity: 0.03 million British thermal units per hour, each.
- (g) Two (2) natural gas-fired infrared heaters, identified as CF-11 and CF-12, constructed in 1995, heat input capacity: 0.06 million British thermal units per hour, each.
- (h) Two (2) natural gas-fired infrared heaters, identified as CF-13 and CF-14, constructed in

1995, heat input capacity: 0.10 million British thermal units per hour, each.

- (i) One (1) small parts reach in paint booth, identified as PB-01, constructed in 2005, equipped with high volume low pressure (HVLP) spray guns and dry filters for particulate control, exhausting to Stack C-6B, capacity: 10 metal parts per hour.

SECTION B GENERAL CONDITIONS

B.1 Definitions [326 IAC 2-1.1-1]

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 2-1.1-1) shall prevail.

B.2 Permit Term [326 IAC 2-6.1-7(a)] [326 IAC 2-1.1-9.5] [IC 13-15-3-6(a)]

- (a) This permit, MSOP 039-23278-00202, 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, 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

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

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

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

B.7 Duty to Provide Information

- (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 an "authorized individual" as defined by 326 IAC 2-1.1-1(1). 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

- (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 an "authorized individual" 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) An "authorized individual" is defined at 326 IAC 2-1.1-1(1).

B.9 Annual Notification [326 IAC 2-6.1-5(a)(5)]

- (a) An annual notification shall be submitted by an authorized individual to the Office of Air Quality stating whether or not the source is in operation and in compliance with the terms and conditions contained in this permit.
- (b) The annual notice shall be submitted in the format attached no later than March 1 of each year to:

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

B.10 Preventive Maintenance Plan [326 IAC 1-6-3]

- (a) If required by specific condition(s) in Section D of this permit, the Permittee shall maintain and implement Preventive Maintenance Plans (PMPs) including the following information on each facility:
 - (1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;
 - (2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and
 - (3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.
- (b) A copy of the PMPs shall be submitted to IDEM, OAQ upon request and within a reasonable time, and shall be subject to review and approval by IDEM, OAQ. IDEM, OAQ may require the Permittee to revise its PMPs whenever lack of proper maintenance causes or is the primary contributor to an exceedance of any limitation on emissions or potential to emit. The PMPs do not require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (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 Prior Permits Superseded [326 IAC 2-1.1-9.5]

- (a) All terms and conditions of permits established prior to MSOP 039-23278-00202 and issued pursuant to permitting programs approved into the state implementation plan have been either:
 - (1) incorporated as originally stated,
 - (2) revised, or
 - (3) deleted.
- (b) All previous registrations and permits are superseded by this permit.

B.12 Termination of Right to Operate [326 IAC 2-6.1-7(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 ninety (90) days prior to the date of expiration of the source's existing permit, consistent with 326 IAC 2-6.1-7.

B.13 Permit Renewal [326 IAC 2-6.1-7]

- (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 2-6.1-7. Such information shall be included in the application for each emission unit at this source. The renewal application does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

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 ninety (90) days 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 2-6.1 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.14 Permit Amendment or Revision [326 IAC 2-5.1-3(e)(3)] [326 IAC 2-6.1-6]

- (a) Permit amendments and revisions are governed by the requirements of 326 IAC 2-6.1-6 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 an "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (c) The Permittee shall notify the OAQ within thirty (30) calendar days of implementing a notice-only change. [326 IAC 2-6.1-6(d)]

B.15 Source Modification Requirement

A modification, construction, or reconstruction is governed by the requirements of 326 IAC 2.

B.16 Inspection and Entry [326 IAC 2-5.1-3(e)(4)(B)] [326 IAC 2-6.1-5(a)(4)] [IC 13-14-2-2] [IC13-17-3-2] [IC 13-30-3-1]

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

- (a) Enter upon the Permittee's premises where a permitted source is located, or emissions related activity is conducted, or where records must be kept under the conditions of this permit;
- (b) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, have access to and copy, at reasonable times, any records that must be kept under 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, at reasonable times, 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, at reasonable times, substances or parameters for the purpose of assuring compliance with this permit or applicable requirements; and
- (e) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, utilize any photographic, recording, testing, monitoring, or other equipment for the purpose of assuring compliance with this permit or applicable requirements.

B.17 Transfer of Ownership or Operational Control [326 IAC 2-6.1-6]

- (a) The Permittee must comply with the requirements of 326 IAC 2-6.1-6 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 an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (c) The Permittee may implement notice-only changes addressed in the request for a notice-only change immediately upon submittal of the request. [326 IAC 2-6.1-6(d)(3)]

B.18 Annual Fee Payment [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) 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.19 Credible Evidence [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 2-6.1-5(a)(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 one hundred (100) pounds per hour and the methods in 326 IAC 6-3-2(b) through (d) do not apply shall not exceed five hundred fifty-one thousandths (0.551) pounds per hour.

C.2 Permit Revocation [326 IAC 2-1.1-9]

Pursuant to 326 IAC 2-1.1-9 (Revocation of Permits), this permit to operate may be revoked for any of the following causes:

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

C.3 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.4 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.5 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.6 Fugitive Dust Emissions [326 IAC 6-4]

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

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.

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 two hundred sixty (260) linear feet on pipes or one hundred sixty (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 an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

(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 seventy-five hundredths (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 2-6.1-5(a)(2)]

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 an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (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 an "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (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 2-6.1-5(a)(2)]

C.11 Compliance Monitoring [326 IAC 2-1.1-11]

Compliance with applicable requirements shall be documented as required by this permit. The Permittee

shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment. All monitoring and record keeping requirements not already legally required shall be implemented when operation begins.

C.12 Monitoring Methods [326 IAC 3] [40 CFR 60] [40 CFR 63]

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

Corrective Actions and Response Steps

C.13 Response to Excursions or Exceedances

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

C.14 Actions Related to Noncompliance Demonstrated by a Stack Test

- (a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this permit exceed the level specified in any condition of this permit, the Permittee

shall take appropriate 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 an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

Record Keeping and Reporting Requirements [326 IAC 2-6.1-5(a)(2)]

C.15 Malfunctions Report [326 IAC 1-6-2]

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

- (a) A record of all malfunctions, including startups or shutdowns of any facility or emission control equipment, which result in violations of applicable air pollution control regulations or applicable emission limitations shall be kept and retained for a period of three (3) years and shall be made available to the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ) or appointed representative upon request.
- (b) When a malfunction of any facility or emission control equipment occurs which lasts more than one (1) hour, said condition shall be reported to OAQ, using the Malfunction Report Forms (2 pages). Notification shall be made by telephone or facsimile, as soon as practicable, but in no event later than four (4) daytime business hours after the beginning of said occurrence.
- (c) Failure to report a malfunction of any emission control equipment shall constitute a violation of 326 IAC 1-6, and any other applicable rules. Information of the scope and expected duration of the malfunction shall be provided, including the items specified in 326 IAC 1-6-2(a)(1) through (6).
- (d) Malfunction is defined as any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner. [326 IAC 1-2-39]

C.16 General Record Keeping Requirements [326 IAC 2-6.1-5]

- (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.17 General Reporting Requirements [326 IAC 2-1.1-11] [326 IAC 2-6.1-2] [IC 13-14-1-13]

- (a) Reports required by conditions in Section D of this permit shall be submitted to:
- Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251
- (b) Unless otherwise specified in this permit, any notice, report, or other submission required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.
- (c) 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 an "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (d) 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.

SECTION D.1 FACILITY OPERATION CONDITIONS

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

- (a) One (1) bronze castings process, maximum throughput: 320 pounds (0.160 tons) of bronze per hour, consisting of the following equipment:
- (1) Two (2) natural gas-fired crucible pot furnaces, identified as CF-16 and CF-17, constructed in 1986 and 1987, respectively, equipped with two (2) baghouses, identified as CB-4 and CB-5, exhausting to Stacks C-3 and C-4, heat input capacity: 0.950 million British thermal units per hour, each.
 - (2) One (1) barrel shot blast, identified as CF-24, constructed in 1981, equipped with a baghouse, identified as CB-8, exhausting to Stack V-8.
 - (3) Six (6) polish lathes, identified as CF-30, 31, 33, 34, 36 and 37, all installed in 1960 and equipped with a cyclone, identified as CC-1, connected in series to two (2) baghouses, identified as CB-1 and CB-2, exhausting to Stacks C-6A and C-6B.
 - (4) Two (2) grinding lathes, identified as CF-32 and CF-35, all installed in 1960 and equipped with a cyclone, identified as CC-1, connected in series to two (2) baghouses, identified as CB-1 and CB-2, exhausting to Stacks C-6A and C-6B.
 - (5) One (1) pouring and cooling line, identified as CF-PC1, equipped with two (2) baghouses, identified as CB-4 and CB-5, exhausting to Stacks C-3 and C-4.
- (b) One (1) aluminum and brass castings process, with a maximum throughput of 540 pounds (0.270 tons) of aluminum and 1,000 pounds (0.500 tons) of brass per hour, consisting of the following equipment:
- (1) Two (2) electric induction furnaces, identified as CF-18 and CF-19, constructed in 1995, equipped with two (2) baghouses, identified as CB-4 and CB-5, exhausting to Stacks C-3 and C-4.
 - (2) Three (3) grind lathes, identified as CF-38 through CF-40, installed in 1985, and one (1) sand blaster, identified as CF-27, constructed in 1999, all equipped with a cyclone, identified as CC-5, exhausting to Stack C-7.
 - (3) One (1) cabinet shot blaster, identified as CF-25, constructed in 1995, and one (1) polisher, identified as CF-29, equipped with a cyclone, identified as CC-2, connected in series to a baghouse, identified as CB-3, exhausting to Stack C-7.
 - (4) One (1) belted shot blast, identified as CF-26, installed in 1995, equipped with a baghouse, identified as CB-7, exhausted to the general ventilation.
 - (5) One (1) abrasive cut off saw, identified as CF-28, constructed in 1968, equipped with a cyclone, identified as CC-3, connected in series to a baghouse, identified as CB-6, exhausting to Stack C-8.
 - (6) One (1) shake out area, identified as CF-SA, constructed in 1981, equipped with a cyclone, identified as CC-6, exhausting to Stack V-4.
 - (7) One (1) pouring and cooling line, identified as CF-PC2, equipped with two (2) baghouses, identified as CB-4 and CB-5, exhausting to Stacks C-3 and C-4.
- (c) One (1) sand casting process, constructed in 1981, maximum throughput: 6,664 pounds of bank sand, clay and core sand per hour, consisting of the following equipment:
- (1) One (1) natural gas-fired core machine, identified as CF-15, installed in 1981, exhausting to Stack S-1, with a throughput of 30 pounds of core sand per hour, heat input capacity: 0.108 million British thermal units per hour.
 - (2) Three (3) sand mullers, identified as CF-20, CF-21, and CF-22, constructed in 1981, exhausting to Stack V-5, with a throughput of 2,042 pounds of bank sand and clay per hour, total.
 - (3) One (1) ring muller, identified as CF-23, constructed in 1981, controlled by a cyclone, identified as CC-4, exhausting to Stack C-1, with a throughput of 4,593 pounds of bank sand and clay per hour.

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

Emission Limitations and Standards

D.1.1 Particulate [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the particulate emission rate from the following emission units and control devices shall not exceed the pounds per hour limitation when operating at the stated process weight rates 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:

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

Emission Unit (Baghouse/Cyclone)	Process Weight Rate (tons/hr)	Allowable Particulate Emissions (lbs/hr)
<i>Bronze Castings Process, consisting of the following emission units:</i>		
Crucible Pot furnaces CF-16 and CF-17 (Baghouses CB-4 & CB-5)	0.08, each	0.750, each
Barrel Shot blast CF-24 (Baghouse CB-8)	0.160	1.20
Polish Lathes CF-30, 31, 33, 34, 36 and 37 (Cyclone CC-1 and Baghouses CB-1 and CB-2)	0.080, total	0.750, total
Grinding Lathes CF-32 and CF-35 (Cyclone CC-1 and Baghouses CB-1 and CB- 2)	0.080, total	0.750, total
Pouring and Cooling CF- PC1 (Baghouses CB-4 and CB-5)	0.160	1.20
<i>Aluminum and Brass Castings Process, consisting of the following emission units:</i>		
Electric Induction Furnaces CF-18 and CF-19 (Baghouses CB-4 and CB-5)	0.250, each	1.62, each
Grind Lathes CF-38 through CF-40 (Cyclone CC-5)	0.500, total	2.58, total
Sandblaster CF-27 (Cyclone CC-5)	0.500	2.58
Cabinet shot blaster CF-25 (Cyclone CC-2 and Baghouse CB-3)	0.500	2.58
Polisher CF-29 (Cyclone CC-2 and Baghouse CB-3)	0.500	2.58

Emission Unit (Baghouse/Cyclone)	Process Weight Rate (tons/hr)	Allowable Particulate Emissions (lbs/hr)
Belted Shot blast CF-26 (Baghouse CB-7)	0.500	2.58
Abrasive cut-off saw CF-28 (Cyclone CC-3 and Baghouse CB-6)	0.500	2.58
Shakeout area CF-SA (Cyclone CC-6)	0.500	2.58
Pouring and Cooling CF-PC2 (Baghouses CB-4 and CB-5)	0.500	2.58
<i>Sand Castings Process, consisting of the following emission units:</i>		
Core Machine CF-15 (none)	Less than 0.050	0.551
Sand Mullers CF-20 through CF-22 (none)	1.02	4.15
Ring Muller CF-23 (Cyclone CC-4)	2.30	7.16

In addition, several of the emission units exhaust through the same baghouse or stack. The allowable particulate pursuant to 326 IAC 6-3-2 has been tabulated by stack/exhaust and baghouse as follows:

Stack # or Exhaust	Emission Unit	Process Weight Rate (tons/hr)	Allowable PM Emission Rate (pounds/hour)
Stacks C-3 and C-4	CF-16 CF-17	Subtotal of 0.160	1.50
	CF-18 CF-19	Subtotal of 0.500	3.24
	CF-PC1	Subtotal of 0.160	1.50
	CF-PC2	Subtotal of 0.160	1.50
			Total: 7.74
Stacks C-3 and C-4	CF-16 CF-17	Subtotal of 0.160	1.50
	CF-18 CF-19	Subtotal of 0.500	3.24
			Total: 4.74
Stack V-8	CF-24	0.160	1.20

Stack # or Exhaust	Emission Unit	Process Weight Rate (tons/hr)	Allowable PM Emission Rate (pounds/hour)
Stack C-6A	CF-30	0.080	0.750
	CF-31		
	CF-33		
	CF-34		
	CF-36		
Stack C-6B	CF-32	0.080	0.750
	CF-35		
Stack C-7	CF-25	Subtotal of 0.500	2.58
	CF-27	Subtotal of 0.500	2.58
	CF-29	Subtotal of 0.500	2.58
	CF-38 CF-39 CF-40	Subtotal of 0.500	2.58
			Total: 10.3
Baghouse CB-7	CF-26	0.500	2.58
Stack C-8	CF-28	0.500	2.58
Stack V-4	CF-SA	0.500	2.58
Stack S-1	CF-15	Less than 0.050	0.551
Stack V-5	CF-20	1.02	4.15
	CF-21		
	CF-22		
Stack C-1	CF-23	2.30	7.16

D.1.2 PSD Minor Limit [326 IAC 2-2]

The PM emissions shall be limited as stated below:

- (a) Stack C-3 and C-4 emissions from the two (2) natural gas-fired crucible furnaces, identified as CF-16 and CF-17, the two (2) electric induction furnaces, identified as CF-18 and CF-19, and the two (2) pouring and cooling lines, identified as CF-PC1 and CF-PC2, shall not exceed 7.74 pounds of PM per hour, total.
- (b) Stack V-8 emissions from the barrel shot blast, identified as CF-24, shall not exceed 1.20 pounds of PM per hour.
- (c) Stack C-6A emissions from the six (6) polish lathes, identified as CF-30, CF-31, CF-33, CF-34, CF-36, and CF-37 shall not exceed 0.750 pounds of PM per hour, total.
- (d) Stack C-6B emissions from the two (2) grind lathes, identified as CF-32 and CF-35, shall not exceed 0.750 pounds of PM per hour, total.
- (e) Stack C-7 emissions from the cabinet shot blast, identified as CF-25, the sandblaster, identified as CF-27, the polisher, identified as CF-29, and the three (3) grind lathes, identified as CF-38 through CF-40, shall not exceed 10.3 pounds of PM, total.
- (f) Baghouse CB-7 emissions from the belted shot blast, identified as CF-26, shall not exceed 2.58 pounds of PM per hour.

- (g) Stack C-8 emissions from the abrasive cut off saw, identified as CF-28, shall not exceed 2.58 pounds of PM per hour.
- (h) Stack V-4 emissions from the shakeout area, identified as CF-SA, shall not exceed 2.58 pounds of PM per hour.
- (i) Stack C-1 emissions from the ring muller, identified as CF-23, shall not exceed 7.16 pounds of PM per hour.

Compliance with these PM limitations in combination with the unrestricted potential PM emissions of 16.3 tons per year from the natural gas-fired core machine, identified as CF-15, the three (3) sand mullers, identified as CF-20 through CF-22, the four (4) natural gas-fired furnaces, identified as CF-2 through CF-5, the five (5) natural gas-fired infrared heaters, identified as CF-6 through CF-10, the two (2) natural gas-fired infrared heaters, identified as CF-11 and CF-12, the two (2) natural gas-fired infrared heaters, identified as CF-13 and CF-14, and the small parts reach in paint booth, identified as PB-01, shall limit source-wide PM emissions to less than two hundred fifty (250) tons per year and render the requirements of 326 IAC 2-2, PSD, not applicable to this source.

D.1.3 Preventive Maintenance Plan [326 IAC 1-6-3]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for each of the facilities which comprise the bronze castings process, the aluminum and brass castings process, and the sand castings process and their baghouses and cyclones.

Compliance Determination Requirements

D.1.4 Particulate Control [326 IAC 2-7-6(6)]

- (a) In order to comply with Conditions D.1.1 and D.1.2, the baghouses and cyclones for particulate control shall be in operation and control emissions from the bronze castings process, aluminum and brass castings process, and the sand castings process at all times that the processes are 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.

Compliance Monitoring Requirements [326 IAC 2-5.1-3(e)(2)] [326 IAC 2-6.1-5(a)(2)]

D.1.5 Visible Emissions Notations

- (a) Visible emission notations of the bronze castings process, the aluminum and brass castings process, and the sand castings process stack exhausts (Stacks C-1 through C-4, C-6 through C-8, S-1, and V-5) shall be performed once per day during normal daylight operations. 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.1.6 Baghouse Parametric Monitoring

- (a) The Permittee shall record the pressure drop across the baghouses used in conjunction with the bronze castings process, the aluminum and brass castings process, and the sand castings process at least once per day when the processes are in operation. When for any one reading, the pressure drop across the baghouses is outside the normal range of 1.0 and 5.0 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.
- (b) 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.1.7 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.
- (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.

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, or dust traces.

D.1.8 Cyclone Failure Detection

- (a) For a cyclone 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.
- (b) For a cyclone 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.

Record Keeping and Reporting Requirements [326 IAC 2-5.1-3(e)(2)] [326 IAC 2-6.1-5(a)(2)]

D.1.9 Record Keeping Requirements

- (a) To document compliance with Condition D.1.5, the Permittee shall maintain a daily record of visible emission notations of the bronze castings process, the aluminum and brass castings process, and the sand castings process stack exhausts (Stacks C-1 through C-4, C-6 through C-8, S-1, and V-5). 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 bronze

castings process, the aluminum and brass castings process, and the sand castings process did not operate that day).

- (b) To document compliance with Condition D.1.6, the Permittee shall maintain a daily record of the pressure drop across the baghouse controlling the bronze castings process, the aluminum and brass castings process, and the sand castings process. The Permittee shall include in its daily record when a pressure drop reading is not taken and the reason for the lack of a pressure drop reading (e.g., the bronze casting process, the aluminum and brass castings process, and the sand castings process did not operate that day).
- (c) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY**

**MINOR SOURCE OPERATING PERMIT
CERTIFICATION**

Source Name: Crosbie Foundry Company, Inc.
Source Address: 1600 Mishawaka Street, Elkhart, Indiana 46514
Mailing Address: 1600 Mishawaka Street, Elkhart, Indiana 46514
Permit No.: MSOP 039-23278-00202

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

Please check what document is being certified:

- Annual Compliance Certification Letter
- Test Result (specify) _____
- Report (specify) _____
- Notification (specify) _____
- Affidavit (specify) _____
- Other (specify) _____

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

Signature:

Printed Name:

Title/Position:

Phone:

Date:

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE BRANCH**

**MINOR SOURCE OPERATING PERMIT
ANNUAL NOTIFICATION**

This form should be used to comply with the notification requirements under 326 IAC 2-6.1-5(a)(5).

Source Name:	Crosbie Foundry Company, Inc.
Address:	1600 Mishawaka Street
City:	Elkhart, Indiana 46514
Phone #:	574-262-1502
MSOP #:	039-23278-00202

I hereby certify that Crosbie Foundry Company, Inc. is

- still in operation.
- no longer in operation.

I hereby certify that Crosbie Foundry Company, Inc. is

- in compliance with the requirements of MSOP 039-23278-00202.
- not in compliance with the requirements of MSOP 039-23278-00202.

Authorized Individual (typed):
Title:
Signature:
Date:

If there are any conditions or requirements for which the source is not in compliance, provide a narrative description of how the source did or will achieve compliance and the date compliance was, or will be achieved.

Noncompliance:

MALFUNCTION REPORT

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
FAX NUMBER - 317 233-6865**

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

THIS FACILITY MEETS THE APPLICABILITY REQUIREMENTS BECAUSE IT HAS POTENTIAL TO EMIT 25 TONS/YEAR PARTICULATE MATTER ?_____, 25 TONS/YEAR SULFUR DIOXIDE ?_____, 25 TONS/YEAR NITROGEN OXIDES?_____, 25 TONS/YEAR VOC ?_____, 25 TONS/YEAR HYDROGEN SULFIDE ?_____, 25 TONS/YEAR TOTAL REDUCED SULFUR ?_____, 25 TONS/YEAR REDUCED SULFUR COMPOUNDS ?_____, 25 TONS/YEAR FLUORIDES ?_____, 100TONS/YEAR CARBON MONOXIDE ?_____, 10 TONS/YEAR ANY SINGLE HAZARDOUS AIR POLLUTANT ?_____, 25 TONS/YEAR ANY COMBINATION HAZARDOUS AIR POLLUTANT ?_____, 1 TON/YEAR LEAD OR LEAD COMPOUNDS MEASURED AS ELEMENTAL LEAD ?_____, OR IS A SOURCE LISTED UNDER 326 IAC 2-5.1-3(2) ?_____. EMISSIONS FROM MALFUNCTIONING CONTROL EQUIPMENT OR PROCESS EQUIPMENT CAUSED EMISSIONS IN EXCESS OF APPLICABLE LIMITATION _____.

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

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

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

COMPANY: _____ PHONE NO. () _____
LOCATION: (CITY AND COUNTY) _____
PERMIT NO. _____ AFS PLANT ID: _____ AFS POINT ID: _____ INSP: _____
CONTROL/PROCESS DEVICE WHICH MALFUNCTIONED AND REASON: _____

DATE/TIME MALFUNCTION STARTED: ____/____/20____ _____ AM / PM

ESTIMATED HOURS OF OPERATION WITH MALFUNCTION CONDITION: _____

DATE/TIME CONTROL EQUIPMENT BACK-IN SERVICE ____/____/20____ _____ AM/PM

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

ESTIMATED AMOUNT OF POLLUTANT EMITTED DURING MALFUNCTION: _____

MEASURES TAKEN TO MINIMIZE EMISSIONS: _____

REASONS WHY FACILITY CANNOT BE SHUTDOWN DURING REPAIRS:

CONTINUED OPERATION REQUIRED TO PROVIDE ESSENTIAL* SERVICES: _____

CONTINUED OPERATION NECESSARY TO PREVENT INJURY TO PERSONS: _____

CONTINUED OPERATION NECESSARY TO PREVENT SEVERE DAMAGE TO EQUIPMENT: _____

INTERIM CONTROL MEASURES: (IF APPLICABLE) _____

MALFUNCTION REPORTED BY: _____ TITLE: _____
(SIGNATURE IF FAXED)

MALFUNCTION RECORDED BY: _____ DATE: _____ TIME: _____

*SEE PAGE 2

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

326 IAC 1-6-1 Applicability of rule

Sec. 1. This rule applies to the owner or operator of any facility required to obtain a permit under 326 IAC 2-5.1 or 326 IAC 2-6.1.

326 IAC 1-2-39 "Malfunction" definition

Sec. 39. Any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner.

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

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

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for a
Minor Source Operating Permit Renewal

Source Background and Description

Source Name:	Crosbie Foundry Company, Inc.
Source Location:	1600 Mishawaka Street, Elkhart, Indiana 46514
County:	Elkhart
SIC Code:	3369
Permit Renewal No.:	MSOP 039-23278-00202
Permit Reviewer:	Michael A. Morrone/MES

The Office of Air Quality (OAQ) has reviewed the operating permit renewal application from Crosbie Foundry Company, Inc. relating to the operation of a bronze, aluminum and brass foundry.

History

On June 27, 2006, Crosbie Foundry Company, Inc. submitted an application to the OAQ requesting to renew its operating permit. Crosbie Foundry Company, Inc. was issued an MSOP on October 2, 2001. This source is not in one (1) of the twenty-eight (28) source categories because the source only processes pure aluminum, brass, and bronze feed stock from ingots.

Previous approvals misidentified the bronze castings process as a nickel castings process. Bronze is defined as any of various alloys of copper and tin in various proportions, sometimes with traces of other metals. According to the material safety data sheet provided by the source, the bronze processed by this source is an alloy which contains a maximum of 55% copper, 24% zinc, 19% nickel, 11% lead, 8% cobalt, 2% tin, 1% manganese, 0.350% antimony, and 0.050% phosphorus. Nickel, lead, cobalt, manganese, antimony, and phosphorus are hazardous air pollutants (HAPs) and their emissions have been calculated for the bronze castings process using their weight percentages in the bronze alloy.

The aluminum and brass castings process, described in (b) in the Permitted Emission Units and Pollution Control Equipment list below, is only capable of melting 0.270 tons of aluminum and 0.500 tons of brass per hour, respectively, due to the physical properties of each metal. The electric induction furnaces which melt the aluminum and brass each have a fixed volume. Given that the density of aluminum ($2,700 \text{ kg/m}^3$) is approximately one-third that of brass ($8,600 \text{ kg/m}^3$), it follows that the weight of aluminum processed for a fixed volume should also be approximately one-third the weight of brass processed (since the density is equal to the mass divided by volume which is a linear relationship). Therefore, 1/3 of the weight of brass processed (0.5 tons/hr), or 0.167 tons/hr, should be the maximum amount of aluminum processed per hour.

However, the melting point of aluminum ($1,220 \text{ }^\circ\text{F}$) is lower than that of brass ($1,680 \text{ }^\circ\text{F}$ to $1,850 \text{ }^\circ\text{F}$). Therefore, Crosbie Foundry Company, Inc. is able to charge more aluminum than if the melting points of the two (2) metals were equal. Handling considerations and the time to pour and fill the two (2) electric induction furnaces, identified as CF-18 and CF-19, account for the difference between the theoretically derived charge rate of 0.167 tons/hr and the actual capacity of 0.270 tons/hr.

Please note that the two (2) pouring and cooling lines, identified as CF-PC1 and CF-PC2, have always existed at the source, but were erroneously not included in the equipment list of previous approvals. Both of these facilities exhaust to the same baghouses (CB-4 and CB-5) as the two (2) natural gas-fired furnaces, identified as CF-16 and CF-17, and the two (2) electric induction furnaces, identified as CF-18 and CF-19, and had previously had emissions calculated by dust collected in these baghouses. The emissions are recalculated in this proposed permit utilizing AP-

42 emission factors for a grey iron foundry for PM and PM₁₀ since no emission factors are available for pouring and cooling using brass and bronze.

Permitted Emission Units and Pollution Control Equipment

- (a) One (1) bronze castings process, maximum throughput: 320 pounds (0.160 tons) of bronze per hour, consisting of the following equipment:
 - (1) Two (2) natural gas-fired crucible pot furnaces, identified as CF-16 and CF-17, constructed in 1986 and 1987, respectively, equipped with two (2) baghouses, identified as CB-4 and CB-5, exhausting to Stacks C-3 and C-4, heat input capacity: 0.950 million British thermal units per hour, each.
 - (2) One (1) barrel shot blast, identified as CF-24, constructed in 1981, equipped with a baghouse, identified as CB-8, exhausting to Stack V-8.
 - (3) Six (6) polish lathes, identified as CF-30, 31, 33, 34, 36 and 37, all installed in 1960 and equipped with a cyclone, identified as CC-1, connected in series to two (2) baghouses, identified as CB-1 and CB-2, exhausting to Stacks C-6A and C-6B.
 - (4) Two (2) grinding lathes, identified as CF-32 and CF-35, all installed in 1960 and equipped with a cyclone, identified as CC-1, connected in series to two (2) baghouses, identified as CB-1 and CB-2, exhausting to Stacks C-6A and C-6B.
 - (5) One (1) pouring and cooling line, identified as CF-PC1, equipped with two (2) baghouses, identified as CB-4 and CB-5, exhausting to Stacks C-3 and C-4.

- (b) One (1) aluminum and brass castings process, with a maximum throughput of 540 pounds (0.270 tons) of aluminum and 1,000 pounds (0.500 tons) of brass per hour, consisting of the following equipment:
 - (1) Two (2) electric induction furnaces, identified as CF-18 and CF-19, constructed in 1995, equipped with two (2) baghouses, identified as CB-4 and CB-5, exhausting to Stacks C-3 and C-4.
 - (2) Three (3) grind lathes, identified as CF-38 through CF-40, installed in 1985, and one (1) sand blaster, identified as CF-27, constructed in 1999, all equipped with a cyclone, identified as CC-5, exhausting to Stack C-7.
 - (3) One (1) cabinet shot blaster, identified as CF-25, constructed in 1995, and one (1) polisher, identified as CF-29, equipped with a cyclone, identified as CC-2, connected in series to a baghouse, identified as CB-3, exhausting to Stack C-7.
 - (4) One (1) belted shot blast, identified as CF-26, installed in 1995, equipped with a baghouse, identified as CB-7, exhausted to the general ventilation.
 - (5) One (1) abrasive cut off saw, identified as CF-28, constructed in 1968, equipped with a cyclone, identified as CC-3, connected in series to a baghouse, identified as CB-6, exhausting to Stack C-8.
 - (6) One (1) shake out area, identified as CF-SA, constructed in 1981, equipped with a cyclone, identified as CC-6, exhausting to Stack V-4.

- (7) One (1) pouring and cooling line, identified as CF-PC2, equipped with two (2) baghouses, identified as CB-4 and CB-5, exhausting to Stacks C-3 and C-4.
- (c) One (1) sand casting process, constructed in 1981, maximum throughput: 6,664 pounds of bank sand, clay and core sand per hour, consisting of the following equipment:
 - (1) One (1) natural gas-fired core machine, identified as CF-15, installed in 1981, exhausting to Stack S-1, with a throughput of 30 pounds of core sand per hour, heat input capacity: 0.108 million British thermal units per hour.
 - (2) Three (3) sand mullers, identified as CF-20, CF-21, and CF-22, constructed in 1981, exhausting to Stack V-5, with a throughput of 2,042 pounds of bank sand and clay per hour, total.
 - (3) One (1) ring muller, identified as CF-23, constructed in 1981, controlled by a cyclone, identified as CC-4, exhausting to Stack C-1, with a throughput of 4,593 pounds of bank sand and clay per hour.
- (d) One (1) natural gas-fired water heater, identified as CF-1, constructed in 1999, heat input capacity: 0.034 million British thermal units per hour.
- (e) Four (4) natural gas-fired furnaces, identified as CF-2 through CF-5, CF-2 and CF-3 constructed in 1981, CF-4 constructed in 1992, and CF-5 constructed in 1995, heat input capacity: 0.0825, 0.100, 0.080, and 0.125 million British thermal units per hour, respectively.
- (f) Five (5) natural gas-fired infrared heaters, identified as CF-6 through CF-10, constructed in 1981, heat input capacity: 0.03 million British thermal units per hour, each.
- (g) Two (2) natural gas-fired infrared heaters, identified as CF-11 and CF-12, constructed in 1995, heat input capacity: 0.06 million British thermal units per hour, each.
- (h) Two (2) natural gas-fired infrared heaters, identified as CF-13 and CF-14, constructed in 1995, heat input capacity: 0.10 million British thermal units per hour, each.
- (i) One (1) small parts reach in paint booth, identified as PB-01, constructed in 2005, equipped with high volume low pressure (HVLP) spray guns and dry filters for particulate control, exhausting to Stack C-6B, capacity: 10 metal parts per hour.

Emission Units and Pollution Control Equipment Constructed and/or Operated without a Permit

The source does not consist of any emission units or pollution control equipment constructed and/or operated without a permit.

Emission Units and Pollution Control Equipment Removed From the Source

No emission units or pollution control equipment have been removed from the source.

Existing Approvals

Since the issuance of the **MSOP 039-13601-00202** on October 2, 2001, the source has constructed or has been operating under the following approvals as well:

Notice-only Change (NOC) 039-20037-00202, issued on January 21, 2005.

All terms and conditions of previous permits issued pursuant to permitting programs approved into the State Implementation Plan have been either incorporated as originally stated, revised, or deleted by this permit. All previous registrations and permits are superseded by this permit.

The following terms and conditions from previous approvals have been revised in this **MSOP Renewal**:

Condition D.1.1 from NOC 039-20037-00202, issued on January 21, 2005:

D.1.1 Particulate Matter (PM) [326 IAC 6-3]

Pursuant to 326 IAC 6-3 (Process Operations):

- (a) The particulate matter (PM) from the nickel casting process shall be limited to 1.2 pounds per hour when operating at a process weight rate of 320 pounds of nickel per hour.
- (b) The particulate matter (PM) from the aluminum casting process shall be limited to 1.7 pounds per hour when operating at a process weight rate of 540 pounds of aluminum per hour.
- (c) The particulate matter (PM) from the brass casting process shall be limited to 2.58 pounds per hour when operating at a process weight rate of 1000 pounds of brass per hour.
- (d) The particulate matter (PM) from the sand casting process shall be limited to 9.18 pounds per hour when operating at a process weight rate of 6,664 pounds of bank sand, clay and core sand per hour.
- (e) The following equation was used to calculate the above limits:

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:

$$E = 4.10 P^{0.67} \text{ where: } \begin{array}{l} E = \text{rate of emission in pounds per hour and} \\ P = \text{process weight rate in tons per hour.} \end{array}$$

Reason Revised:

The nickel castings process actually uses bronze which contains 19% nickel. As a result, the phrase "nickel castings process" has been revised to "bronze castings process."

The following terms and conditions from previous approvals have been determined no longer applicable; therefore, were not incorporated into this **MSOP Renewal**:

Conditions D.1.6 and D.1.8 from NOC 039-20037-00202, issued on January 21, 2005:

D.1.6 Baghouse Inspections

An inspection shall be performed each calendar quarter of all bags controlling the casting operations when venting to the atmosphere. A baghouse inspection shall be performed within three months of redirecting vents to the atmosphere and every three months thereafter. Inspections are optional when venting to the indoors. All defective bags shall be replaced.

D.1.8 Cyclone Inspections

An inspection shall be performed each calendar quarter of all cyclones controlling the casting operations when venting to the atmosphere. A cyclone inspection shall be performed within three

(3) months of redirecting vents to the atmosphere and every three (3) months thereafter. Inspections are optional when venting to the indoors.

Reason not incorporated:

Baghouse and cyclone inspections are no longer required to show compliance with any applicable rules.

Enforcement Issue

There are no enforcement actions pending.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (°F)
C-1	Ring Muller (CF-23)	15.0	0.92	2,500	Ambient
C-3	Crucible Furnaces (CF-16 – CF-17) Electric Induction Furnaces (CF-18 - CF-19) Pouring and Cooling Lines (CF-PC1 and CF-PC2)	15.0	0.75	3,333	150
C-4		15.0	0.75	3,333	165
C-6A	Polish Lathes (CF-30, CF-31, CF-33, CF-34, CF-36, and CF-37)	10.0	0.75	3,000	Ambient
C-6B	Grind Lathes (CF-32 and CF-35) Paint Booth (PB-01)	15.0	0.75	3,000	Ambient
C-7	Sandblaster (CF-27) Polisher (CF-29)	10.0	0.75	1,200	Ambient
C-8	Abrasive Cut-off saw (CF-28)	10.0	0.75	2,500	Ambient
V-4	Shakeout (CF-SA)	16.0	2.33	10,000	Ambient
V-5	Sand Mullers (CF-20 – CF-22)	15.0	2.33	10,000	Ambient
V-8	Barrel shot blast (CF-24)	18.0	2.0	4,800	Ambient
S-1	Core Machine (CF-15)	11.0	0.50	2,100	Ambient

Emission Calculations

See Appendix A of this document for detailed emission calculations. Please note that the first four pages of calculations are grouped by process (i.e, melting), whereas the summary spreadsheets appearing as pages 9 through 11 are grouped as the emission units appear in the equipment list.

County Attainment Status

The source is located in Elkhart County

Pollutant	Status
PM ₁₀	attainment
PM _{2.5}	attainment
SO ₂	attainment
NO _x	attainment
8-hour Ozone	basic nonattainment
CO	attainment
Lead	attainment

- (a) Elkhart County has been classified as unclassifiable or attainment for PM_{2.5}. U.S. EPA has not yet established the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 for PM_{2.5} emissions. Therefore, until the U.S. EPA adopts specific provisions for PSD review for PM_{2.5} emissions, it has directed states to regulate PM₁₀ emissions as a surrogate for PM_{2.5} emissions. See the State Rule Applicability – Entire Source section.
- (b) Volatile organic compounds (VOC) and nitrogen oxides (NO_x) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC emissions and NO_x emissions are considered when evaluating the rule applicability relating to ozone standards. Elkhart County has been designated as nonattainment for the 8-hour ozone standard. Therefore, VOC and NO_x emissions were reviewed pursuant to the requirements for Emission Offset, 326 IAC 2-3. See the State Rule Applicability – Entire Source section.
- (c) Elkhart County has been classified as attainment or unclassifiable in Indiana for PM₁₀, SO₂, NO_x, CO, and Lead. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability – Entire Source section.
- (d) 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.
- (e) Fugitive Emissions
Since this type of operation is not one of the twenty-eight (28) listed source categories under 326 IAC 2-2 or 326 IAC 2-3 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive emissions are not counted toward determination of PSD or Emission Offset applicability.

Unrestricted Potential Emissions

This table reflects the unrestricted potential emissions of the source.

Pollutant	tons/year
PM	270
PM ₁₀	89.0
SO ₂	0.066
VOC	3.38
CO	1.09
NO _x	1.36

HAPs	tons/year
Nickel Compounds	8.10
Lead Compounds	4.71
Cobalt Compounds	3.40
Manganese Compounds	0.425
Toluene	0.177
Antimony	0.149
Xylene	0.086
Methanol	0.027
Hexane	0.023
Phosphorus	0.021
Ethyl Benzene	0.019
Chromium Compounds	0.017
Arsenic	0.006
Dibutyl Phalate	0.005
Cadmium Compounds	0.003
2-butoxyethanol	0.002
Glycol Ethers	0.002
Selenium, Benzene, Dichlorobenzene, Formaldehyde	Less than or equal to 0.001
Total	17.2

- (a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of all criteria pollutants is less than one hundred (<100) tons per year. The source is not subject to the provisions of 326 IAC 2-7. PM₁₀ emissions are more than twenty-five (25.0) tons per year. Therefore, the source will be issued an MSOP.
- (b) The potential to emit (as defined in 326 IAC 2-7-1(29)) of any single HAP is less than ten (<10) tons per year and/or the potential to emit (as defined in 326 IAC 2-7-1(29)) of a combination of HAPs is less than twenty-five (<25) tons per year.

Fugitive Emissions

Since this type of operation is not one of the twenty-eight (28) listed source categories under 326 IAC 2-7, fugitive emissions are not counted toward the determination of Part 70 applicability.

Actual Emissions

No previous emission data has been received from the source.

Potential to Emit After Issuance

The table below summarizes the potential to emit, reflecting all limits of the emission units. Any control equipment is considered enforceable only after issuance of this MSOP and only to the extent that the effect of the control equipment is made practically enforceable in the permit.

Process/Emission Unit	Potential to Emit (tons/year)						
	PM	PM ₁₀	SO ₂	VOC	CO	NO _x	HAPs
Bronze Castings Process							
Crucible Pot Furnaces CF-16 and CF-17	33.9	8.69	-	-	-	-	2.80 single (Nickel); 5.80 total
Barrel Shot Blast CF-24	5.26	1.19	-	-	-	-	2.26 single (Nickel); 4.69 total
Polish Lathes CF-30, 31, 33, 34, 36 and 37	3.29	1.19	-	-	-	-	2.26 single (Nickel); 4.69 total
Grind Lathes CF-32 and CF-35	3.29						
Pouring and Cooling CF-PC1	Limited with CF-16 & CF-17	2.42	0.014	0.098	-	0.007	0.746 single (Nickel); 1.55 total
Aluminum and Brass Castings Process							
Electric Induction Furnaces CF-18 and CF-19	Limited with CF-16 & CF-17	43.8	-	-	-	-	-
Cabinet Shot Blast CF-25	45.2	3.72	-	-	-	-	-
Sand Blaster CF-27, abrasive cut-off saw CF-28, polisher CF-29, and grind lathes CF-38 - CF-40		3.72	-	-	-	-	0.025 single (Nickel); 0.058 total
Abrasive cut-off saw CF-28		11.3	-	-	-	-	-
Belted Shot Blast CF-26	11.3	3.72	-	-	-	-	-
Shakeout Area CF-SA	11.3	4.91	-	2.63	-	-	0.027 single (Lead); 0.036 total
Pouring and Cooling CF-PC2	Limited with CF-16 & CF-17	7.58	0.044	0.307	-	0.022	

Process/Emission Unit	PM	PM ₁₀	SO ₂	VOC	CO	NO _x	HAPs
Sand Castings Process							
Core Machine CF-15	0.059	0.059	-	-	-	0.033	-
Sand Mullers CF-20 – CF-22	16.1	2.41					
Ring Muller CF-23	31.4	5.40	-	-	-	-	-
Other Activities							
Natural gas-fired combustion	0.025	0.099	0.008	0.072	1.09	1.30	0.023 single (Hexane); 0.025 total
Paint Booth PB-01	0.062	0.062	-	0.274	-	-	-
Total	172	89.0	0.066	3.38	1.09	1.36	8.10 single (Nickel); 17.2 total
Major Source Threshold	250	250	250	100	250	250	-

- (a) This existing stationary source is not major for PSD because the emissions of each attainment criteria pollutant and PM are less than two hundred fifty (<250) tons per year, and it is not one of the twenty-eight (28) listed source categories.
- (b) This existing stationary source is not major for Emission Offset because the emissions of the nonattainment pollutants, VOC and NO_x, are less than one hundred (<100) tons per year, each.
- (c) Fugitive Emissions
 Since this type of operation is not one of the twenty-eight (28) listed source categories under 326 IAC 2-2 or 326 IAC 2-3, fugitive emissions are not counted toward the determination of PSD and Emission Offset applicability.

Federal Rule Applicability

- (a) This source is not a secondary brass or bronze production plant because it casts molten brass from ingots into the shape of finished products. Therefore, the requirements of the New Source Performance Standard, 40 CFR 60, Subpart M, Standards of Performance for Secondary Brass and Bronze Production Plants, are not included in the permit.
- (b) There are no other New Source Performance Standards (326 IAC 12-1 and 40 CFR 60) included in the permit for this source.
- (c) This source is an area source for HAPs. Therefore, the requirements of the National Emission Standard for Hazardous Air Pollutants, 40 CFR 63, Subpart M, National Emission Standards for Hazardous Air Pollutants for Surface Coating of Miscellaneous Metal Parts and Products, are not included in the permit.
- (d) There are no other National Emission Standards for Hazardous Air Pollutants included in the permit for this source.

State Rule Applicability - Entire Source

326 IAC 2-2 (Prevention of Significant Deterioration (PSD))

The unrestricted potential to emit of PM is greater than two hundred fifty (250) tons per year for the entire source. However, most of the equipment is controlled by baghouses and cyclones and the source's actual emissions have never exceeded two hundred fifty (250) tons per year. Therefore, a federally enforceable PM emissions limit of less than two hundred fifty (250) tons per year is established below:

- (a) Stack C-3 and C-4 emissions from the two (2) natural gas-fired crucible furnaces, identified as CF-16 and CF-17, the two (2) electric induction furnaces, identified as CF-18 and CF-19, and the two (2) pouring and cooling lines, identified as CF-PC1 and CF-PC2, shall not exceed 7.74 pounds of PM per hour, total.
- (b) Stack V-8 emissions from the barrel shot blast, identified as CF-24, shall not exceed 1.20 pounds of PM per hour.
- (c) Stack C-6A emissions from the six (6) polish lathes, identified as CF-30, CF-31, CF-33, CF-34, CF-36, and CF-37 shall not exceed 0.750 pounds of PM per hour, total.
- (d) Stack C-6B emissions from the two (2) grind lathes, identified as CF-32 and CF-35, shall not exceed 0.750 pounds of PM per hour, total.
- (e) Stack C-7 emissions from the cabinet shot blast, identified as CF-25, the sandblaster, identified as CF-27, the polisher, identified as CF-29, and the three (3) grind lathes, identified as CF-38 through CF-40, shall not exceed 10.3 pounds of PM, total.
- (f) Baghouse CB-7 emissions from the belted shot blast, identified as CF-26, shall not exceed 2.58 pounds of PM per hour.
- (g) Stack C-8 emissions from the abrasive cut off saw, identified as CF-28, shall not exceed 2.58 pounds of PM per hour.
- (h) Stack V-4 emissions from the shakeout area, identified as CF-SA, shall not exceed 2.58 pounds of PM per hour.
- (i) Stack C-1 emissions from the ring muller, identified as CF-23, shall not exceed 7.16 pounds of PM per hour.

Compliance with these PM limitations in combination with the unrestricted potential PM emissions of 16.3 tons per year from the natural gas-fired core machine, identified as CF-15, the three (3) sand mullers, identified as CF-20 through CF-22, the four (4) natural gas-fired furnaces, identified as CF-2 through CF-5, the five (5) natural gas-fired infrared heaters, identified as CF-6 through CF-10, the two (2) natural gas-fired infrared heaters, identified as CF-11 and CF-12, the two (2) natural gas-fired infrared heaters, identified as CF-13 and CF-14, and the small parts reach in paint booth, identified as PB-01, shall limit the source-wide PM emissions to less than two hundred and fifty (250) tons per year and render the requirements of 326 IAC 2-2, PSD, not applicable to this source.

326 IAC 2-3 (Emission Offset)

The unrestricted potential to emit of VOC and NO_x is less than one hundred (<100) tons per year. Therefore, this source, which is not one (1) of the twenty-eight (28) source categories, is a minor source pursuant to 326 IAC 2-3, Emission Offset.

326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants)

The operation of the paint booth, identified as PB-01, constructed in 2005, will emit less than ten (10) tons per year of a single HAP and less than twenty-five (25) tons per year of a combination of HAPs. Therefore, the requirements of 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants) are not applicable.

326 IAC 2-6 (Emission Reporting)

This source is located in Elkhart County and the potential to emit of each criteria pollutant is less than one hundred (<100) tons per year. Therefore, the requirements of 326 IAC 2-6, Emission Reporting, are not applicable to this source.

326 IAC 5-1 (Opacity Limitations)

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 the 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.

State Rule Applicability – Individual Facilities

326 IAC 6-2 (Particulate Emission Limitations for Sources of Indirect Heating)

The two (2) crucible pot furnaces, identified as CF-16 and CF-17, the two (2) electric induction furnaces, identified as CF-18 and CF-19, the one (1) natural gas-fired core machine, identified as CF-15, the one (1) natural gas-fired water heater, identified as CF-1, the four (4) natural gas-fired furnaces, identified as CF-2 through CF-5, and the nine (9) natural gas-fired infrared heaters, identified as CF-6 through CF-14, are not boilers. Therefore, the requirements of 326 IAC 6-2 (Particulate Emission Limitations for Sources of Indirect Heating) are not applicable to these facilities.

326 IAC 6-3-2 (Particulate Emission Limitations, work practices, and control technologies)

- (a) The paint booth, identified as PB-01, uses less than five (5) gallons per day of coating material. Therefore, pursuant to 326 IAC 6-3-1(b)(15), the requirements of 326 IAC 6-3-2 are not applicable to this facility.
- (b) The unrestricted potential emissions from the natural gas-fired core machine, identified as CF-15, and the four (4) natural gas-fired furnaces, identified as CF-2 through CF-5, are less than 0.551 pounds per hour, each. Therefore, pursuant to 326 IAC 6-3-1(b)(15), the requirements of 326 IAC 6-3-2 (Particulate Emission Limitations, work practices, and control technologies), are not applicable to these facilities.
- (c) The natural gas-fired water heater, identified as CF-1, and the nine (9) natural gas-fired infrared heaters, identified as CF-6 through CF-14, are indirect heaters. Therefore, pursuant to 326 IAC 6-3-1(b)(1), the requirements of 326 IAC 6-3-2 (Particulate Emission

Limitations, work practices, and control technologies), are not applicable to these facilities.

- (d) Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the particulate emission rate from the following emission units and control devices shall not exceed the pounds per hour limitation when operating at the stated process weight rates 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:

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

Emission Unit (Baghouse/Cyclone)	Process Weight Rate (tons/hr)	Allowable Particulate Emissions (lbs/hr)	How will unit comply with 326 IAC 6-3-2?
<i>Bronze Castings process, consisting of the following emission units:</i>			
Crucible Pot furnaces CF-16 and CF-17 (Baghouses CB-4 and CB-5)	0.08, each	0.750, each	Emissions are controlled by baghouses CB-4 and CB-5.
Barrel Shot blast CF-24 (Baghouse CB-8)	0.160	1.20	Emissions are controlled by baghouse CB-8.
Polish Lathes CF-30, 31, 33, 34, 36 and 37 (Cyclone CC-1 and Baghouses CB-1 and CB-2)	0.08, total	0.750, total	Emissions are controlled by cyclone CC-1 and baghouses CB-1 and CB-2.
Grinding Lathes CF-32 and CF-35 (Cyclone CC-1 and Baghouses CB-1 and CB-2)	0.08, total	0.750, total	Emissions are controlled by cyclone CC-1 and baghouses CB-1 and CB-2.
Pouring and Cooling CF-PC1	0.160	1.20	Unrestricted emissions are less than allowable.
<i>Aluminum and Brass Castings process, consisting of the following emission units:</i>			
Electric Induction Furnaces CF-18 and CF-19 (Baghouses CB-4 and CB-5)	0.250, each	1.62, each	Emissions are controlled by baghouses CB-4 and CB-5.
Grind Lathes CF-38 through CF-40 (Cyclone CC-5)	0.500, total	2.58, total	Emissions are controlled by cyclone CC-5.
Sandblaster CF-27 (Cyclone CC-5)	0.500	2.58	Emissions are controlled by cyclone CC-5.
Cabinet shot blaster CF-25 (Cyclone CC-2 and Baghouse CB-3)	0.500	2.58	Emissions are controlled by cyclone CC-2 and baghouse CB-3.
Polisher CF-29 (Cyclone CC-2 and Baghouse CB-3)	0.500	2.58	Emissions are controlled by cyclone CC-2 and baghouse CB-3.

Belted Shot blast CF-26 (Baghouse CB-7)	0.500	2.58	Emissions are controlled by Baghouse CB-7.
Abrasive cut-off saw CF-28 (Cyclone CC-3 and Baghouse CB-6)	0.500	2.58	Emissions are controlled by cyclone CC-3 and Baghouse CB-6.
Shakeout area CF-SA (Cyclone CC-6)	0.500	2.58	Emissions are controlled by cyclone CC-6.
Pouring and Cooling CF-PC2	0.500	2.58	Emissions are controlled by baghouses CB-4 and CB-5.
<i>Sand Castings process, consisting of the following emission units:</i>			
Sand Mullers CF-20 through CF-22 (none)	1.02	4.15	Unrestricted emissions are less than allowable.
Ring Muller CF-23 (Cyclone CC-4)	2.30	7.16	Emissions are controlled by cyclone CC-4.

The particulate rate calculated for each emission unit shows that each emission unit in Appendix A can comply with the calculated allowable particulate emission rate pursuant to 326 IAC 6-3-2 as shown in the above table.

In addition, several of the emission units exhaust through the same baghouse or stack. The allowable particulate pursuant to 326 IAC 6-3-2 has been tabulated by stack/exhaust and baghouse as follows:

Stack # or Exhaust	Emission Unit	Process Weight Rate (tons/hr)	Allowable PM Emission Rate (pounds/hour)
Stacks C-3 and C-4	CF-16	Subtotal of 0.160	1.50
	CF-17		
	CF-18	Subtotal of 0.500	3.24
	CF-19		
	CF-PC1	Subtotal of 0.160	1.50
CF-PC2	Subtotal of 0.160	1.50	
			Total: 7.74
Stack V-8	CF-24	0.160	1.20
Stack C-6A	CF-30	0.080	0.750
	CF-31		
	CF-33		
	CF-34		
	CF-36		
	CF-37		
Stack C-6B	CF-32	0.080	0.750
	CF-35		
Stack C-7	CF-25	Subtotal of 0.500	2.58
	CF-27	Subtotal of 0.500	2.58

	CF-29	Subtotal of 0.500	2.58
	CF-38 CF-39 CF-40	Subtotal of 0.500	2.58
			Total: 10.3
Baghouse CB-7	CF-26	0.500	2.58
Stack C-8	CF-28	0.500	2.58
Stack V-4	CF-SA	0.500	2.58
Stack V-5	CF-20 CF-21 CF-22	1.02	4.15
Stack C-1	CF-23	2.30	7.16

326 IAC 8-1-6 (New facilities; general reduction requirements)

The two (2) pouring and cooling lines, identified as CF-PC1 and CF-PC2, the shakeout area, identified as CF-SA, and the paint booth, identified as PB-01, were all constructed after the January 1, 1980 applicability date of this rule, have VOC emissions of less than twenty-five (25.0) tons per year, each. Therefore, pursuant to 326 IAC 8-1-6(1), the requirements of 326 IAC 8-1-6 (New facilities; general reduction requirements) are not applicable to these facilities.

326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations)

This source is located in Elkhart County, which is an attainment county for PM_{2.5} and PM₁₀, and received all necessary preconstruction approvals before December 13, 1985. Therefore, the requirements of 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations) are not applicable.

326 IAC 8-2-9 (Miscellaneous Metal Coating)

The paint booth, identified as PB-1, has actual VOC emissions of less than fifteen (<15.0) pounds per day. Therefore, pursuant to 326 IAC 8-2-1(a)(4), the requirements of 326 IAC 8-2-9 (Miscellaneous Metal Coating) are not applicable to this facility.

326 IAC 9-1-2 (Carbon monoxide emission limits)

This foundry constructed after the 1972 applicability date of this rule is not subject to the requirements of this rule because the source does not operate a grey iron cupola, blast furnace, basic oxygen steel furnace, or other ferrous metal smelting equipment.

326 IAC 11-1 (Existing Foundries)

This foundry is not subject to the requirements of 326 IAC 11-1-2 because this foundry was constructed after the December 6, 1968 applicability date of this rule.

Compliance Determination and Monitoring Requirements

The Compliance Determination Requirements applicable to this source are as follows:

The bronze castings process, the aluminum and brass castings process, and the sand castings process have applicable compliance determination conditions as specified below:

The baghouses and cyclones for particulate control shall be in operation and control emissions from the bronze castings process, the aluminum and brass

castings process, and the sand castings process, at all times when these processes are in operation.

The compliance monitoring requirements applicable to this source are as follows:

Control	Parameter	Frequency	Range	Excursions and Exceedances
Baghouses CB-1 through CB-8	Water Pressure Drop	Daily	1.0 to 5.0 inches	Response Steps
	Visible Emissions		Normal-Abnormal	

These monitoring conditions are necessary because the baghouses for the facilities which comprise the bronze castings process, the aluminum and brass castings process, and the sand castings process must operate properly to ensure compliance with 326 IAC 6-3, 326 IAC 2-2, and 326 IAC 2-6.1.

Recommendation

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

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

An application for the purposes of this review was received on June 27, 2006. Additional information was received on June 20, 21, 28, 29, and July 6, 2007.

Conclusion

The operation of this bronze, aluminum, and brass foundry shall be subject to the conditions of the attached **MSOP Renewal No. M 039-23278-00202**.

Company Name: Crosbie Foundry Company, Inc.
 Address City IN Zip: 1600 Mishawaka Street, Elkhart, Indiana 46514
 MSOP Renewal: 039-23278-00202
 Reviewer: Michael A. Morrone/MES
 Date: June 29, 2007

Please note that for the brass and the aluminum melting below, only the worst case (brass) was taken as the representative emissions from CF-18 and CF-1!

Process:	Rate (tons brass/hr)*	Pollutant	Ef (lb/ton produced)	Ebc (ton/yr)	Type of control	Control Efficiency (%)	Eac (ton/yr)
Brass Melting							
Two (2) electric induction melting furnaces (CF-18 and CF-19) (brass)	0.500	PM	20.0	43.8	Baghouse	99.0%	0.438
		PM-10	20.0	43.8	Baghouse	99.0%	0.438
Source of Criteria							
Pollutant Factors:							
EPA SCC# 3-04-002-24							
FIRE 6.25							
AP-42 Ch. 12.9							
Fifth edition 1995							

Process:	Rate (tons aluminum/hr)*	Pollutant	Ef (lb/ton produced)	Ebc (ton/yr)	Type of control	Control Efficiency (%)	Eac (ton/yr)
Aluminum Melting							
Two (2) electric induction melting furnaces (CF-18 and CF-19) (aluminum)	0.270	PM	4.30	5.09	Baghouse	99.00%	0.051
		PM-10	2.60	3.07	Baghouse	99.00%	0.031
Source of Criteria							
Pollutant Factors:							
EPA SCC# 3-04-001-03							
FIRE 6.25							

Process:	Rate (tons bronze/hr)*	Pollutant	Ef (lb/ton produced)	Ebc (ton/yr)	Type of control	Control Efficiency (%)	Eac (ton/yr)		
Bronze Melting									
Two (2) crucible pot furnaces (CF-16 and CF-17) (bronze)	0.160	PM	21.0	14.7	Baghouse	99.00%	0.147		
		PM-10	12.4	8.69	Baghouse	99.00%	0.087		
		Nickel*	3.99	2.80			2.80		
		Lead*	2.31	1.62			1.62		
		Cobalt*	1.68	1.18			1.18		
		Manganese*	0.210	0.147			0.147		
		Antimony*	0.074	0.052			0.052		
		Phosphorus*	0.011	0.007			0.007		
		*The emission factors for the HAPs above are the PM emission factor multiplied by the weight % of each HAP in the bronze used by the source. These percentages have been verified by MSDS. Please note that the combination of nickel and cobalt ranges from 11-27%; the source stated that the nickel is 19%, so cobalt was assigned a value of 8%.							
		Source of Criteria							
Pollutant Factors:									
AP-42 Table 12.9-2									
EPA SCC# 3-04-002-19									
FIRE 6.25									

Process:	Rate (tons bronze/hr)	Pollutant	Ef (lb/ton produced)	Ebc (ton/yr)	Type of Control	Control Efficiency (%)	Eac (ton/yr)	
Bronze Pouring								
Pouring/Casting (CF-PC1)	0.160	PM	4.20	2.94	Baghouse	99.00%	0.029	
		PM-10	2.06	1.44	Baghouse	99.00%	0.014	
		SO2	0.020	0.014			0.014	
		NOx	0.010	0.007			0.007	
		VOC	0.140	0.098			0.098	
		Nickel*	0.798	0.559			0.559	
		Lead*	0.462	0.324			0.324	
		Cobalt*	0.336	0.235			0.235	
		Manganese*	0.042	0.029			0.029	
		Antimony*	0.015	0.010			0.010	
		Phosphorus*	0.002	0.001			0.001	
		Source of Criteria						
		Pollutant Factors:						
SCC# 3-04-003-18 (except as noted)								
*See HAP note under "Bronze Melting"								

Process:	Rate (tons iron/hr)	Pollutant	Ef (lb/ton produced)	Ebc (ton/yr)	Type of Control	Control Efficiency (%)	Eac (ton/yr)
Bronze Cooling							
Castings Cooling (CF-PC1)	0.160	PM	1.40	0.981	Baghouse	99.00%	0.010
		PM-10	1.40	0.981	Baghouse	99.00%	0.010
		Nickel*	0.266	0.186			0.186
		Lead*	0.154	0.108			0.108
		Cobalt*	0.112	0.078			0.078
		Manganese*	0.014	0.010			0.010
		Antimony*	0.005	0.003			0.003
		Phosphorus*	0.001	0.0005			0.000
		Source of Criteria					
Pollutant Factors:							
SCC# 3-04-003-25							
*See HAP note under "Bronze Melting"							

Process:	Rate (tons brass/hr)	Pollutant	Ef (lb/ton produced)	Ebc (ton/yr)	Type of Control	Control Efficiency (%)	Eac (ton/yr)
Brass Pouring							
Pouring/Casting (CF-PC2)	0.500	PM	4.20	9.20	Baghouse	99.00%	0.092
Source of Criteria		PM-10	2.06	4.51	Baghouse	99.00%	0.045
Pollutant Factors:		SO2	0.020	0.044			0.044
		NOx	0.010	0.022			0.022
SCC# 3-04-003-18 (except as noted)		VOC	0.140	0.307			0.307

Process:	Rate (tons brass/hr)	Pollutant	Ef (lb/ton produced)	Ebc (ton/yr)	Type of Control	Control Efficiency (%)	Eac (ton/yr)
Brass Cooling							
Castings Cooling (CF-PC2)	0.500	PM	1.40	3.07	Baghouse	99.00%	0.031
Source of Criteria		PM-10	1.40	3.07	Baghouse	99.00%	0.031
Pollutant Factors:							
SCC# 3-04-003-25							

Process:	Rate (tons brass/hr)	Pollutant	Ef (lb/ton produced)	Ebc (ton/yr)	Type of control	Control Efficiency (%)	Eac (ton/yr)
Aluminum and Brass Shakeout							
One (1) shakeout area (CF-SA)	0.500	PM	3.20	7.01	Cyclone	90.00%	0.701
Source of Criteria		PM-10	2.24	4.91	Cyclone	90.00%	0.491
Pollutant Factors:		SO2	0.00	0.00			0.00
		NOx	0.00	0.00			0.00
FIRE 6.25		VOC	1.20	2.63			2.63
SCC# 3-04-003-31		CO	---	0.00			0.00
AP-42 Ch. 12.10		chromium	0.0012	0.003			0.003
Fifth edition 1995		cobalt	0.0001	0.0002			0.0002
		nickel	0.002	0.005			0.005
		arsenic	0.0004	0.001			0.001
		cadmium	0.0002	0.0004			0.0004
		selenium	0.00003	0.0001			0.0001
		Lead	0.012	0.027			0.027

Process:	Rate (tons bronze/hr)	Pollutant	Ef (lb/ton produced)	Ebc (ton/yr)	Type of control	Control Efficiency (%)	Eac (ton/yr)
Bronze Cleaning and Finishing							
Six (6) polish lathes (CF-30, CF-31, CF-33, CF-34, CF-36, CF-37), two (2) grinding lathes (CF-32 and CF-35)	0.160	PM	17.0	11.9	Baghouse	99.00%	0.119
Source of Criteria		PM-10	1.70	1.19	Baghouse	99.00%	0.012
Pollutant Factors:		SO2	0.00	0.00			0.00
		NOx	0.00	0.00			0.00
FIRE 6.25		VOC	0.00	0.00			0.00
SCC# 3-04-003-40		CO	0.00	0.00			0.00
AP-42 Ch. 12.10		Nickel*	3.23	2.26			2.264
Fifth edition 1995		Lead*	1.87	1.31			1.310
		Cobalt*	1.36	0.953			0.95
		Manganese*	0.170	0.119			0.119
		Antimony*	0.060	0.042			0.042
		Phosphorus*	0.009	0.006			0.0060
*The emission factors for the HAPs above are the PM emission factor multiplied by the weight % of each HAP in the bronze used by the source. These percentages have been verified by MSDS. Please note that the combination of nickel and cobalt							

Process:	Rate (tons brass/hr)	Pollutant	Ef (lb/ton produced)	Ebc (ton/yr)	Type of control	Control Efficiency (%)	Eac (ton/yr)
Aluminum and Brass Cleaning and Finishing							
Three (3) grind lathes (CF-38 - CF-40), one (1) sandblaster (CF-27), one (1) abrasive cut off saw (CF-28), one (1) polisher (CF-29)	0.500	PM	17.0	37.2	Baghouse	99.00%	0.372
Source of Criteria		PM-10	1.70	3.72	Baghouse	99.00%	0.037
Pollutant Factors:		SO2	0.00	0.00			0.00
		NOx	0.00	0.00			0.00
FIRE 6.25		VOC	0.00	0.00			0.00
SCC# 3-04-003-40		CO	0.00	0.00			0.00
AP-42 Ch. 12.10		chromium	0.006	0.014			0.014
Fifth edition 1995		cobalt	0.001	0.001			0.001
		nickel	0.011	0.025			0.025
		arsenic	0.002	0.005			0.005
		cadmium	0.001	0.002			0.002
		selenium	0.0002	0.0004			0.0004
		Lead	0.005	0.010			0.010

Process:	Rate (tons sand/hr)	Pollutant	Ef (lb/ton produced)	Ebc (ton/yr)	Type of control	Control Efficiency (%)	Eac (ton/yr)
Sand Castings Core Making	0.015	PM	0.900	0.059	none	0.00%	0.059
Core Machine (CF-15)		PM-10	0.900	0.059	none	0.00%	0.059
Source of Criteria		SO2	0.00	0.00	none		0.00
Pollutant Factors:		NOx	0.500	0.033	none		0.033
FIRE 6.25		VOC	--	0.00	none		0.00
SCC# 3-04-003-53							
Only 30 lbs/hr of core sand is used.							
Sand Handling	1.02	PM	3.60	16.1	none	0.00%	16.1
Three (3) sand mullers (CF-20 - CF-22)		PM-10	0.540	2.41	none	0.00%	2.41
Source of Criteria							
Pollutant Factors:							
FIRE 6.25							
EPA SCC# 3-04-003-50							
Sand Handling	2.30	PM	3.60	36.3	Cyclone	99.00%	0.363
One (1) ring muller (CF-23)		PM-10	0.540	5.44	Cyclone	99.00%	0.054
Source of Criteria							
Pollutant Factors:							
FIRE 6.25							
EPA SCC# 3-04-003-50							

Methodology:

*Please note that the furnace emission factors were separated out according to the metal melted. The other foundry processes were assumed to be similar to a gray iron foundry and as a result, those emission factors were used.

Please refer to the 326 IAC 2-2 PSD section of the TSD for PM limits tabulated by stack exhaust.

Ef = Emission factor

Ebc = Potential Emissions before controls = Rate (units/hr) x Ef(lbs/unit) x 8760 hrs/yr / 2000 lbs/hr

Eac = Potential Emissions after controls = (1-efficiency/100) x Ebc

1 ton = 2000 lbs

**Appendix A: Emission Calculations
Abrasive Blasting - Confined**

**Company Name: Crosbie Foundry Company, Inc.
Address City IN Zip: 1600 Mishawaka Street, Elkhart, Indiana 46514
MSOP Renewal: 039-23278-00202
Reviewer: Michael A. Morrone/MES
Date: June 29, 2007**

One (1) barrel shot blast, identified as CF-24, one (1) cabinet shot blaster, identified as CF-25, and one (1) belted shot blast, identified as CF-26

Table 1 - Emission Factors for Abrasives

Abrasive	Emission Factor	
	lb PM / ton metal	lb PM10 / ton metal
Steel Shot	17.00	1.70

CF-24 Metal Processed (tons/hr) = 0.160
 CF-25 Metal Processed (tons/hr) = 0.500
 CF-26 Metal Processed (tons/hr) = 0.500

Control Efficiency for CF-24 = 99.00%
 Control Efficiency for CF-25 = 99.00%
 Control Efficiency for CF-26 = 99.00%

Bronze Castings Process

Uncontrolled PM Emissions (CF-24) =	2.72	lbs/hr
	11.9	tons/yr
Controlled PM Emissions (CF-24) =	0.027	lbs/hr
	0.119	tons/yr
Limited PM Emissions (CF-24) =	1.20	lbs/hr
	5.26	tons/yr

Uncontrolled PM10 Emissions (CF-24) =	0.272	lbs/hr
	1.19	tons/yr
Controlled PM10 Emissions (CF-24) =	0.0027	lbs/hr
	0.012	tons/yr

**Aluminum and Brass
Castings Process**

Uncontrolled PM Emissions (CF-25) =	8.5	lbs/hr
	37.2	tons/yr
Controlled PM Emissions (CF-25) =	0.085	lbs/hr
	0.372	tons/yr
Limited PM Emissions (CF-25) =	2.58	lbs/hr
	11.3	tons/yr

Uncontrolled PM10 Emissions (CF-25) =	0.850	lbs/hr
	3.72	tons/yr
Controlled PM10 Emissions (CF-25) =	0.009	lbs/hr
	0.037	tons/yr

**Aluminum and Brass
Castings Process**

Uncontrolled PM Emissions (CF-26) =	8.5	lbs/hr
	37.2	tons/yr
Controlled PM Emissions (CF-26) =	0.085	lbs/hr
	0.372	tons/yr
Limited PM Emissions (CF-26) =	2.58	lbs/hr
	11.3	tons/yr

Uncontrolled PM10 Emissions (CF-26) =	0.85	lbs/hr
	3.72	tons/yr
Controlled PM10 Emissions (CF-26) =	0.0085	lbs/hr
	0.037	tons/yr

HAP Emissions from CF-24 (part of Bronze Castings Process)

HAP	Weight %	Emissions (lbs/hr)	Emissions (tons/yr)
Nickel	19.0%	0.517	2.26
Lead	11.0%	0.299	1.31
Cobalt	8.00%	0.218	0.953
Manganese	1.00%	0.027	0.119
Antimony	0.350%	0.010	0.042
Phosphorus	0.050%	0.001	0.006
TOTALS		1.07	4.69

METHODOLOGY

PM and PM10 emission factors from FIRE 6.25 using SCC code 3-04-007-11

Ton/yr = lb/hr X 8760 hr/yr X ton/2000 lbs

*The metal shotblasted in CF-24 is a bronze alloy containing 19% Nickel, 11% Lead, 8% Cobalt, 1% Manganese, 0.35% Antimony, and 0.05% Phosphorus.

**Appendix A: Emissions Calculations
VOC and Particulate
Small Parts Paint Booth, identified as PB-01**

**Company Name: Crosbie Foundry Company, Inc.
Address City IN Zip: 1600 Mishawaka Street, Elkhart, Indiana 46514
MSOP Renewal: 039-23278-00202
Reviewer: Michael A. Morrone/MES
Date: June 29, 2007**

Material	Density (Lb/Gal)	Weight % Volatile (H2O & Organics)	Weight % Water	Weight % Organics	Volume % Water	Volume % Non-Volatiles (solids)	Gal of Mat. (gal/unit)	Maximum (unit/hour)	Pounds VOC per gallon of coating less water	Pounds VOC per gallon of coating	Potential VOC pounds per hour	Potential VOC pounds per day	Potential VOC tons per year	Particulate Potential (ton/yr)	lb VOC/gal solids	Transfer Efficiency
ALK-200	7.80	57.7%	0.0%	57.7%	0.0%	26.30%	0.00053	10.000	4.50	4.50	0.02	0.57	0.10	0.02	17.10	75%
4-PLT	7.10	100%	0.0%	100.0%	0.0%	0.00%	0.00088	10.000	7.10	7.10	0.06	1.50	0.27	0.00	n/a	75%
T1C285	7.50	77.5%	0.0%	77.5%	0.0%	17.00%	0.00037	10.000	5.81	5.81	0.02	0.52	0.09	0.01	34.19	75%
R7K214	6.80	100%	0.0%	100.0%	0.0%	0.00%	0.00061	10.000	6.80	6.80	0.04	1.00	0.18	0.00	n/a	75%
P2A40	9.70	45.27%	0.0%	45.3%	0.0%	48.00%	0.00107	10.000	4.39	4.39	0.05	1.13	0.21	0.06	9.15	75%

PM Control Efficiency: 90.00%

Add worst case coating to all solvents

Uncontrolled	0.062	1.50	0.274	0.062
Controlled	0.062	1.50	0.274	0.006

METHODOLOGY

Pounds of VOC per Gallon Coating less Water = (Density (lb/gal) * Weight % Organics) / (1-Volume % water)
Pounds of VOC per Gallon Coating = (Density (lb/gal) * Weight % Organics)
Potential VOC Pounds per Hour = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr)
Potential VOC Pounds per Day = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr) * (24 hr/day)
Potential VOC Tons per Year = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr) * (8760 hr/yr) * (1 ton/2000 lbs)
Particulate Potential Tons per Year = (units/hour) * (gal/unit) * (lbs/gal) * (1- Weight % Volatiles) * (1-Transfer efficiency) *(8760 hrs/yr) *(1 ton/2000 lbs)
Pounds VOC per Gallon of Solids = (Density (lbs/gal) * Weight % organics) / (Volume % solids)
Total = Worst Coating + Sum of all solvents used

**Appendix A: Emission Calculations
HAP Emission Calculations**

**Company Name: Crosbie Foundry Company, Inc.
Address City IN Zip: 1600 Mishawaka Street, Elkhart, Indiana 46514
MSOP Renewal: 039-23278-00202
Permit Reviewer: Michael A. Morrone/MES
Date: June 29, 2007**

Material	Density (Lb/Gal)	Gallons of Material (gal/unit)	Maximum (unit/hour)	Weight % Xylene	Weight % Toluene	Weight % 2-Butoxyethanol	Weight % Ethyl Benzene	Weight % Methanol	Weight % Glycol Ethers	Weight % Dibutyl Phalate	Xylene Emissions (ton/yr)	Toluene Emissions (ton/yr)	2-Butoxyethanol Emissions (ton/yr)	Ethyl Benzene Emissions (ton/yr)	Methanol Emissions (ton/yr)	Glycol Ethers Emissions (ton/yr)	Dibutyl Phalate Emissions (ton/yr)	Total Emissions (ton/yr)
Small Parts Paint Booth, identified as PB-01																		
ALK-200	7.84	0.00053	10.000	47.17%	0.00%	0.00%	10.48%	0.00%	0.00%	0.00%	0.086	0.00	0.00	0.019	0.00	0.00	0.00	0.105
4-PLT	7.07	0.00088	10.000	5.00%	65.00%	0.00%	0.00%	10.00%	0.00%	0.00%	0.014	0.177	0.00	0.00	0.027	0.00	0.00	0.218
T1C285	7.52	0.00037	10.000	1.00%	41.00%	2.00%	0.00%	0.00%	2.00%	0.00%	0.001	0.050	0.00	0.00	0.00	0.002	0.00	0.056
R7K214	6.82	0.00061	10.000	0.00%	51.00%	0.00%	0.00%	3.00%	0.00%	0.00%	0.00	0.093	0.00	0.00	0.005	0.00	0.00	0.098
P2A40	9.7	0.00107	10.000	0.00%	31.00%	0.00%	0.00%	0.00%	0.00%	1.00%	0.00	0.141	0.00	0.00	0.00	0.00	0.005	0.146
Worst Case											0.086	0.177	0.002	0.019	0.027	0.002	0.005	0.319

METHODOLOGY

HAPs emission rate (tons/yr) = Density (lb/gal) * Gal of Material (gal/unit) * Maximum (unit/hr) * Weight % HAP * 8760 hrs/yr * 1 ton/2000 lbs

**Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100**

**Company Name: Crosbie Foundry Company, Inc.
Address City IN Zip: 1600 Mishawaka Street, Elkhart, Indiana 46514
MSOP Renewal: 039-23278-00202
Reviewer: Michael A. Morrone/MES
Date: June 29, 2007**

Emission Factor in lb/MMCF	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
	1.90	7.60	0.600	100	5.50	84.0
				**see below		

*PM emission factor is filterable PM only. PM-10 emission factor is filterable and condensable PM-10 combined.

**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Equipment	Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr	Potential Emission in tons/yr					
			PM*	PM10*	SO2	NOx	VOC	CO
Two (2) natural gas-fired crucible pot furnaces (CF-16 - CF-17)	1.90	16.6	0.016	0.063	0.005	0.832	0.046	0.699
One (1) natural gas-fired core machine (CF-15)	0.180	1.58	0.001	0.006	0.0005	0.079	0.004	0.066
One (1) natural gas-fired water heater (CF-1)	0.034	0.298	0.0003	0.001	0.0001	0.015	0.001	0.013
Four (4) natural gas-fired furnaces (CF-2 - CF-5)	0.388	3.39	0.003	0.013	0.001	0.170	0.009	0.143
Five (5) natural gas-fired infrared heaters (CF-6 - CF-10)	0.150	1.31	0.001	0.005	0.0004	0.066	0.004	0.055
Two (2) natural gas-fired infrared heaters (CF-11 - CF-12)	0.120	1.05	0.001	0.004	0.0003	0.053	0.003	0.044
Two (2) natural gas-fired infrared heaters (CF-13 - CF-14)	0.200	1.75	0.002	0.007	0.001	0.088	0.005	0.074
Total	2.97	26.0	0.025	0.099	0.008	1.30	0.072	1.09

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 8 for HAPs emissions calculations.

**Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
HAPs Emissions**

**Company Name: Crosbie Foundry Company, Inc.
Address City IN Zip: 1600 Mishawaka Street, Elkhart, Indiana 46514
MSOP Renewal: 039-23278-00202
Reviewer: Michael A. Morrone/MES
Date: June 29, 2007**

HAPs - Organics

Emission Factor in lb/MMcf	Benzene 0.0021	Dichlorobenzene 0.001	Formaldehyde 0.075	Hexane 1.80	Toluene 0.003
Potential Emission in tons/yr	0.00003	0.00002	0.001	0.023	0.00004

HAPs - Metals

Emission Factor in lb/MMcf	Lead 0.0005	Cadmium 0.0011	Chromium 0.001	Manganese 0.0004	Nickel 0.002	Total HAPs
Potential Emission in tons/yr	0.00001	0.00001	0.00002	0.000005	0.00003	0.025

Methodology is the same as page 7.

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

**Appendix A: Emissions Calculations
Summary**

**Company Name: Crosbie Foundry Company, Inc.
Address City IN Zip: 1600 Mishawaka Street, Elkhart, Indiana 46514
MSOP Renewal: 039-23278-00202
Reviewer: Michael A. Morrone/MES
Date: June 29, 2007**

**Summary of Emissions
Uncontrolled Potential Emissions**

Significant Emission Units	PM	PM-10	SO2	NOx	VOC	CO	Lead	Chromium	Cobalt	Nickel	Arsenic	Cadmium	Selenium	Xylene	Toluene	2-Butoxy-ethanol	Ethyl Benzene	Methanol	Glycol Ethers	Dibutyl Phalate	Benzene	Dichloro-benzene	Formaldehyde	Hexane	Manganese	Antimony	Phosphorus	Total HAPs	
	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	
Bronze Castings Process																													
Crucible Pot Furnaces CF-16 and CF-17	14.7	8.69	0.00	0.00	0.00	0.00	1.62	0.00	1.18	2.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.147	0.052	0.007	5.80	
Barrel Shot Blast CF-24	11.9	1.19	0.00	0.00	0.00	0.00	1.31	0.00	0.953	2.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.119	0.042	0.006	4.69	
Polish Lathes CF-30, 31, 33, 34, 36 and 37 and Grind Lathes CF-32 and 35	11.9	1.19	0.00	0.00	0.00	0.00	1.310	0.00	0.953	2.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.119	0.042	0.006	4.69	
Pouring and Cooling CF-PC1	3.92	2.42	0.014	0.007	0.098	0.00	0.432	0.00	0.314	0.746	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.039	0.014	0.002	1.55	
Aluminum and Brass Castings Process																													
Electric Induction Furnaces CF-18 and CF-19	43.8	43.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Sand Blaster CF-27, abrasive cut-off saw CF-28, polisher CF-29, and grind lathes CF-38 - CF-40	37.2	3.72	0.00	0.00	0.00	0.00	0.010	0.014	0.001	0.025	0.005	0.002	0.0004	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Cabinet Shot Blast CF-25	37.2	3.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Belted Shot Blast CF-26	37.2	3.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Shakeout Area CF-SA	7.01	4.91	0.00	0.00	2.63	0.00	0.027	0.003	0.0002	0.005	0.001	0.0004	0.0001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.036	
Pouring and Cooling CF-PC2	12.3	7.58	0.044	0.022	0.307	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Sand Castings Process																													
Core Machine CF-15	0.059	0.059	0.00	0.033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Sand Mullers CF-20 - CF-22	16.1	2.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Ring Muller CF-23	36.3	5.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Other Activities																													
Natural gas-fired combustion	0.025	0.099	0.008	1.30	0.072	1.09	0.00001	0.00002	0.00	0.00003	0.00	0.00001	0.00	0.00	0.00004	0.00	0.00	0.00	0.00	0.00	0.00003	0.00002	0.00098	0.023	0.00004	0.00000	0.00000	0.025	
Paint Booth PB-01	0.062	0.062	0.00	0.00	0.274	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.086	0.177	0.002	0.019	0.027	0.002	0.005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.319	
Total	270	89.0	0.066	1.36	3.38	1.09	4.71	0.017	3.40	8.10	0.006	0.003	0.0004	0.086	0.177	0.002	0.019	0.027	0.002	0.005	0.00003	0.00002	0.0010	0.023	0.425	0.149	0.021	17.2	

Company Name: Crosbie Foundry Company, Inc.
Address City IN Zip: 1600 Mishawaka Street, Elkhart, Indiana 46514
MSOP Renewal: 039-23278-00202
Reviewer: Michael A. Morrone/MES
Date: June 29, 2007

Controlled Potential Emissions

Significant Emission Units	PM	PM-10	SO2	NOx	VOC	CO	Lead	Chromium	Cobalt	Nickel	Arsenic	Cadmium	Selenium	Xylene	Toluene	2-Butoxy-ethanol	Ethyl Benzene	Methanol	Glycol Ethers	Dibutyl Phalate	Benzene	Dichloro-benzene	Formal-dehyde	Hexane	Manganese	Antimony	Phosphorus	Total HAPs
	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)
Bronze Castings Process																												
Crucible Pot Furnaces CF-16 and CF-17	0.147	0.147	0.00	0.00	0.00	0.00	1.62	0.00	1.18	2.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.147	0.052	0.007	5.80
Barrel Shot Blast CF-24	0.119	0.012	0.00	0.00	0.00	0.00	1.31	0.00	0.95	2.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.119	0.042	0.006	4.69
Polish Lathes CF-30, 31, 33, 34, 36 and 37 and Grind Lathes CF-32 and 35	0.119	0.012	0.00	0.00	0.00	0.00	1.31	0.00	0.95	2.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.119	0.042	0.006	4.69
Pouring and Cooling CF-PC1	0.029	0.014	0.014	0.007	0.098	0.00	0.432	0.00	0.314	0.746	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.039	0.014	0.002	1.55
Aluminum and Brass Castings Process																												
Electric Induction Furnaces CF-18 and CF-19	0.438	0.438	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sand Blaster CF-27, abrasive cut-off saw CF-28, polisher CF-29, and grind lathes CF-38 - CF-40	0.372	0.037	0.00	0.00	0.00	0.00	0.010	0.014	0.001	0.025	0.005	0.002	0.0004	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.058
Cabinet Shot Blast CF-25	0.372	0.037	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Belted Shot Blast CF-26	0.372	0.037	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Shakeout Area CF-SA	0.701	0.491	0.00	0.00	2.63	0.00	0.027	0.003	0.0002	0.005	0.001	0.0004	0.0001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.036
Pouring and Cooling CF-PC2	0.123	0.076	0.044	0.022	0.307	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sand Castings Process																												
Core Machine CF-15	0.059	0.059	0.00	0.033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sand Mullers CF-20 - CF-22	16.1	2.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ring Muller CF-23	0.363	0.054	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Activities																												
Natural gas-fired combustion	0.025	0.099	0.008	1.30	0.072	1.093	0.000007	0.00002	0.00	0.00003	0.00	0.00001	0.00	0.00	0.00004	0.00	0.00	0.00	0.00	0.00	0.00003	0.00002	0.0010	0.023	0.00004	0.000	0.000	0.025
Paint Booth PB-01	0.006	0.006	0.00	0.00	0.274	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.086	0.177	0.002	0.019	0.027	0.002	0.005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.319
Total	19.3	3.93	0.066	1.36	3.38	1.09	4.71	0.017	3.40	8.10	0.006	0.003	0.0004	0.086	0.177	0.002	0.019	0.027	0.002	0.005	0.00003	0.00002	0.001	0.023	0.425	0.149	0.021	17.2

Company Name: Crosbie Foundry Company, Inc.
 Address City IN Zip: 1600 Mishawaka Street, Elkhart, Indiana 46514
 MSOP Renewal: 039-23278-00202
 Reviewer: Michael A. Morrone/MES
 Date: June 29, 2007

Limited Potential Emissions

Significant Emission Units	PM	PM-10	SO2	NOx	VOC	CO	Lead	Chromium	Cobalt	Nickel	Arsenic	Cadmium	Selenium	Xylene	Toluene	2-Butoxy-ethanol	Ethyl Benzene	Methanol	Glycol Ethers	Dibutyl Phalate	Benzene	Dichloro-benzene	Formaldehyde	Hexane	Manganese	Antimony	Phosphorus	Total HAPs	
	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	
Bronze Castings Process																													
Crucible Pot Furnaces CF-16 and CF-17	33.9	8.69	0.00	0.00	0.00	0.00	1.62	0.00	1.18	2.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.147	0.052	0.007	5.80	
Barrel Shot Blast CF-24	5.26	1.19	0.00	0.00	0.00	0.00	1.31	0.00	0.953	2.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.119	0.042	0.006	4.69	
Polish Lathes CF-30, 31, 33, 34, 36, and 37	3.29	1.19	0.00	0.00	0.00	0.00	1.31	0.00	0.953	2.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.119	0.042	0.006	4.69	
Grind Lathes CF-32 and CF-35	3.29																												
Pouring and Cooling CF-PC1	Limited with CF-16 - 17	2.42	0.014	0.007	0.098	0.00	0.432	0.00	0.314	0.746	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.039	0.014	0.00	1.55	
Aluminum and Brass Castings Process																													
Electric Induction Furnaces CF-18 and CF-19	Limited with CF-16 - 17	43.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cabinet Shot Blast CF-25		3.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sand Blaster CF-27, polisher CF-29, and grind lathes CF-38 - CF-40	45.2	3.72	0.00	0.00	0.00	0.010	0.014	0.001	0.025	0.005	0.002	0.0004	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.058
Abrasive Cut off Saw CF-28	11.3																												
Belted Shot Blast CF-26	11.3	3.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Shakeout Area CF-SA	11.3	4.91	0.00	0.00	2.63	0.00	0.027	0.003	0.0002	0.005	0.001	0.0004	0.0001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.036
Pouring and Cooling CF-PC2	Limited with CF-16 - 17	7.58	0.044	0.022	0.307	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sand Castings Process																													
Core Machine CF-15	0.059	0.059	0.00	0.033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sand Mullers CF-20 - CF-22	16.1	2.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ring Muller CF-23	31.4	5.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Activities																													
Natural gas-fired combustion	0.025	0.099	0.008	1.30	0.072	1.09	0.00001	0.00002	0.00	0.00003	0.00	0.00	0.00	0.00	0.00004	0.00	0.00	0.00	0.00	0.00	0.00003	0.00002	0.0010	0.023	0.00004	0.00	0.00	0.025	
Paint Booth PB-01	0.062	0.062	0.00	0.00	0.274	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.086	0.177	0.002	0.019	0.027	0.002	0.005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.319	
Total	172	89.0	0.066	1.36	3.38	1.09	4.71	0.017	3.40	8.10	0.006	0.003	0.0004	0.086	0.177	0.002	0.019	0.027	0.002	0.005	0.00003	0.00002	0.001	0.023	0.425	0.149	0.021	17.2	