



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

Mitchell E. Daniels Jr.
Governor

Thomas W. Easterly
Commissioner

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

TO: Interested Parties / Applicant

DATE: November 20, 2008

RE: Urschel Laboratories, Inc / 127-26605-00037

FROM: Matthew Stuckey, Branch Chief
Permits Branch
Office of Air Quality

Notice of Decision: Approval - Effective Immediately

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

If you wish to challenge this decision, IC 4-21.5-3 and IC 13-15-6-1 require that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office of Environmental Adjudication, 100 North Senate Avenue, Government Center North, Suite N 501E, Indianapolis, IN 46204, **within eighteen (18) calendar days of the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

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

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

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

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

Enclosures
FNPER.dot12/03/07



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Federally Enforceable State Operating Permit Renewal OFFICE OF AIR QUALITY

**Urschel Laboratories, Inc.
2503 Calumet Avenue
Valparaiso, Indiana IN 46383**

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

The Permittee must comply with all conditions of this permit. Noncompliance with any provisions of this permit is grounds for enforcement action; permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. An emergency does constitute an affirmative defense in an enforcement action provided the Permittee complies with the applicable requirements set forth in Section B, Emergency Provisions.

This permit is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-8 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

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 FESOP under 326 IAC 2-8.

Operation Permit No.: F127-26605-00037	
Issued by: <i>Original Signed By:</i>	Issuance Date: November 20, 2008
Iryn Calilung, Section Chief Permits Branch Office of Air Quality	Expiration Date: November 20, 2018

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Stratospheric Ozone Protection

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SECTION A SOURCE SUMMARY

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

A.1 General Information [326 IAC 2-8-3(b)]

The Permittee owns and operates a stationary no bake and green-sand bronze foundry.

Source Address:	2503 Calumet Avenue, Valparaiso, Indiana 46383
Mailing Address:	PO Box 2200, Valparaiso, Indiana 46384
General Source Phone Number:	219-464-4811
SIC Code:	3556
County Location:	Porter
Source Location Status:	Nonattainment for 8-hour ozone standard Nonattainment for PM2.5 standard Attainment for all other criteria pollutants
Source Status:	Federally Enforceable State 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 [326 IAC 2-8-3(c)(3)]

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

- (a) One (1) No Bake Foundry operation, installed in 2003, consisting of the following:
- (1) One (1) Sand handling system, identified as Unit A, consisting of two (2) sand silos, two (2) sand hoppers and associated conveyance equipment, with maximum process weight rate of 5.04 tons of sand per hour, and maximum binder usage of 588,672 pounds per year, particulate emissions controlled by a Sand Handling Baghouse PCU-1 and exhausting to S/V-1.
 - (2) One (1) Electric induction melting furnace, identified as Unit B, pouring, casting and cooling operation with maximum charge capacity of 0.6 ton of metals per hour and maximum process weight rate of binder usage of 26 lbs/ton of sand, with particulate emissions controlled by a baghouse PCU-2 and exhausting to S/V-2.
 - (3) One (1) thermal sand reclamation operation, identified as Unit C, controlling VOCs from the spent sand by a thermal oxidizer (PCU-3) with maximum system process weight rate of 1000 lbs sand per hour, equipped with a baghouse PCU-4 and exhausting to S/V-3.
- (b) One (1) Green Sand Foundry operation, installed in 1990, consisting of the following:
- (1) One (1) Sand handling system, identified as Unit D, consisting of return sand storage bin, sand feeder hopper, surge hopper, batch hopper, prepared sand feeder hopper, two (2) molder hoppers and associated conveyance equipment, with maximum rate of 25 tons of sand per day and particulate emissions controlled by a Sand Handling Baghouse PCU-1 and exhausting to S/V-1.
 - (2) One (1) Electric induction melting furnace, identified as Unit E, pouring, casting and cooling operation with maximum charge capacity of 0.3 tons of metal per hour with

particulate emissions controlled by a baghouse PCU-2 and exhausting to S/V-2.

A.3 Insignificant Activities [326 IAC 2-7-1(21)][326 IAC 2-8-3(c)(3)(I)]

This stationary source also includes the following insignificant activities:

- (a) Natural gas-fired combustion sources with heat input equal to or less than ten million (10,000,000) Btu per hour.
 - (1) Two (2) natural gas fired sand heater cooler classifiers identified as EQ-3A and EQ-3B, and each rated at maximum heat input rating of 0.375 MMBtu/hr.
 - (2) Two (2) natural gas fired ladle torches identified as EQ-12A, with combined heat input rating of 1.5 MMBtu/hr.
 - (3) One (1) natural gas fired thermal oxidizer identified as PCU-3, and rated at maximum heat input rating of 0.465 MMBtu/hr.
 - (4) One (1) natural gas fired autoclave boiler identified as EQ-19, and rated at maximum heat input rating of 0.89 MMBtu/hr. [326 IAC 6-2-4]
 - (5) One (1) natural gas fired ceramic mold furnace identified as EQ-20, and rated at maximum heat input rating of 2.52 MMBtu/hr.
 - (6) One (1) natural gas fired dry off oven identified as EQ-6, and rated at maximum heat input capacity of 0.75 MMBtu/hr.
 - (7) One (1) natural gas fired Pacific Kiln, identified as K-1, constructed in 2008, with a maximum heat input rate of 1.3 MMBtu/hr.
- (b) Activities with emissions below insignificant thresholds (i.e. VOC emission less than 3 lb/hr and particulate emission less than 5 lb/hr):
 - (1) One (1) stainless steel foundry, identified as Unit K, employing the investment casting process (melting furnace and pouring operation only), with maximum metal charge capacity of 310 pounds per hour.
 - (2) Immersion Cleaning of Machine Parts, identified as Unit G, using 41,793 pounds per year of solution containing 100% VOC content. [326 IAC 8-3-2&5]
 - (3) One (1) CO₂ laser cutting operation, constructed in 2007, with a maximum cutting rate of 600 inches per hour (equivalent to a process rate of 1.0 ton per hour) and exhausting to S/V 4.
 - (4) One (1) surface coating operation identified as pattern shop finishing room, coating mold impressions and exhausting to S/V-5.
 - (5) Spray booth for impeller repair.
- (c) Grinding and machining operations controlled with fabric filters, scrubbers, mist collectors, wet collectors and electrostatic precipitators with a design grain loading of less than or equal to 0.03 grains per actual cubic foot and a gas flow rate less than or equal to 4000 actual cubic feet per minute, including the following: deburring; buffing, polishing, abrasive blasting; pneumatic conveying; and woodworking operations.
 - (1) Frame grinding operation identified as Unit N. [326 IAC 6-3-2]
- (d) The following equipment related to manufacturing activities not resulting in the emission of

HAPs: brazing equipment, cutting torches, soldering equipment, welding equipment.

- (1) Frame and cover welding operation identified as Unit M. [326 IAC 6-3-2]
 - (2) Laser cutting operation identified as Unit O. [326 IAC 6-3-2]
 - (3) Brazing operation booth identified as Unit W. [326 IAC 6-3-2]
 - (4) One (1) Plasma cutting torch identified as unit P-1. [326 IAC 6-3-2]
- (e) Furnaces used for melting metals other than beryllium with a brim full capacity of less than or equal to 450 cubic inches by volume.
- (f) The following VOC and HAP storage containers:
- (1) Storage tanks with capacity less than or equal to 1,000 gallons and annual throughput less than 12,000 gallons.
 - (2) Vessels storing lubricating oils, hydraulic oils, machining oils, and machining fluids.
- (g) A laboratory as defined in 326 IAC 2-7-1(21)(D).
- (h) Machining where an aqueous cutting coolant continuously floods the machining interface.
- (i) Replacement or repair of electrostatic precipitators, bags in baghouses and filters in other air filtration equipment.
- (j) Paved and unpaved roads and parking lots with public access.

A.4 FESOP Applicability [326 IAC 2-8-2]

This stationary source, otherwise required to have a Part 70 permit as described in 326 IAC 2-7-2(a), has applied to the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ) to renew a Federally Enforceable State Operating Permit (FESOP).

SECTION B GENERAL CONDITIONS

B.1 Definitions [326 IAC 2-8-1]

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

B.2 Permit Term [326 IAC 2-8-4(2)][326 IAC 2-1.1-9.5][IC 13-15-3-6(a)]

- (a) This permit, F127-26605-00037, is issued for a fixed term of ten (10) 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 [326 IAC 2-8-6]

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

B.5 Severability [326 IAC 2-8-4(4)]

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

B.6 Property Rights or Exclusive Privilege [326 IAC 2-8-4(5)(D)]

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

B.7 Duty to Provide Information [326 IAC 2-8-4(5)(E)]

- (a) The Permittee shall furnish to IDEM, OAQ, within a reasonable time, any information that IDEM, OAQ may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The submittal by the Permittee does require the certification by 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 [326 IAC 2-8-3(d)][326 IAC 2-8-4(3)(C)(i)][326 IAC 2-8-5(1)]

- (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 Compliance Certification [326 IAC 2-8-5(a)(1)]

- (a) The Permittee shall annually submit a compliance certification report which addresses the status of the source's compliance with the terms and conditions contained in this permit, including emission limitations, standards, or work practices. All certifications shall cover the time period from January 1 to December 31 of the previous year, and shall be submitted no later than April 15 of each year to:

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

- (b) The annual compliance certification report required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.
- (c) The annual compliance certification report shall include the following:
 - (1) The appropriate identification of each term or condition of this permit that is the basis of the certification;
 - (2) The compliance status;
 - (3) Whether compliance was continuous or intermittent;
 - (4) The methods used for determining the compliance status of the source, currently and over the reporting period consistent with 326 IAC 2-8-4(3); and
 - (5) Such other facts, as specified in Sections D of this permit, as IDEM, OAQ may require to determine the compliance status of the source.

The submittal by the Permittee does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

B.10 Compliance Order Issuance [326 IAC 2-8-5(b)]

IDEM, OAQ may issue a compliance order to this Permittee upon discovery that this permit is in nonconformance with an applicable requirement. The order may require immediate compliance or contain a schedule for expeditious compliance with the applicable requirement.

B.11 Preventive Maintenance Plan [326 IAC 1-6-3][326 IAC 2-8-4(9)][326 IAC 2-8-5(a)(1)]

- (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.12 Emergency Provisions [326 IAC 2-8-12]

-
- (a) An emergency, as defined in 326 IAC 2-7-1(12), is not an affirmative defense for an action brought for noncompliance with a federal or state health-based emission limitation except as provided in 326 IAC 2-8-12.
- (b) An emergency, as defined in 326 IAC 2-7-1(12), constitutes an affirmative defense to an action brought for noncompliance with a health-based or technology-based emission limitation if the affirmative defense of an emergency is demonstrated through properly signed, contemporaneous operating logs or other relevant evidence that describe the following:
- (1) An emergency occurred and the Permittee can, to the extent possible, identify the causes of the emergency;
 - (2) The permitted facility was at the time being properly operated;
 - (3) During the period of an emergency, the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in this permit;
 - (4) For each emergency lasting one (1) hour or more, the Permittee notified IDEM, OAQ, within four (4) daytime business hours after the beginning of the emergency, or after the emergency was discovered or reasonably should have been discovered;

Telephone Number: 1-800-451-6027 (ask for Office of Air Quality, Compliance Section), or
Telephone Number: 317-233-0178 (ask for Compliance Section)
Facsimile Number: 317-233-6865
Northwest Regional Office phone: (219) 757-0265; fax: (219) 757-0267.
 - (5) For each emergency lasting one (1) hour or more, the Permittee submitted the attached Emergency Occurrence Report Form or its equivalent, either by mail or facsimile to:

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

Indianapolis, Indiana 46204-2251

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

The notice fulfills the requirement of 326 IAC 2-8-4(3)(C)(ii) and must contain the following:

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

The notification which shall be submitted by the Permittee does not require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (6) The Permittee immediately took all reasonable steps to correct the emergency.
 - (c) In any enforcement proceeding, the Permittee seeking to establish the occurrence of an emergency has the burden of proof.
 - (d) This emergency provision supersedes 326 IAC 1-6 (Malfunctions). This permit condition is in addition to any emergency or upset provision contained in any applicable requirement.
 - (e) The Permittee seeking to establish the occurrence of an emergency shall make records available upon request to ensure that failure to implement a PMP did not cause or contribute to an exceedance of any limitations on emissions. However, IDEM, OAQ may require that the Preventive Maintenance Plans required under 326 IAC 2-8-3(c)(6) be revised in response to an emergency.
 - (f) Failure to notify IDEM, OAQ by telephone or facsimile of an emergency lasting more than one (1) hour in accordance with (b)(4) and (5) of this condition shall constitute a violation of 326 IAC 2-8 and any other applicable rules.
 - (g) Operations may continue during an emergency only if the following conditions are met:
 - (1) If the emergency situation causes a deviation from a technology-based limit, the Permittee may continue to operate the affected emitting facilities during the emergency provided the Permittee immediately takes all reasonable steps to correct the emergency and minimize emissions.
 - (2) If an emergency situation causes a deviation from a health-based limit, the Permittee may not continue to operate the affected emissions facilities unless:
 - (A) The Permittee immediately takes all reasonable steps to correct the emergency situation and to minimize emissions; and
 - (B) Continued operation of the facilities is necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw material of substantial economic value.
- Any operations shall continue no longer than the minimum time required to prevent the situations identified in (g)(2)(B) of this condition.
- (h) The Permittee shall include all emergencies in the Quarterly Deviation and Compliance Monitoring Report.

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

- (a) All terms and conditions of permits established prior to F127-26605-00037 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.14 Termination of Right to Operate [326 IAC 2-8-9][326 IAC 2-8-3(h)]

The Permittee's right to operate this source terminates with the expiration of this permit unless a timely and complete renewal application is submitted at least nine (9) months prior to the date of expiration of the source's existing permit, consistent with 326 IAC 2-8-3(h) and 326 IAC 2-8-9.

B.15 Deviations from Permit Requirements and Conditions [326 IAC 2-8-4(3)(C)(ii)]

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

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

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

The Quarterly Deviation and Compliance Monitoring Report does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

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

B.16 Permit Modification, Reopening, Revocation and Reissuance, or Termination [326 IAC 2-8-4(5)(C)][326 IAC 2-8-7(a)][326 IAC 2-8-8]

- (a) This permit may be modified, reopened, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a Federally Enforceable State Operating Permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any condition of this permit. [326 IAC 2-8-4(5)(C)] The notification by the Permittee does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (b) This permit shall be reopened and revised under any of the circumstances listed in IC 13-15-7-2 or if IDEM, OAQ determines any of the following:
- (1) That this permit contains a material mistake.
 - (2) That inaccurate statements were made in establishing the emissions standards or other terms or conditions.

- (3) That this permit must be revised or revoked to assure compliance with an applicable requirement. [326 IAC 2-8-8(a)]
- (c) Proceedings by IDEM, OAQ to reopen and revise this permit shall follow the same procedures as apply to initial permit issuance and shall affect only those parts of this permit for which cause to reopen exists. Such reopening and revision shall be made as expeditiously as practicable. [326 IAC 2-8-8(b)]
- (d) The reopening and revision of this permit, under 326 IAC 2-8-8(a), shall not be initiated before notice of such intent is provided to the Permittee by IDEM, OAQ at least thirty (30) days in advance of the date this permit is to be reopened, except that IDEM, OAQ may provide a shorter time period in the case of an emergency. [326 IAC 2-8-8(c)]

B.17 Permit Renewal [326 IAC 2-8-3(h)]

- (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 2-8-3. Such information shall be included in the application for each emission unit at this source, except those emission units included on the trivial or insignificant activities list contained in 326 IAC 2-7-1(21) and 326 IAC 2-7-1(40). The renewal application does require the certification by 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 nine (9) months prior to the date of the expiration of this permit; and
 - (2) If the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.
- (c) If the Permittee submits a timely and complete application for renewal of this permit, the source's failure to have a permit is not a violation of 326 IAC 2-8 until IDEM, OAQ takes final action on the renewal application, except that this protection shall cease to apply if, subsequent to the completeness determination, the Permittee fails to submit by the deadline specified in writing by IDEM, OAQ any additional information identified as being needed to process the application.

B.18 Permit Amendment or Revision [326 IAC 2-8-10][326 IAC 2-8-11.1]

- (a) Permit amendments and revisions are governed by the requirements of 326 IAC 2-8-10 or 326 IAC 2-8-11.1 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 may implement administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-8-10(b)(3)]

B.19 Operational Flexibility [326 IAC 2-8-15][326 IAC 2-8-11.1]

- (a) The Permittee may make any change or changes at the source that are described in 326 IAC 2-8-15(b) through (d) without a prior permit revision, if each of the following conditions is met:

- (1) The changes are not modifications under any provision of Title I of the Clean Air Act;
- (2) Any approval required by 326 IAC 2-8-11.1 has been obtained;
- (3) The changes do not result in emissions which exceed the limitations provided in this permit (whether expressed herein as a rate of emissions or in terms of total emissions);
- (4) The Permittee notifies the:

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

and

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

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

- (5) The Permittee maintains records on-site, on a rolling five (5) year basis, which document all such changes and emission trades that are subject to 326 IAC 2-8-15(b) through (d). The Permittee shall make such records available, upon reasonable request, for public review.

Such records shall consist of all information required to be submitted to IDEM, OAQ in the notices specified in 326 IAC 2-8-15(b)(2), (c)(1), and (d).

- (b) Emission Trades [326 IAC 2-8-15(c)]

The Permittee may trade emissions increases and decreases at the source, where the applicable SIP provides for such emission trades without requiring a permit revision, subject to the constraints of Section (a) of this condition and those in 326 IAC 2-8-15(c).

- (c) Alternative Operating Scenarios [326 IAC 2-8-15(d)]
The Permittee may make changes at the source within the range of alternative operating scenarios that are described in the terms and conditions of this permit in accordance with 326 IAC 2-8-4(7). No prior notification of IDEM, OAQ, or U.S. EPA is required.
- (d) Backup fuel switches specifically addressed in, and limited under, Section D of this permit shall not be considered alternative operating scenarios. Therefore, the notification requirements of part (a) of this condition do not apply.

B.20 Source Modification Requirement [326 IAC 2-8-11.1]

A modification, construction, or reconstruction is governed by the requirements of 326 IAC 2 and 326 IAC 2-8-11.1.

B.21 Inspection and Entry [326 IAC 2-8-5(a)(2)][IC 13-14-2-2][IC 13-17-3-2][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 FESOP 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.22 Transfer of Ownership or Operational Control [326 IAC 2-8-10]

- (a) The Permittee must comply with the requirements of 326 IAC 2-8-10 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 administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request.
[326 IAC 2-8-10(b)(3)]

B.23 Annual Fee Payment [326 IAC 2-7-19] [326 IAC 2-8-4(6)] [326 IAC 2-8-16][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) Failure to pay may result in administrative enforcement action or revocation of this permit.
- (c) The Permittee may call the following telephone numbers: 1-800-451-6027 or 317-233-4230 (ask for OAQ, Billing, Licensing, and Training Section), to determine the appropriate permit fee.

B.24 Advanced Source Modification Approval [326 IAC 2-8-4(11)] [326 IAC 2-1.1-9]

- (a) The requirements to obtain a permit modification under 326 IAC 2-8-11.1 are satisfied by this permit for the proposed emission units, control equipment or insignificant activities in Sections A.2 and A.3.
- (b) Pursuant to 326 IAC 2-1.1-9 any permit authorizing construction may be revoked if construction of the emission unit has not commenced within eighteen (18) months from the date of issuance of the permit, or if during the construction, work is suspended for a continuous period of one (1) year or more.

B.25 Credible Evidence [326 IAC 2-8-4(3)][326 IAC 2-8-5][62 FR 8314] [326 IAC 1-1-6]

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

SECTION C SOURCE OPERATION CONDITIONS

Entire Source

Emission Limitations and Standards [326 IAC 2-8-4(1)]

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

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

C.2 Overall Source Limit [326 IAC 2-8]

The purpose of this permit is to limit this source's potential to emit to less than major source levels for the purpose of Section 502(a) of the Clean Air Act.

(a) Pursuant to 326 IAC 2-8:

- (1) The potential to emit volatile organic compounds (VOCs) from the entire source shall be limited to less than twenty-five (25) tons per twelve (12) consecutive month period. This limitation shall also satisfy the requirements of 326 IAC 2-3 (Emission Offset);
- (2) The potential to emit any regulated pollutant, except particulate matter (PM), from the entire source shall be limited to less than one hundred (100) tons per twelve (12) consecutive month period;
- (3) The potential to emit any individual hazardous air pollutant (HAP) from the entire source shall be limited to less than ten (10) tons per twelve (12) consecutive month period; and
- (4) The potential to emit any combination of HAPs from the entire source shall be limited to less than twenty-five (25) tons per twelve (12) consecutive month period.

(b) The potential to emit particulate matter (PM) from the entire source shall be limited to less than one hundred (100) tons per twelve (12) consecutive month period. This limitation shall make the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD) not applicable.

(c) This condition shall include all emission points at this source including those that are insignificant as defined in 326 IAC 2-7-1(21). The source shall be allowed to add insignificant activities not already listed in this permit, provided that the source's potential to emit does not exceed the above specified limits.

(d) Section D of this permit contains independently enforceable provisions to satisfy this requirement.

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

- (a) Notification requirements apply to each owner or operator. If the combined amount of regulated asbestos containing material (RACM) to be stripped, removed or disturbed is at least 260 linear feet on pipes or 160 square feet on other facility components, or at least thirty-five (35) cubic feet on all facility components, then the notification requirements of 326 IAC 14-10-3 are mandatory. All demolition projects require notification whether or not asbestos is present.
- (b) The Permittee shall ensure that a written notification is sent on a form provided by the Commissioner at least ten (10) working days before asbestos stripping or removal work or before demolition begins, per 326 IAC 14-10-3, and shall update such notice as necessary, including, but not limited to the following:
 - (1) When the amount of affected asbestos containing material increases or decreases by at least twenty percent (20%); or
 - (2) If there is a change in the following:
 - (A) Asbestos removal or demolition start date;
 - (B) Removal or demolition contractor; or
 - (C) Waste disposal site.
- (c) The Permittee shall ensure that the notice is postmarked or delivered according to the guidelines set forth in 326 IAC 14-10-3(2).
- (d) The notice to be submitted shall include the information enumerated in 326 IAC 14-10-3(3).

All required notifications shall be submitted to:

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

The notice shall include a signed certification from the owner or operator that the information provided in this notification is correct and that only Indiana licensed workers and project supervisors will be used to implement the asbestos removal project. The notifications do not require a certification by 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 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 Licensed 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 Licensed Asbestos Inspector to thoroughly inspect the affected portion of the facility for the presence of asbestos.

Testing Requirements [326 IAC 2-8-4(3)]

C.8 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.9 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 2-8-4][326 IAC 2-8-5(a)(1)]

C.10 Compliance Monitoring [326 IAC 2-8-4(3)][326 IAC 2-8-5(a)(1)]

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

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

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

The notification which shall be submitted by the Permittee does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

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

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

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

C.12 Instrument Specifications [326 IAC 2-1.1-11] [326 IAC 2-8-4(3)][326 IAC 2-8-5(1)]

- (a) When required by any condition of this permit, an analog instrument used to measure a parameter related to the operation of an air pollution control device shall have a scale such that the expected maximum reading for the normal range shall be no less than twenty percent (20%) of full scale.
- (b) The Permittee may request that the IDEM, OAQ approve the use of an instrument that does not meet the above specifications provided the Permittee can demonstrate that an alternative instrument specification will adequately ensure compliance with permit conditions requiring the measurement of the parameters.

Corrective Actions and Response Steps [326 IAC 2-8-4][326 IAC 2-8-5(a)(1)]

C.13 Risk Management Plan [326 IAC 2-8-4] [40 CFR 68]

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

C.14 Response to Excursions or Exceedances [326 IAC 2-8-4] [326 IAC 2-8-5]

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

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

C.15 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-8-4][326 IAC 2-8-5]

- (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 2-8-4(3)]

C.16 General Record Keeping Requirements [326 IAC 2-8-4(3)] [326 IAC 2-8-5]

- (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 2-8-4(3)(C)] [326 IAC 2-1.1-11]

- (a) The Permittee shall submit the attached Quarterly Deviation and Compliance Monitoring Report or its equivalent. Any deviation from permit requirements, the date(s) of each deviation, the cause of the deviation, and the response steps taken must be reported. This report shall be submitted within thirty (30) days of the end of the reporting period. The Quarterly Deviation and Compliance Monitoring Report shall include the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (b) The report required in (a) of this condition and reports required by conditions in Section D of this permit shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251
- (c) Unless otherwise specified in this permit, any notice, report, or other submission required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.
- (d) Unless otherwise specified in this permit, all reports required in Section D of this permit shall be submitted within thirty (30) days of the end of the reporting period. All reports do require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (e) 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.

Stratospheric Ozone Protection

C.18 Compliance with 40 CFR 82 and 326 IAC 22-1

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

- (a) Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to 40 CFR 82.156.
- (b) Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to 40 CFR 82.158.
- (c) Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to 40 CFR 82.161.

SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

- (a) One (1) No Bake Foundry operation, installed in 2003, consisting of the following:
 - (1) One (1) Sand handling system, identified as Unit A, consisting of two (2) sand silos, two (2) sand hoppers and associated conveyance equipment, with maximum process weight rate of 5.04 tons of sand per hour, and maximum binder usage of 588,672 pounds per year, particulate emissions controlled by a Sand Handling Baghouse PCU-1 and exhausting to S/V-1.
 - (2) One (1) Electric induction melting furnace, identified as Unit B, pouring, casting and cooling operation with maximum charge capacity of 0.6 ton of metals per hour and maximum process weight rate of binder usage of 26 lbs/ton of sand, with particulate emissions controlled by a baghouse PCU-2 and exhausting to S/V-2.
 - (3) One (1) thermal sand reclamation operation, identified as Unit C, controlling VOCs from the spent sand by a thermal oxidizer (PCU-3) with maximum system process weight rate of 1000 lbs sand per hour, equipped with a baghouse PCU-4 and exhausting to S/V-3.
- (b) One (1) Green Sand Foundry operation, installed in 1990, consisting of the following:
 - (1) One (1) Sand handling system, identified as Unit D, consisting of return sand storage bin, sand feeder hopper, surge hopper, batch hopper, prepared sand feeder hopper, two (2) molder hoppers and associated conveyance equipment, with maximum rate of 25 tons of sand per day and particulate emissions controlled by a Sand Handling Baghouse PCU-1 and exhausting to S/V-1.
 - (2) One (1) Electric induction melting furnace, identified as Unit E, pouring, casting and cooling operation with maximum charge capacity of 0.3 tons of metal per hour with particulate emissions controlled by a baghouse PCU-2 and exhausting to S/V-2.

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

Emission Limitations and Standards [326 IAC 2-8-4(1)]

D.1.1 Particulate Matter (PM) [326 IAC 2-2]

In order to render the requirements of 326 IAC 2-2 not applicable, the PM emission rates from the emission units listed below shall be limited as follows:

- (a) the No Bake Foundry Sand Handling System (Unit A) shall not exceed 10.0 pounds of PM per hour.
- (b) the No Bake Foundry Melting/Pouring Operations (Unit B) shall not exceed 2.91 pounds of PM per hour.
- (c) the Thermal Sand Reclaimer (Unit C (controlled by thermal oxidizer)) shall not exceed 2.57 pounds of PM per hour.
- (d) the Green Sand Foundry Sand Handling System (Unit D) shall not exceed 4.21 pounds of PM per hour.

- (e) the Green Sand Foundry Metal/Pouring Operations (Unit E) shall not exceed 1.83 pounds of PM per hour.

Compliance with these limits shall limit the source-wide potential to emit of PM to less than 250 tons per twelve (12) consecutive month period, and render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

D.1.2 Particulate Matter Less Than Ten Microns (PM10) [326 IAC 2-8-4] [326 IAC 2-2] [326 IAC 2-7]

Pursuant to 326 IAC 2-8-4 (FESOP), the PM10 emission rates from the emission units listed below shall be limited as follows:

- (a) the No Bake Foundry Sand Handling System (Unit A) shall not exceed 10.0 pounds of PM10 per hour.
- (b) the No Bake Foundry Melting/Pouring Operations (Unit B) shall not exceed 2.91 pounds of PM10 per hour.
- (c) the Thermal Sand Reclaimer (Unit C (controlled by thermal oxidizer)) shall not exceed 2.57 pounds of PM10 per hour.
- (d) the Green Sand Foundry Sand Handling System (Unit D) shall not exceed 4.21 pounds of PM10 per hour.
- (e) the Green Sand Foundry Metal/Pouring Operations (Unit E) shall not exceed 1.83 pounds of PM10 per hour.

Compliance with these requirements shall limit the source-wide potential to emit PM-10 to less than 100 tons per twelve (12) consecutive month period, and render the requirements of 326 IAC 2-2 and 326 IAC 2-7 not applicable.

D.1.3 Particulate Matter Less Than Two and a half Microns (PM2.5) [326 IAC 2-1.1-5]

In order to render the requirements of 326 IAC 2-1.1-5 (Nonattainment NSR) not applicable, the PM2.5 emission rates from the emission units listed below shall be limited as follows:

- (a) the No Bake Foundry Sand Handling System (Unit A) shall not exceed 10.0 pounds of PM2.5 per hour.
- (b) the No Bake Foundry Melting/Pouring Operations (Unit B) shall not exceed 2.91 pounds of PM2.5 per hour.
- (c) the Thermal Sand Reclaimer (Unit C (controlled by thermal oxidizer)) shall not exceed 2.57 pounds of PM2.5 per hour.
- (d) the Green Sand Foundry Sand Handling System (Unit D) shall not exceed 4.21 pounds of PM2.5 per hour.
- (e) the Green Sand Foundry Metal/Pouring Operations (Unit E) shall not exceed 1.83 pounds of PM2.5 per hour.

Compliance with these limits shall limit the source-wide potential to emit of PM2.5 to less than 100 tons per twelve (12) consecutive month period and render the requirements of 326 IAC 2-1.1-5 (Nonattainment NSR) not applicable.

D.1.4 Particulate [326 IAC 6-3]

Pursuant to 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing processes), the allowable particulate emissions from the emission units listed in the table shall be limited by the following:

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

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:

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

The allowable emissions for each facility operating at its maximum process weight rate are as follows:

Emission Unit ID	Process Weight Rate (tons/hr)	Allowable Particulate Emissions Rate (lb/hr)
Unit A (No Bake Foundry Sand Handling System)	5.04	12.12
Unit B (No Bake Foundry Melting/Pouring Equipment)	0.60	2.91
Unit C (No Bake Foundry: Thermal Sand Reclamation Unit)	0.50	2.57
Unit D (Green Sand Foundry Sand Handling System)	1.04	4.21
Unit E (Green Sand Foundry Melting/Pouring Equipment)	0.30	1.83

Compliance with these limits shall limit the source-wide potential to emit of PM to less than 250 tons per twelve (12) consecutive month period and render the requirements of 326 IAC 2-2 (PSD) not applicable.

D.1.5 Volatile Organic Compounds (VOCs) [326 IAC 2-3][326 IAC 2-7] [326 IAC 8-1-6] [326 IAC 2-8]

Pursuant to 326 IAC 2-8-4, the Permittee shall control the VOC emissions from the emission units A, B and C as follows:

- (a) The amount of total binder usage in the No Bake Foundry, Sand handling Unit A and Electric Induction melting furnace, pouring, casting and cooling operation Unit B combined shall not exceed 106,720 pounds per twelve (12) consecutive month period with compliance determined at the end of each month.
- (b) The VOC emissions from the No bake Foundry, Sand handling Unit A shall not exceed 0.066 lb VOC/ lb of binder.
- (c) The VOC emissions from the No bake Foundry, Electric Induction melting furnace, pouring, casting and cooling operation Unit B shall not exceed 0.205 VOC/ lb of binder.
- (d) The VOC emissions from the Thermal Sand Reclaimer (Unit C) shall not exceed 0.569 tons per year based on control by the Thermal Oxidizer (PCU-3) with overall VOC control efficiency of 99.0%.

Compliance with these requirements shall limit the source-wide potential to emit VOC to less than 25 tons per year, and render the requirements of 326 IAC 2-3 (Emission Offset), 326 IAC 2-2 (Part 70), and 326 IAC 8-1-6 (New Facilities, General Reduction Requirements) not applicable.

D.1.6 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

A Preventive Maintenance Plan, in accordance with Section B -Preventive Maintenance Plan, of this permit, is required for the facilities (Units A, B, C, D, and E) and any emission control devices (PCU-1, PCU-2, PCU-3, and PCU-4).

Compliance Determination Requirements

D.1.7 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11]

- (a) In order to demonstrate compliance with Conditions D.1.1, D.1.2, D.1.3 and D.1.4, the Permittee shall perform PM, PM2.5 and PM10 testing for baghouse PCU-1 controlling the particulate emissions from the No Bake Foundry Sand Handling System (Unit A) and the Green Sand Foundry Sand Handling System (Unit D) which exhaust through stack S/V-1, within 180 days of publication of the new or revised condensable PM test method(s) referenced in the U. S. EPA's Final Rule for Implementation of the New Source Review (NSR) Program for Particulate Matter Less Than 2.5 Micrometers (PM2.5), signed on May 8th, 2008. This testing shall be conducted utilizing methods as approved by the Commissioner. These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing. PM10 and PM2.5 includes filterable and condensable PM10.
- (b) In order to demonstrate compliance with Conditions D.1.5(d) the Permittee shall perform VOC testing for the VOC capture system and the natural gas fired thermal oxidizer (PCU-3) utilizing sampling and analyses of the input and output sand streams for total combustible organics and discharge gas sampling for VOC utilizing Methods 25 (40 CFR 60, Appendix A) for VOC, or other methods as approved by the Commissioner. This test shall be performed to establish the minimum duct pressure or the fan amperage, and the minimum operating temperature to demonstrate compliance with the overall VOC control efficiency in condition D.1.5 (d). The overall capture and control efficiency will be determined by mass balance calculations using the test results. This test shall be repeated no less than five (5) years from the date of the valid compliance demonstration. Testing shall be conducted in accordance with Section C- Performance Testing.

D.1.8 Particulate Control

- (a) In order to comply with conditions D.1.1(a)(d), D.1.2(a)(d), D.1.3(a)(d) and D.1.4, the baghouse for particulate control, identified as PCU-1 shall be in operation when either of the sand handling systems for the No Bake Foundry (Unit A) or the Green Sand Foundry (Unit D) is in operation.
- (b) In order to comply with conditions D.1.1(b)(e) and D.1.2(b)(e), the baghouse identified as PCU-2 shall be in operation when metal melting and pouring operations are being performed at either the No Bake Foundry (Unit B) or the Green Sand Foundry (Unit E).
- (c) In order to comply with conditions D.1.1(c), D.1.2(c), D.1.3(c) and 1.4, the baghouse identified as PCU-4 shall be in operation when the Thermal Sand Reclaimer (Unit C) is in operation.

D.1.9 VOC and HAPs Control

In order to comply with Conditions D.1.5(c), the stationary Thermal Oxidizer (PCU-3) shall be in operation and control emissions from the Thermal Sand Reclamation Operation (Unit C) at all times when the Thermal Sand Reclamation Operation (Unit C) is in operation.

Compliance Monitoring Requirements [326 IAC 2-8-4] [326 IAC 2-8-5(a)(1)]

D.1.10 Thermal Oxidizer Temperature

- (a) A continuous monitoring system shall be calibrated, maintained, and operated on the thermal

oxidizer for measuring operating temperature. For the purpose of this condition, continuous means no less often than once per minute. The output of this system shall be recorded as 3-hour average. The 3-hour average temperature that is below 1200 °F 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 Permittee shall determine the 3-hour average temperature from the most recent valid stack test that demonstrates compliance with limits in condition D.1.5, as approved by IDEM.
- (c) On and after the date the approved stack test results are available, the Permittee shall operate the thermal oxidizer at or above the 3-hour average temperature as observed during the compliant stack test. A 3-hour average temperature that is below the 3-hour average temperature as observed during the compliant stack test is not a deviation from this permit. Failure to take response steps in accordance with Section C - Response to Excursion or Exceedances, shall be considered a deviation from this permit.

D.1.11 Parametric Monitoring

- (a) The Permittee shall determine the fan amperage or the duct pressure from the most recent valid stack test that demonstrates compliance with limits in condition D.1.5, as approved by IDEM.
- (b) The duct pressure or fan amperage shall be observed at least once per day when the thermal oxidizer is in operation. When for any one reading, the duct pressure is less than the range of 0.05 and 0.65 inches of water as established by the latest stack test, the permittee shall take reasonable response steps in accordance with Section C - Response to Excursions or Exceedances.

A pressure drop that is below the above mentioned minimum 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.

D.1.12 Visible Emissions Notations

- (a) Visible emission notations of the baghouses (PCU-1, PCU-2, and PCU-4) stack exhausts shall be performed once per day during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.
- (b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.
- (c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.
- (d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.
- (e) If abnormal emissions are observed, the Permittee shall take reasonable response steps in accordance with Section C - Response to Excursions or Exceedances. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances shall be considered a deviation from this permit.

D.1.13 Baghouse Parametric Monitoring

The Permittee shall record the pressure drop across each of the baghouses identified as PCU-1, PCU-2, and PCU-4, at least once per day when the systems are in operation. When for any one reading, the pressure drop across the baghouses (PCU-1 and PCU-2) is outside the normal range of 2.0 and 8.0 inches of water and the baghouse (PCU-4) is outside the normal range of 0.25 to 12.0 or

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

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

D.1.14 Broken or Failed Bag Detection

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

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

Record Keeping and Reporting Requirements [326 IAC 2-8-4(3)] [326 IAC 2-8-16]

D.1.15 Record Keeping Requirements

- (a) To document compliance with condition D.1.5(a)(b)(c), the Permittee shall maintain records of the monthly usage of the binder in No Bake Foundry from Units A and B. Records necessary to demonstrate compliance shall be available within 30 days of the end of each compliance period.
- (b) To document compliance with Condition D1.10, the Permittee shall maintain continuous temperature records (no less often than once per minute) for the thermal oxidizer and the 3-hour average temperature used to demonstrate compliance during the most recent compliant stack test.
- (c) To document compliance with D.1.11, the Permittee shall maintain daily records of the duct pressure or fan amperage.
- (d) To document compliance with Condition D.1.12, the Permittee shall maintain daily records of visible emission notations of the baghouse PCU-1, PCU-2 and PCU-4 stack exhausts. Permittee shall include in its daily record when a visible emission notation is not taken and the reason for the lack of a visible emission notation, (i.e. the process did not operate that day).
- (e) To document compliance with Condition D.1.13, the Permittee shall maintain daily records of the pressure drop during normal operation across each of the baghouses, PCU-1, PCU-2 and PCU-4. 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, (i.e. the process did not operate that day).
- (f) All records shall be maintained in accordance with Section C - General Record Keeping

Requirements, of this permit.

D.1.16 Reporting Requirements

A quarterly summary of the information to document compliance with Condition D.1.5(a)(b)(c) shall be submitted to the addresses listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by the responsible official as defined by 326 IAC 2-7-1(34).

SECTION D.2 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Insignificant Activities :

- (a) Natural gas-fired combustion sources with heat input equal to or less than ten million (10,000,000) Btu per hour.
 - (1) Two (2) natural gas fired sand heater cooler classifiers identified as EQ-3A and EQ-3B, and each rated at maximum heat input rating of 0.375 MMBtu/hr.
 - (2) Two (2) natural gas fired ladle torches identified as EQ-12A, with combined heat input rating of 1.5 MMBtu/hr.
 - (3) One (1) natural gas fired thermal oxidizer identified as PCU-3, and rated at maximum heat input rating of 0.465 MMBtu/hr.
 - (4) One (1) natural gas fired autoclave boiler identified as EQ-19, and rated at maximum heat input rating of 0.89 MMBtu/hr. [326 IAC 6-2-4]
 - (5) One (1) natural gas fired ceramic mold furnace identified as EQ-20, and rated at maximum heat input rating of 2.52 MMBtu/hr.
 - (6) One (1) natural gas fired dry off oven identified as EQ-6, and rated at maximum heat input capacity of 0.75 MMBtu/hr.
 - (7) One (1) natural gas fired Pacific Kiln, identified as K-1, constructed in 2008, with a maximum heat input rate of 1.3 MMBtu/hr.
- (b) Activities with emissions below insignificant thresholds (i.e. VOC emission less than 3 lb/hr and particulate emission less than 5 lb/hr):
 - (1) One (1) stainless steel foundry, identified as Unit K, employing the investment casting process (melting furnace and pouring operation only), with maximum metal charge capacity of 310 pounds per hour.
 - (2) Immersion Cleaning of Machine Parts, identified as Unit G, using 41,793 pounds per year of solution containing 100% VOC content. [326 IAC 8-3-2&5]
 - (3) One (1) CO₂ laser cutting operation, constructed in 2007, with a maximum cutting rate of 600 inches per hour (equivalent to a process rate of 1.0 ton per hour) and exhausting to S/V 4.
 - (4) One (1) surface coating operation identified as pattern shop finishing room, coating mold impressions and exhausting to S/V-5.
 - (5) Spray booth for impeller repair.
- (c) Grinding and machining operations controlled with fabric filters, scrubbers, mist collectors, wet collectors and electrostatic precipitators with a design grain loading of less than or equal to 0.03 grains per actual cubic foot and a gas flow rate less than or equal to 4000 actual cubic feet per minute, including the following: deburring; buffing, polishing, abrasive blasting; pneumatic conveying; and woodworking operations.
 - (1) Frame grinding operation identified as Unit N. [326 IAC 6-3-2]

- (d) The following equipment related to manufacturing activities not resulting in the emission of HAPs: brazing equipment, cutting torches, soldering equipment, welding equipment.
 - (1) Frame and cover welding operation identified as Unit M. [326 IAC 6-3-2]
 - (2) Laser cutting operation identified as Unit O. [326 IAC 6-3-2]
 - (3) Brazing operation booth identified as Unit W. [326 IAC 6-3-2]
 - (4) One (1) plasma cutting torch identified as Unit P-1. [326 IAC 6-3-2]
- (e) Furnaces used for melting metals other than beryllium with a brim full capacity of less than or equal to 450 cubic inches by volume.
- (f) The following VOC and HAP storage containers:
 - (1) Storage tanks with capacity less than or equal to 1,000 gallons and annual throughput less than 12,000 gallons.
 - (2) Vessels storing lubricating oils, hydraulic oils, machining oils, and machining fluids.
- (g) A laboratory as defined in 326 IAC 2-7-1(21)(D).
- (h) Machining where an aqueous cutting coolant continuously floods the machining interface.
- (i) Replacement or repair of electrostatic precipitators, bags in baghouses and filters in other air filtration equipment.
- (j) Paved and unpaved roads and parking lots with public access.

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

Emission Limitations and Standards [326 IAC 2-8-4(1)]

D.2.1 Particulate Emission Limitations for Sources of Indirect Heating [326 IAC 6-2-4]

Pursuant to 326 IAC 6-2-4 (a) (Particulate Emission Limitations for Sources of Indirect Heating), the particulate emissions from Boiler EQ-19, shall be limited to 0.60 pounds of particulate matter per million British thermal units heat input.

D.2.2 Particulate [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the allowable particulate emission rate from the investment casting foundry (Unit K) shall not exceed 1.17 pounds per hour when operating at a process weight rate of 0.155 tons per hour. The pounds per hour limitation was calculated using the following equation:

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

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

D.2.3 Volatile Organic Compounds (VOC) [326 IAC 8-3-2]

Pursuant to 326 IAC 8-3-2, for each of the parts washers, the owner or operator shall:

- (a) Equip the cleaner with a cover;

- (b) Equip the cleaner with a facility for draining cleaned parts;
- (c) Close the degreaser cover whenever parts are not being handled in the cleaner;
- (d) Drain cleaned parts for at least fifteen (15) seconds or until dripping ceases;
- (e) Provide a permanent, conspicuous label summarizing the operation requirements;
- (f) Store waste solvent only in covered containers and not dispose of waste solvent or transfer it to another party, in such a manner that greater than twenty percent (20%) of the waste solvent (by weight) can evaporate into the atmosphere.

D.2.4 Volatile Organic Compounds (VOC) [326 IAC 8-3-5]

- (a) Pursuant 326 IAC 8-3-5(a), the owner or operator shall ensure that the following control equipment requirements are met for each of the eleven (11) parts washers:
 - (1) Equip the degreaser with a cover. The cover must be designed so that it can be easily operated with one (1) hand if:
 - (A) The solvent volatility is greater than two (2) kiloPascals (fifteen (15) millimeters of mercury or three-tenths (0.3) pounds per square inch) measured at thirty-eight degrees Celsius (38°C) (one hundred degrees Fahrenheit (100°F));
 - (B) The solvent is agitated; or
 - (C) The solvent is heated.
 - (2) Equip the degreaser with a facility for draining cleaned articles. If the solvent volatility is greater than four and three-tenths (4.3) kiloPascals (thirty-two (32) millimeters of mercury or six-tenths (0.6) pounds per square inch) measured at thirty-eight degrees Celsius (38°C) (one hundred degrees Fahrenheit (100°F)), then the drainage facility must be internal such that articles are enclosed under the cover while draining. The drainage facility may be external for applications where an internal type cannot fit into the cleaning system.
 - (3) Provide a permanent, conspicuous label which lists the operating requirements outlined in 326 IAC 8-3-5(b).
 - (4) The solvent spray, if used, must be a solid, fluid stream and shall be applied at a pressure which does not cause excessive splashing.
 - (5) Equip the degreaser with one (1) of the following control devices if the solvent volatility is greater than four and three-tenths (4.3) kiloPascals (thirty-two (32) millimeters of mercury) or six-tenths (0.6) pounds per square inch) measured at thirty-eight degrees Celsius (38°C) (one hundred degrees Fahrenheit (100°F)), or if the solvent is heated to a temperature greater than forty-eight and nine-tenths degrees Celsius (48.9°C) (one hundred twenty degrees Fahrenheit (120°F)):
 - (A) A freeboard that attains a freeboard ratio of seventy-five hundredths (0.75) or greater.
 - (B) A water cover when solvent is used is insoluble in, and heavier than, water.
 - (C) Other systems of demonstrated equivalent control such as a refrigerated chiller or carbon adsorption. Such systems shall be submitted to the U.S.

EPA as a SIP revision.

- (b) Pursuant 326 IAC 8-3-5(b), the owner or operator shall ensure that the following operating requirements are met for each of the eleven (11) parts washers:
 - (1) Close the cover whenever articles are not being handled in the degreaser.
 - (2) Drain cleaned articles for at least fifteen (15) seconds or until dripping ceases.
 - (3) Store waste solvent only in covered containers and prohibit the disposal or transfer of waste solvent in any manner in which greater than twenty percent (20%) of the waste solvent by weight could evaporate.

D.2.5 Particulate Emission Limitations For Processes with Process Weight Rates Less Than One Hundred (100) pounds per hour [326 IAC 6-3-2(c)]

Pursuant to 326 IAC 6-3-2(e), the allowable particulate emissions rate from any process not already regulated by 326 IAC 6.5 or any New Source Performance Standard, and which has a maximum process weight rate less than 100 pounds per hour shall not exceed 0.551 pounds per hour. This includes the following operations:

- (a) The following equipment related to manufacturing activities not resulting in the emission of HAPs: brazing equipment, cutting torches, soldering equipment, welding equipment.
 - (1) Frame and cover welding operation identified as Unit M.
 - (2) Brazing operation booth identified as Unit W.
 - (3) One (1) Plasma cutting torch identified as unit P-1.
- (b) Grinding and machining operations controlled with fabric filters, scrubbers, mist collectors, wet collectors and electrostatic precipitators with a design grain loading of less than or equal to 0.03 grains per actual cubic foot and a gas flow rate less than or equal to 4000 actual cubic feet per minute, including the following: deburring; buffing, polishing, abrasive blasting; pneumatic conveying; and woodworking operations.
 - (1) Frame grinding operation identified as Unit N.

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

**FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP)
CERTIFICATION**

Source Name: Urschel Laboratories, Inc.
Source Address: 2503 Calumet Avenue, Valparaiso, Indiana 46384
Mailing Address: PO Box 2200, Valparaiso, Indiana 46384
FESOP Permit No.: F127-26605-00037

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:

Date:

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE BRANCH
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251
Phone: 317-233-0178
Fax: 317-233-6865**

**FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP)
EMERGENCY OCCURRENCE REPORT**

Source Name: Urschel Laboratories, Inc.
Source Address: 2503 Calumet Avenue, Valparaiso, Indiana 46384
Mailing Address: PO Box 2200, Valparaiso, Indiana 46384
FESOP Permit No.: F127-26605-00037

This form consists of 2 pages

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- | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><input type="checkbox"/> This is an emergency as defined in 326 IAC 2-7-1(12)</p> <ul style="list-style-type: none">• The Permittee must notify the Office of Air Quality (OAQ), within four (4) business hours (1-800-451-6027 or 317-233-0178, ask for Compliance Section); and• The Permittee must submit notice in writing or by facsimile within two (2) working days (Facsimile Number: 317-233-6865), and follow the other requirements of 326 IAC 2-7-16 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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

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

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

Page 2 of 2

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

Form Completed by: _____

Title / Position: _____

Date: _____

Phone: _____

A certification is not required for this report.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF AIR QUALITY
 COMPLIANCE DATA SECTION**

FESOP Quarterly Report

Source Name: Urschel Laboratories, Inc.
 Source Address: 2503 Calumet Avenue, Valparaiso, Indiana 46384
 Mailing Address: PO Box 2200, Valparaiso, Indiana 46384
 FESOP Permit No.: F127-26605-00037
 Facility: No Bake Foundry (Unit A)
 Parameter: Binder Usage (VOC Emissions)
 Limit: The total binder usage in No Bake Foundry shall be limited to 106,720 pounds per twelve (12) consecutive month period with compliance determined at the end of each month at 0.066 lb VOC/lb of binder from Unit A.

YEAR: _____

Month	Column 1	Column 2	Column 1 + Column 2
	Binder Usage This Month (Unit A)	Binder Usage Previous 11 Months (Unit A)	Binder Usage 12 Month Total (Unit A)
Month 1			
Month 2			
Month 3			

- No deviation occurred in this quarter.
- Deviation/s occurred in this quarter.
 Deviation has been reported on: _____

Submitted by: _____
 Title / Position: _____
 Signature: _____
 Date: _____
 Phone: _____

Attach a signed certification to complete this report.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF AIR QUALITY
 COMPLIANCE DATA SECTION**

FESOP Quarterly Report

Source Name: Urschel Laboratories, Inc.
 Source Address: 2503 Calumet Avenue, Valparaiso, Indiana 46384
 Mailing Address: PO Box 2200, Valparaiso, Indiana 46384
 FESOP Permit No.: F127-26605-00037
 Facility: No Bake Foundry (Unit B)
 Parameter: Binder Usage (VOC Emissions)
 Limit: The total binder usage in No Bake Foundry shall be limited to 106,720 pounds per twelve (12) consecutive month period with compliance determined at the end of each month at VOC emissions of 0.205 lb VOC/lb of binder from Unit B.

YEAR: _____

Month	Column 1	Column 2	Column 1 + Column 2
	Binder Usage This Month (Unit B)	Binder Usage Previous 11 Months (Unit B)	Binder Usage 12 Month Total (Unit B)
Month 1			
Month 2			
Month 3			

- No deviation occurred in this quarter.
- Deviation/s occurred in this quarter.
 Deviation has been reported on: _____

Submitted by: _____
 Title / Position: _____
 Signature: _____
 Date: _____
 Phone: _____

Attach a signed certification to complete this report.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF AIR QUALITY
 COMPLIANCE DATA SECTION**

**FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP)
 QUARTERLY DEVIATION AND COMPLIANCE MONITORING REPORT**

Source Name: Urschel Laboratories, Inc.
 Source Address: 2503 Calumet Avenue, Valparaiso, Indiana 46384
 Mailing Address: PO Box 2200, Valparaiso, Indiana 46384
 FESOP Permit No.: F127-26605-00037

Months: _____ **to** _____ **Year:** _____

<p>This report shall be submitted quarterly based on a calendar year. Any deviation from the requirements, the date(s) of each deviation, the probable cause of the deviation, and the response steps taken must be reported. A deviation required to be reported pursuant to an applicable requirement that exists independent of the permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report. Additional pages may be attached if necessary. If no deviations occurred, please specify in the box marked ΔNo deviations occurred this reporting period@.</p>	
<input type="checkbox"/> NO DEVIATIONS OCCURRED THIS REPORTING PERIOD.	
<input type="checkbox"/> THE FOLLOWING DEVIATIONS OCCURRED THIS REPORTING PERIOD	
Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	
Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	

Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	
Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	
Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	

Form Completed by: _____

Title / Position: _____

Date: _____

Phone: _____

Attach a signed certification to complete this report.

Indiana Department of Environmental Management Office of Air Quality

Addendum to the Technical Support Document (TSD) for a Federally Enforceable State Operating Permit (FESOP) renewal

Source Background and Description

Source Name:	Urschel Laboratories Incorporated
Source Location:	2503 Calumet Avenue, Valparaiso, IN 46384
County:	Porter
SIC Code:	3556
Permit Renewal No.:	F127-26605-00037
Permit Reviewer:	Swarna Prabha

On October 17, 2008, the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ) had a notice published in Chesterton Tribune, Chesterton, Indiana, stating that Urschel Laboratories Incorporated, had applied for a renewal to their Federally Enforceable State Operating Permit (FESOP) to continue to operate stationary no bake and green-sand bronze foundry. Also, the Public Notice was sent to Valparaiso Public Library, located at 103 East Jefferson Street, in Valparaiso to be posted. The notice stated that the OAQ proposed to issue a FESOP Renewal for this operation and provided information on how the public could review the proposed permit and other documentation. The notice also informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this permit should be issued as proposed.

Comments and Responses

NOTE: The Technical Support Document (TSD) is used by IDEM, OAQ for historical purposes. IDEM, OAQ does not make any changes to the original TSD, but the Permit will have the updated changes.

IDEM, OAQ has decided to make the following additional revisions to the permit. The comments and revised permit language are provided below with deleted language as ~~strikeouts~~ and new language **bolded**.

- (1) IDEM has renumbered Sections and Subsections of Conditions D.1.8, and D.2.5 to be consistent with the rest of the document.

D.1.8 Particulate Control

-
- (~~4~~ **a**) In order to comply with conditions D.1.1 (a) (d), D.1.2 (a) (d), D.1.3 (a) (d) and D.1.4, the baghouses for particulate control, identified as PCU-1 shall be in operation when either of the sand handling systems for the No Bake Foundry (Unit A) or the Green Sand Foundry (Unit D) is in operation.
- (~~2~~ **b**) In order to comply with conditions D.1.1 (b) (e) and D.1.2 (b) (e), the baghouse identified as PCU-2 shall be in operation when metal melting and pouring operations are being performed at either the No Bake Foundry (Unit B) or the Green Sand Foundry (Unit E).
- (~~3~~ **c**) In order to comply with conditions D.1.1(c), D.1.2(c), D.1.3(c) and 1.4, the baghouse identified as PCU-4 shall be in operation when the Thermal Sand

Reclaimer (Unit C) is in operation.

D.2.5 Particulate Emission Limitations For Processes with Process Weight Rates Less Than One Hundred (100) pounds per hour [326 IAC 6-3-2(c)]

Pursuant to 326 IAC 6-3-2(e), the allowable particulate emissions rate from any process not already regulated by 326 IAC 6.5 or any New Source Performance Standard, and which has a maximum process weight rate less than 100 pounds per hour shall not exceed 0.551 pounds per hour. This includes the following operations:

(4)(a) The following equipment related to manufacturing activities not resulting in the emission of HAPs: brazing equipment, cutting torches, soldering equipment, welding equipment.

(i) Frame and cover welding operation identified as Unit M.

(ii) Brazing operation booth identified as Unit W.

(iii) One (1) Plasma cutting torch identified as unit P-1.

(2)(b) Grinding and machining operations controlled with fabric filters, scrubbers, mist collectors, wet collectors and electrostatic precipitators with a design grain loading of less than or equal to 0.03 grains per actual cubic foot and a gas flow rate less than or equal to 4000 actual cubic feet per minute, including the following: deburring; buffing, polishing, abrasive blasting; pneumatic conveying; and woodworking operations.

(i) Frame grinding operation identified as Unit N.

(2) The IDEM has corrected the spelling in condition D.2.3 (d) ~~unit~~ to **until**.

(3) The Facility Description in Box D.2, unit description (a) (6) has been corrected to be the same as the description in condition A.3.

...

(6) One (1) natural gas fired dry off oven identified as EQ-6, ~~constructed in 2004?~~ and rated at maximum heat input capacity of 0.75 MMBtu/hr.

...

(4) Condition D.1.11 Parametric Monitoring, the sub condition (b); the stack testing was conducted on November 30, 2004, so the duct pressure value range has been included in the permit condition D.1.11.

D.1.11 Parametric Monitoring

...

~~(b) The duct pressure or fan amperage shall be observed at least once per day when the thermal oxidizer is in operation. On and after the date the approved stack test results are available, the duct pressure or fan amperage shall be maintained within the normal range a established in most recent compliant test.~~

(b) The duct pressure or fan amperage shall be observed at least once per day when the thermal oxidizer is in operation. When for any one reading, the duct pressure is less than the range of 0.05 and 0.65 inches of water as established by the latest stack test, the permittee shall take reasonable response steps in accordance with Section C - Response to Excursions or Exceedances.

A pressure drop that is below the above mentioned minimum 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.

- (5) The state and the zip code inadvertently were left out from the mailing address for the CERTIFICATION, EMERGENCY OCCURANCE REPORT, FESOP Quarterly Reports and QUARTERLY DEVIATION AND COMPLIANCE MONITORING REPORT forms. The state name and the zip code have been included in all the reporting forms.

...

Source Name: Urschel Laboratories, Inc.
Source Address: 2503 Calumet Avenue, Valparaiso, Indiana ~~IN~~ 46384
Mailing Address: PO Box 2200, **Valparaiso, Indiana 46384**

...

IDEM Contact

Question regarding this permit can be directed to Ms. Swarna Prabha the Indiana Department of Environmental Management, Office of Air Quality, 100 North Senate Avenue, MC 6153 IGCN 1003, Indianapolis, In 46204-2251 or by telephone at 317-234-5376 or toll free at 1-800-452-6027 extension 4-5376.

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

**Technical Support Document (TSD) for a Federally Enforceable State
Operating Permit Renewal**

Source Background and Description

Source Name:	Urschel Laboratories Incorporated
Source Location:	2503 Calumet Avenue, Valparaiso, IN 46384
County:	Porter
SIC Code:	3556
Permit Renewal No.:	F127-26605-00037
Permit Reviewer:	Swarna Prabha

The Office of Air Quality (OAQ) has reviewed a FESOP renewal application from Urschel Laboratories Incorporated relating to the operation of a foundry.

History

On May 28, 2008 Urschel Laboratories Incorporated submitted an application to the OAQ requesting to renew its operating permit. Urschel Laboratories Incorporated was issued a FESOP Renewal on March 01, 2004. The plant currently operates a foundry which produces bronze castings using the green sand mold making process and phenolic shell core making process. The foundry also produces small castings using the phenolic urethane no bake mold making and core making process.

Permitted Emission Units and Pollution Control Equipment

- (a) One (1) No Bake Foundry operation, installed in 2003, consisting of the following:
 - (1) One (1) Sand handling system, identified as Unit A, consisting of two (2) sand silos, two (2) sand hoppers and associated conveyance equipment, with maximum process weight rate of 5.04 tons of sand per hour, and maximum binder usage of 588,672 pounds per year, particulate emissions controlled by a Sand Handling Baghouse PCU-1 and exhausting to S/V-1.
 - (2) One (1) Electric induction melting furnace, identified as Unit B, pouring, casting and cooling operation with maximum charge capacity of 0.6 ton of metals per hour and maximum process weight rate of binder usage of 26 lbs/ton of sand, with particulate emissions controlled by a baghouse PCU-2 and exhausting to S/V-2.
 - (3) One (1) thermal sand reclamation operation, identified as Unit C, controlling VOCs from the spent sand by a thermal oxidizer (PCU-3) with maximum system process weight rate of 1000 lbs sand per hour, equipped with a baghouse PCU-4 and exhausting to S/V-3.

- (b) One (1) Green Sand Foundry operation, installed in 1990, consisting of the following:
 - (1) One (1) Sand handling system, identified as Unit D, consisting of return sand storage bin, sand feeder hopper, surge hopper, batch hopper, prepared sand feeder hopper, two (2) molder hoppers and associated conveyance equipment, with maximum rate of 25 tons of sand per day and particulate emissions controlled by a Sand Handling Baghouse PCU-1 and exhausting to S/V-1.
 - (2) One (1) Electric induction melting furnace, identified as Unit E, pouring, casting and cooling operation with maximum charge capacity of 0.3 tons of metal per hour with particulate emissions controlled by a baghouse PCU-2 and exhausting to S/V-2.

Insignificant Activities :

This stationary source also includes the following insignificant activities, as defined in 326 IAC 2-7-1(21):

- (a) Natural gas-fired combustion sources with heat input equal to or less than ten million (10,000,000) Btu per hour.
 - (1) Two (2) natural gas fired sand heater cooler classifiers identified as EQ-3A and EQ-3B, and each rated at maximum heat input rating of 0.375 MMBtu/hr.
 - (2) Two (2) natural gas fired ladle torches identified as EQ-12A, with combined heat input rating of 1.5 MMBtu/hr.
 - (3) One (1) natural gas fired thermal oxidizer identified as PCU-3, and rated at maximum heat input rating of 0.465 MMBtu/hr.
 - (4) One (1) natural gas fired autoclave boiler identified as EQ-19, and rated at maximum heat input rating of 0.89 MMBtu/hr. [326 IAC 6-2-4]
 - (5) One (1) natural gas fired ceramic mold furnace identified as EQ-20, and rated at maximum heat input rating of 2.52 MMBtu/hr.
 - (6) One (1) natural gas fired dry off oven identified as EQ-6, and rated at maximum heat input capacity of 0.75 MMBtu/hr.
 - (7) One (1) natural gas fired Pacific Kiln, identified as K-1, constructed in 2008, with a maximum heat input rate of 1.3 MMBtu/hr.
- (b) Activities with emissions below insignificant thresholds (i.e. VOC emission less than 3 lb/hr and particulate emission less than 5 lb/hr):
 - (1) One (1) stainless steel foundry, identified as Unit K, employing the investment casting process (melting furnace and pouring operation only), with maximum metal charge capacity of 310 pounds per hour.
 - (2) Immersion Cleaning of Machine Parts, identified as Unit G, using 41,793 pounds per year of solution containing 100% VOC content, [326 IAC 8-3-2&5].
 - (3) One (1) CO₂ laser cutting operation, constructed in 2007, with a maximum cutting rate of 600 inches per hour (equivalent to a process rate of 1.0 ton per hour) and exhausting to S/V 4.
 - (4) One (1) surface coating operation identified as pattern shop finishing room, coating mold impressions and exhausting to S/V-5.
 - (5) Spray booth for impeller repair.
- (c) Grinding and machining operations controlled with fabric filters, scrubbers, mist collectors, wet collectors and electrostatic precipitators with a design grain loading of less than or equal to 0.03 grains per actual cubic foot and a gas flow rate less than or equal to 4000 actual cubic feet per minute, including the following: deburring; buffing, polishing, abrasive blasting; pneumatic conveying; and woodworking operations.
 - (1) Frame grinding operation identified as Unit N. [326 IAC 6-3-2]

- (d) The following equipment related to manufacturing activities not resulting in the emission of HAPs: brazing equipment, cutting torches, soldering equipment, welding equipment.
 - (1) Frame and cover welding operation identified as Unit M. [326 IAC 6-3-2]
 - (2) Laser cutting operation identified as Unit O. [326 IAC 6-3-2]
 - (3) Brazing operation booth identified as Unit W. [326 IAC 6-3-2]
 - (4) One (1) Plasma cutting torch identified as unit P-1. [326 IAC 6-3-2]
- (e) Furnaces used for melting metals other than beryllium with a brim full capacity of less than or equal to 450 cubic inches by volume.
- (f) The following VOC and HAP storage containers:
 - (1) Storage tanks with capacity less than or equal to 1,000 gallons and annual throughput less than 12,000 gallons.
 - (2) Vessels storing lubricating oils, hydraulic oils, machining oils, and machining fluids.
- (g) A laboratory as defined in 326 IAC 2-7-1(21)(D).
- (h) Machining where an aqueous cutting coolant continuously floods the machining interface.
- (i) Replacement or repair of electrostatic precipitators, bags in baghouses and filters in other air filtration equipment.
- (j) Paved and unpaved roads and parking lots with public access.

There are no new emission units added during the review.

Revised Emissions and Pollution Control Equipment

The following changes have been made to the existing facility operations and emissions. The changes are already incorporated.

In the existing permit F127-17726-00037 the duct work and baghouses upstream of S/V1 and S/V2 were not designed to serve two foundries operating simultaneously. Therefore, the production activities were limited to one foundry at a time. Inadvertently, the emission limits for PM10 were based on the assumption that the Green Sand Foundry and the No-Bake Foundries run concurrently.

Upon Permittee's confirmation it has been identified that The Green Sand Foundry and the No Bake Foundry now can operate simultaneously. The capture and control system is capable of evacuating emissions while both foundries are in operation. The statement from the permit has been deleted indicating that the emission limitations are based only one foundry operating at any given time. Also, the emission limitation from No Bake Foundry Sand Handling system (Unit A) has been increased from 6.97 pounds per hour to 10 pounds per hour to reach the 100 tons per year limit.

Existing Approvals

Since the issuance of the FESOP 127-17726-00037 on March 1, 2004, the source has constructed or has been operating under the following approvals as well:

- (a) Fourth Administrative Amendment No. 127-26047-00037 issued on March 3, 2008 and

- (b) Third Administrative Amendment No. 127-25138-00037 issued on October 15, 2007
- (c) Second Administrative Amendment No. 127-22816-00037 issued on April 11, 2006
- (d) Significant Permit Revision No. 127-19760-00037 issued on December 10, 2004
- (e) First Administrative Amendment No. 127-18873-00037 issued on April 30, 2004

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 determined no longer applicable; therefore, were not incorporated into this FESOP Renewal:

All construction conditions from all previously issued permits.

Reason not incorporated: All facilities previously permitted have already been constructed; therefore, the construction conditions are no longer necessary as part of the operating permit. Any facilities that were previously permitted but have not yet been constructed would need new pre-construction approval before beginning construction.

Enforcement Issue

There are no enforcement actions pending.

Emission Calculations

See Appendix A of this document for detailed emission calculations.

County Attainment Status

The source is located in Porter County

Pollutant	Designation
SO ₂	Cannot be classified for the area bounded on the north by Lake Michigan; on the west by the Lake County and Porter County line; on the south by I-80 and I-90; and on the east by the LaPorte County and Porter County line. The remainder of Porter County is better than national standards.
CO	Unclassifiable or attainment effective November 15, 1990.
O ₃	Nonattainment Subpart 2 Moderate effective June 15, 2004, for the 8-hour ozone standard. ¹
PM ₁₀	Unclassifiable effective November 15, 1990.
NO ₂	Cannot be classified or better than national standards.
Pb	Not designated.
¹ Nonattainment Severe 17 effective November 15, 1990, for the Chicago-Gary-Lake County area, including Porter County, for the 1-hour standard which was revoked effective June 15, 2005. Basic nonattainment designation effective federally April 5, 2005, for PM2.5.	

- (a) Ozone Standards

- (1) On October 25, 2006, the Indiana Air Pollution Control Board finalized a rule revision to 326 IAC 1-4-1 revoking the one-hour ozone standard in Indiana.

- (2) On September 6, 2007, the Indiana Air Pollution Control Board finalized a temporary emergency rule to re-designate Allen, Clark, Elkhart, Floyd, LaPorte, and St. Joseph as attainment for the 8-hour ozone standard.
- (3) On November 9, 2007, the Indiana Air Pollution Control Board finalized a temporary emergency rule to re-designate Boone, Clark, Elkhart, Floyd, LaPorte, Hamilton, Hancock, Hendricks, Johnson, Madison, Marion, Morgan, Shelby, and St. Joseph as attainment for the 8-hour ozone standard.
- (4) Volatile organic compounds (VOC) and Nitrogen Oxides (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.

(i) 1-hour ozone standard

On December 22, 2006 the United States Court of Appeals, District of Columbia issued a decision which served to partially vacate and remand the U.S. EPA's final rule for implementation of the eight-hour National Ambient Air quality Standard for ozone. *South Coast Air Quality Mgmt. Dist. v. EPA*, 472 F.3d 882 (D.C. Cir., December 22, 2006), *rehearing denied* 2007 U.S. App. LEXIS 13748 (D.C. Cir., June 8, 2007). The U.S. EPA has instructed IDEM to issue permits in accordance with its interpretation of the *South Coast* decision as follows: Gary-Lake-Porter County was previously designated as a severe non-attainment area prior to revocation of the one-hour ozone standard, therefore, pursuant to the anti-backsliding provisions of the Clean Air Act, any new or existing source must be subject to the major source applicability cut-offs and offset ratios under the area's previous one-hour standard designation. This means that a source must achieve the Lowest Achievable Emission Rate (LAER) if it exceeds 25 tons per year of VOC emissions and must offset any increase in VOC emissions by a decrease of 1.3 times that amount.

On January 26, 1996 in 40 CFR 52.777(i), the U.S. EPA granted a waiver of the requirements of Section 182(f) of the CAA for Lake and Porter Counties, including the lower NO_x threshold for nonattainment new source review. Therefore, VOC emissions alone are considered when evaluating the rule applicability relating to the 1-hour ozone standards. Therefore, VOC emissions were reviewed pursuant to the requirements for Emission Offset, 326 IAC 2-3. See the State Rule Applicability for the source section.

(ii) 8-hour ozone standard

VOC and NO_x emissions are considered when evaluating the rule applicability relating to the 8-hour ozone standard. Porter 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.

(b) PM_{2.5}

U.S. EPA, in the Federal Register Notice 70 FR 943 dated January 5, 2005, has designated Porter County as nonattainment for PM_{2.5}. On March 7, 2005 the Indiana Attorney General's Office, on behalf of IDEM, filed a law suit with the Court of Appeals for the District of Columbia Circuit challenging U.S. EPA's designation of nonattainment areas without sufficient data. However, in order to ensure that sources are not potentially liable for a violation of the Clean Air Act, the OAQ is following the U.S. EPA's New Source Review Rule

for PM_{2.5} promulgated on May 8th, 2008, and effective on July 15th 2008. Therefore, direct PM_{2.5} and SO₂ emissions were reviewed pursuant to the requirements of Nonattainment New Source Review, 326 IAC 2-1.1-5. See the State Rule Applicability – Entire Source section.

- (c) **Other Criteria Pollutants**
Porter County has been classified as attainment or unclassifiable in Indiana for other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.
- (d) **Fugitive Emissions**
Since this type of operation is not one of the secondary metal production plant, therefore it 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.

Unrestricted Potential Emissions

This table reflects the unrestricted potential emissions of the source.

Pollutant	tons/year
PM	830.27
PM ₁₀	217.20
SO ₂	0.19
VOC	151.19
CO	17.31
NO _x	3.63

HAPs	tons/year
Xylene	4.82
Phenol	3.65
Manganese	0.43
Chromium	0.29
Formaldehyde	0.06
Methylene Chloride	0.33
Total	9.59

- (a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of criteria pollutants is equal to or greater than 100 tons per year. The source is subject to the provisions of 326 IAC 2-7. However, the source has agreed to continue to limit their PM, PM₁₀, VOC emissions to less than Title V levels, therefore the source will be issued a FESOP renewal.
- (b) The potential to emit (as defined in 326 IAC 2-7-1(29)) of all other criteria pollutants are less than 100 tons per year.
- (c) 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 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.
- (d) Since this type of operation is not one of the twenty-eight (28) listed source categories under 326 IAC 2-7 because it is not a secondary metal production plant, 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 the determination of Part 70 applicability.

Actual Emissions

The following table shows the actual emissions from the source. This information reflects the 2002 OAQ emission data.

Pollutant	Actual Emissions (tons/year)
PM	not provided
PM ₁₀	0.00018
SO ₂	not provided
VOC	not provided
CO	not provided
NO _x	not provided
HAP (specify)	not provided

Potential to Emit After Issuance

The source has opted to remain a FESOP source. 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 FESOP 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 of the Entire Source After Issuance of FESOP (tons/year)							Worst Case HAP Total HAPs
	PM	PM ₁₀	PM _{2.5}	SO ₂	VOC	CO	NO _x	
Unit A (No Bake Foundry; Sand Handling system)	43.8	43.8	43.8	--	3.525*	--	--	0.90 (Xylene) 1.34 (total)
Unit A (Mold Washing)	--	--	--	--	2.76	--	--	--
Unit B (No Bake Foundry; Induction Furnace- pouring, casting and cooling)	12.74	12.74	12.74	.032	10.94*	2.06	0.01	0.685 (Phenol) 5.587(Total)
Unit C (No Bake Foundry; Thermal Sand Reclaimer)	11.25	11.25	11.25	0	0.569	--	--	negligible
Unit D (Green Sand Foundry; Sand Handling System)	18.44	18.44	18.44	--	0	--	--	.06 (formaldehyde) 0.6 (Total)
Unit E (Green Sand Foundry; Fume Control)	8.01	8.01	8.01	--	--	--	--	negligible
Unit G (Immersion Cleaning) (Insignificant Activity)	--	--	--	--	6.12	--	--	0.33 (MethylChloride) 0.87(Total)
Investment cast foundry; Melting, Pouring, Casting and Cooling- Unit K (Insignificant Activity)	0.29	0.29	0.29	0	0	3.31	0	negligible
**Insignificant Activities	1.18	1.38	1.38	0.02	0.24	3.01	3.58	0.23 (Chromium) 0.5 (total)

Process/ Emission Unit	Potential To Emit of the Entire Source After Issuance of FESOP (tons/year)							Worst Case HAP Total HAPs
	PM	PM ₁₀	PM _{2.5}	SO ₂	VOC	CO	NO _x	
Total PTE Limited/Controlled Emissions	95.71	95.91	95.91	0.05	24.24	8.38	3.59	2.27(single) 8.41(total)
Title V Major Source Thresholds	NA	100	--	100	25	100	100	25/10
PSD / EO Major Source Thresholds	250	250	100	250	25	250	250	N/A

Note:

- Under the Part 70 Permit program (40 CFR 70), particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM₁₀), not particulate matter (PM), is considered as a "regulated air pollutant". US EPA has directed states to regulate PM₁₀ emissions as surrogate for PM_{2.5} emissions.
- PM and PM10 emission limits for Units B through E are based on 326 IAC 6-3-2 allowables, while the PM and PM10 emission limit for Unit A consists of the remaining FESOP PM10 allowable to reach the 100 tons per year limit.
- *VOC emissions from NO bake Foundry (Unit A, Unit B), induction furnace (pouring, casting and cooling) are based on combined limited throughput of 106,720 pound binder per year.
- ** Insignificant activities consist of natural gas combustion operations, Welding, Grinding, Laser cutting operations, CO2 laser cutting operations, and pattern shop paint operation.

- This existing stationary source is not major for Emission Offset because the emissions of the nonattainment pollutant, VOC and NOx are less than twenty five (<25) tons per year.
- Fugitive Emissions
 Since this type of operation is not a secondary metal production plant, therefore it 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

- One (1) autoclave boiler (EQ-19) constructed in 1990 and rated at 0.89 MMBtu per hour is not subject to the New Source Performance Standard, 326 IAC 12, (40 CFR 60.40c, Subpart Dc) because the boiler's capacity is less than the rule applicability threshold of 10 MMBtu per hour.
- The source is not subject to the requirements of New Source Performance Standard, 326 IAC 12, (40 CFR Parts 60.130 as Subpart M (Standards of Performance for Secondary Brass and Bronze Production Plants)) because this source does not melt any post-consumer scrap materials and is not considered a secondary metal production facility. Therefore, the requirements under this subpart are not applicable.
- There are no Emission Standards for Hazardous Air Pollutants (326 IAC 14) applicable to this metal alloy casting plant. The source does not process beryllium ore, beryllium oxide, beryllium alloys, or beryllium containing waste as defined under 40 CFR 61.30, therefore, Subpart C (and 326 IAC 14-3) does not apply.
- The degreasing operation identified as Immersion Cleaning, an insignificant activity, is not subject to the National Emission Standards for Hazardous Air Pollutants, 326 IAC 20, (40 CFR 63, Subpart T). Subpart T applies to degreasing operations using one of six listed halogenated solvents, or any combination of the solvents in a concentration greater than 5 percent by weight, as a cleaning or drying agent. The source does not use the regulated halogenated solvents in the degreasing operation; therefore, Subpart T does not apply.

- (e) This source is not subject to the requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAP), 326 IAC 20, (40 CFR Part 63.7680, Subpart EEEEE (Iron and Steel Foundries), because this source is not a major source of HAP. The source has chosen to limit the source wide emissions of any combination of HAPs and any single HAP to less than 25 and 10 tons per twelve (12) consecutive month period, respectively.
- (f) The requirements of Section 112(j) of the Clean Air Act (40 CFR Part 63.50 through 63.56) are not applicable to this source, because the source has a limited potential to emit of less than 10 tons per year of a single HAP and less than 25 tons per year of the combination of HAPs.
- (g) There are no New Source Performance Standards (NSPS) (326 IAC 12 and 40 CFR Part 60) included in the permit for this source.
- (h) There are no National Emission Standards for Hazardous Air Pollutants (NESHAP) (326 IAC 14, 326 IAC 20 and 40 CFR Part 63) included in this permit renewal.

State Rule Applicability - Entire Source

- (a) 326 IAC 2-2 (Prevention of Significant Deterioration) and 326 IAC 2-3 (Emission Offset)
This existing minor stationary source, which was constructed in 1990 after August 7, 1977 rule applicability date, is not major for PSD because the emissions of each attainment criteria pollutant are less than two hundred fifty (<250) tons per year, and it is not in one of the twenty-eight (28) listed source categories. This existing stationary source is not major for Emission Offset because the emissions of the nonattainment pollutant PM_{2.5}, is less than one hundred (<100) tons per year and the emissions of VOC are less than twenty-five (25) tons per year after enforceable controls and limitations. The source will continue to be both FESOP and minor stationary source with VOC emissions limited to less than 25 tons per year, and all other criteria pollutants to less than 100 tons per year. Therefore, the requirements of 326 IAC 2-2 (PSD) and 326 IAC 2-3 (Emission Offset) do not apply.
- (b) 326 IAC 2-4.1-1 (New Source Toxics Control)
326 IAC 2-4.1-1 applies to new or reconstructed facilities with potential emissions of any single HAP equal or greater than ten (10) tons per twelve (12) month period and potential emissions of a combination of HAPs greater than or equal to twenty-five (25) tons per twelve (12) month period. This source is not subject to 326 IAC 2-4.1-1 (New Source Toxics Control) because it has potential single HAP and total HAPs emission of less than 10 and 25 tons per year, respectively.
- (c) 326 IAC 2-6 (Emission Reporting)
This source is not subject to 326 IAC 2-6 (Emission Reporting), because it is located in Porter County, a specifically listed county and has the potential to emit less than twenty five (25) tons per year of VOC. Therefore, 326 IAC 2-6 does not apply.
- (d) 326 IAC 2-8-4 (FESOP)
This source is subject to 326 IAC 2-8-4 (FESOP). Pursuant to this rule, the following conditions shall apply:

The PM, PM-10 and PM2.5 Limitations:

- (1) the No Bake Foundry Sand Handling System (Unit A) shall not exceed 10.0 pounds per hour;
- (2) the No Bake Foundry Melting/Pouring Operations (Unit B) shall not exceed 2.91 pounds per hour;
- (3) the Thermal Sand Reclaimer (Unit C (controlled by thermal oxidizer)) shall not exceed 2.57 pounds per hour;
- (4) the Green Sand Foundry Sand Handling System (Unit D) shall not exceed 4.21 pounds per hour;
- (5) the Green Sand Foundry Metal/Pouring Operations (Unit E) shall not exceed 1.83 pounds per hour.

VOC Limitations:

- (1) The amount of total binder usage in the No Bake Foundry, Sand handling Unit A and Electric Induction melting furnace, pouring, casting and cooling operation Unit B combined shall not exceed 106,720 pounds per twelve (12) consecutive month period with compliance determined at the end of each month.
- (2) The VOC emissions from the No bake Foundry, Sand handling Unit A shall not exceed 0.066 lb VOC/ lb of binder.
- (3) The VOC emissions from the No bake Foundry, Electric Induction melting furnace, pouring, casting and cooling operation Unit B shall not exceed 0.205 VOC/ lb of binder.
- (4) The VOC emissions from the Thermal Sand Reclaimer (Unit C) shall not exceed 0.569 tons per year based on control by the Thermal Oxidizer (PCU-3) with overall VOC control efficiency of 99.0%.

Compliance with above conditions shall limit the source-wide PM and PM10 emissions to less than 100 tons per twelve consecutive month period; and VOC, single HAP, and total HAPs emissions to less than 25, 10 and 25 tons per twelve (12) consecutive month period with compliance determined at the end of each month, respectively. Therefore, the requirements of 326 IAC 2-7 (Part 70) do not apply. These limits will also render 326 IAC 2-3 (Emission Offset) not applicable.

- (e) 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 Exemptions), 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.

- (f) 326 IAC 6-4 (Fugitive Dust Emissions)
Pursuant to 326 IAC 6-4, the source shall not generate fugitive dust to the extent that some portion of the material escapes beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located.
- (g) 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations)
The source is located in Porter County.
 - (a) This source is not located in any of the areas listed in 326 IAC 6-5-1(a). Therefore, this source is not subject to the requirements of 326 IAC 6-5.
 - (b) This source did not receive all of the necessary preconstruction approvals prior to December 13, 1985. However, the fugitive particulate emissions from the paved and unpaved roads and parking lots are negligible. Pursuant to 326 IAC 6-5-7(d), this source is not subject to the requirements of 326 IAC 6-5.
- (h) 326 IAC 6-6 (Source Specific and Facility Emission Limitations for TSP in Porter County)
This source is not subject to 326 IAC 6-6 because it is not one of the sources or facilities listed in this rule.
- (i) 326 IAC 7-4-14 (Porter County Sulfur Dioxide Emission Limitations)
This source is not subject to 326 IAC 7-4-14 because it is not one of the sources or facilities listed in this rule.
- (j) 326 IAC 8-7 (Specific VOC Reduction Requirements for Lake, Porter, Clark, and Floyd Counties)
Although this source is located in Porter County, its potential to emit VOC is less than 25 tons per year. Therefore, this source is not subject to the requirements of 326 IAC 8-7. (See Appendix A- Emission Calculations)

State Rule Applicability - Individual Facilities

Natural Gas Fired Autoclave Boiler EQ-19:

- (k) 326 IAC 6-2-4 (Particulate Emission Limitations for Sources of Indirect Heating)
The one (1) natural gas fired boiler (EQ-19 constructed after 1983), with a maximum heat input capacity rating of 0.89 MMBtu per hour, is subject to the particulate matter limitations of 326 IAC 6-2-4. Pursuant to this rule, particulate emissions from indirect heating facilities constructed after September 21, 1983, shall be limited by the following equation:

$$Pt = 1.09/Q^{0.26}$$

where: Pt = maximum allowable particulate matter (PM) emitted per MMBtu heat input
Q = total source maximum operation capacity rating = 0.89 MMBtu/hr

$$Pt = 1.09/0.89^{0.26} = 1.123 \text{ lbs PM/MMBtu}$$

However, pursuant to 326 IAC 6-2-4(a), because the maximum heat input capacity is less than 10 MMBtu/hr, the boiler is limited to emissions of less than 0.6 lbs PM/MMBtu.

compliance calculation:

$$\text{Potential PM emissions for boiler (EQ-19)} = 1.9 \text{ lb PM/MMCF} * (1/1000) \text{ (MMCF/MMBtu)} = 0.0019 \text{ lbs PM/MMBtu}$$

Potential PM emissions for the boiler EQ-19 (0.0019 lbs PM/MMBtu) are less than the allowable 0.60 lbs PM/MMBtu, therefore the boiler will comply with the requirements of 326 IAC 6-2-4.

No Bake Foundry (Unit A, B, C) and Green Sand Foundry (Unit D, E) and Investment Casting Foundry (Unit K):

- (I) 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)
(a) Pursuant to 326 IAC 6-3-2 the particulate emissions from the foundry operations shall be limited by the following:

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:

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

The baghouses PCU-1, PCU-2 and PCU-4 shall be in operation at all times the No Bake and Green Sand foundry operations are in operation, in order to comply with this limit.

The table below summaries the allowable emissions from Units A, B, C, D, E and K sand handling, melting and pouring, thermal sand reclamation, and investment casting processes.

Facilities	Process Weight Rate (tons/hr)	Allowable Particulate Emissions (lb/hr)	Compliance Calculations (lb/hr)
Unit A (No Bake Foundry; Sand Handling System)	5.04	12.12	1.16
Unit B (No Bake Foundry; Melting/Pouring Equipment)	0.60	2.91	0.26
Unit C (No Bake Foundry; Thermal Sand Reclamation Unit)	0.50	2.57	0.40
Unit D (Green Sand Foundry; Sand Handling System)	1.04	4.21	0.29
Unit E (Green Sand Foundry; Melting/Pouring Equipment)	0.30	1.83	0.15
Unit K (Investment Casting Foundry; Melting/Pouring)	0.155	1.17	0.066

These facilities are in compliance with these allowable particulate emissions, since their emissions after control are less than the allowable particulate emissions.

- (m) 326 IAC 8-1-6 (New Facilities; General Reduction Requirements)
 This rule applies to facilities located anywhere in the state that were constructed on or after January 1, 1980, which have potential volatile organic compound (VOC) emissions of 25 tons per year or more, and are not otherwise regulated by other provisions of Article 8. This source shall limit the binder usage in the No Bake Foundry to less than 106,720 pounds per year (equivalent to VOC emissions factor of 0.066 lb VOC/lb binder and 0.205 lb VOC/lb binder for emission unit A and B, respectively); and the thermal oxidizer shall control the VOC emissions from the Thermal Sand Reclaimer to 0.06 tons per year. This will limit the source wide potential to emit VOC to less than 25 tons per year. Therefore, rule 326 IAC 8-1-6 does not apply to this source.
- (n) 326 IAC 8-6 (Organic Solvent Emission Limitations)
 This rule applies to sources commencing operation after October 7, 1974 and prior to January 1, 1980, located anywhere in the state, with potential VOC emissions of 100 tons per year or more, and not regulated by any other provision of Article 8. This source does not have potential VOC emissions at, or in excess of 100 tons per year, therefore 326 IAC 8-6 does not apply.
- (o) 326 IAC 11-1 (Emission Limitations for Existing Foundries)
 This rule establishes specific emission limitations for particulate matter from foundries in operation on or before December 6, 1968. Foundries beginning operation after December 6, 1968 are required to comply with the emission limits specified in 362 IAC 6-3. This rule is not applicable to this source since the foundry was not in existence prior to December 6, 1968.

Immersion Cleaning Of Machine Parts "Unit G"

(p) Volatile Organic Compounds (VOC) [326 IAC 8-3-2]

Pursuant to 326 IAC 8-3-2, for each of the parts washers, the owner or operator shall:

- (a) Equip the cleaner with a cover;
- (b) Equip the cleaner with a facility for draining cleaned parts;
- (c) Close the degreaser cover whenever parts are not being handled in the cleaner;
- (d) Drain cleaned parts for at least fifteen (15) seconds or until dripping ceases;
- (e) Provide a permanent, conspicuous label summarizing the operation requirements;
- (f) Store waste solvent only in covered containers and not dispose of waste solvent or transfer it to another party, in such a manner that greater than twenty percent (20%) of the waste solvent (by weight) can evaporate into the atmosphere.

(q) Volatile Organic Compounds (VOC) [326 IAC 8-3-5]

(a) Pursuant 326 IAC 8-3-5(a), the owner or operator shall ensure that the following control equipment requirements are met for each of the eleven (11) parts washers:

- (1) Equip the degreaser with a cover. The cover must be designed so that it can be easily operated with one (1) hand if:
 - (A) The solvent volatility is greater than two (2) kiloPascals (fifteen (15) millimeters of mercury or three-tenths (0.3) pounds per square inch) measured at thirty-eight degrees Celsius (38°C) (one hundred degrees Fahrenheit (100°F));
 - (B) The solvent is agitated; or
 - (C) The solvent is heated.
- (2) Equip the degreaser with a facility for draining cleaned articles. If the solvent volatility is greater than four and three-tenths (4.3) kiloPascals (thirty-two (32) millimeters of mercury or six-tenths (0.6) pounds per square inch) measured at thirty-eight degrees Celsius (38°C) (one hundred degrees Fahrenheit (100°F)), then the drainage facility must be internal such that articles are enclosed under the cover while draining. The drainage facility may be external for applications where an internal type cannot fit into the cleaning system.
- (3) Provide a permanent, conspicuous label which lists the operating requirements outlined in 326 IAC 8-3-5(b).
- (4) The solvent spray, if used, must be a solid, fluid stream and shall be applied at a pressure which does not cause excessive splashing.
- (5) Equip the degreaser with one (1) of the following control devices if the solvent volatility is greater than four and three-tenths (4.3) kiloPascals (thirty-two (32) millimeters of mercury) or six-tenths (0.6) pounds per square inch) measured at thirty-eight degrees Celsius (38°C) (one hundred degrees Fahrenheit (100°F)), or if

the solvent is heated to a temperature greater than forty-eight and nine-tenths degrees Celsius (48.9°C) (one hundred twenty degrees Fahrenheit (120°F)):

- (A) A freeboard that attains a freeboard ratio of seventy-five hundredths (0.75) or greater.
 - (B) A water cover when solvent is used is insoluble in, and heavier than, water.
 - (C) Other systems of demonstrated equivalent control such as a refrigerated chiller or carbon adsorption. Such systems shall be submitted to the U.S. EPA as a SIP revision.
- (b) Pursuant 326 IAC 8-3-5(b), the owner or operator shall ensure that the following operating requirements are met for each of the eleven (11) parts washers:
- (1) Close the cover whenever articles are not being handled in the degreaser.
 - (2) Drain cleaned articles for at least fifteen (15) seconds or until dripping ceases.
 - (3) Store waste solvent only in covered containers and prohibit the disposal or transfer of waste solvent in any manner in which greater than twenty percent (20%) of the waste solvent by weight could evaporate.
- (r) 326 IAC 20-6-1 (Halogenated Solvent Cleaning)
This source is not subject to the requirements of the 326 IAC 20-6-1, since the degreasing operations do not use a solvent that contains any of the halogenated compounds listed in 326 IAC 20-6-1(a).

Compliance Determination and Monitoring Requirements

Permits issued under 326 IAC 2-8 are required to ensure that sources can demonstrate compliance with all applicable state and federal rules on a continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a continuous demonstration. When this occurs, IDEM, OAQ, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-8-4. As a result, Compliance Determination Requirements are included in the permit. The Compliance Determination Requirements in Section D of the permit are those conditions that are found directly within state and federal rules and the violation of which serves as grounds for enforcement action.

If the Compliance Determination Requirements are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also in Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

Compliance Determination Requirements

Testing Requirements

Based on IDEM, OAQ's stack test requirement criteria, testing will be required for the following emission units and /or their control devices:

Testing for baghouse (PCU-1) controlling the particulate emissions from No Bake Foundry Sand Handling System (Unit A) and Green Sand Foundry Sand Handling System (Unit D) is required, because the facility accounts for greater than 40 % of source wide potential to emit of PM. Its

proper operation is required for the source to respectively comply with 326 IAC 2-2 (PSD) and 326 IAC 2-8 (FESOP), the source shall be required to conduct the testing outlined in Condition D.1.5.

- (a) The PM, PM_{2.5} and PM₁₀ testing for baghouse PCU-1 controlling the particulate emissions from the No Bake Foundry Sand Handling System (Unit A), and the Green Sand Foundry Sand Handling System (Unit D) which exhaust through stack S/V-1, within 180 days of publication of the new or revised condensable PM test method(s) referenced in the U. S. EPA's Final Rule for Implementation of the New Source Review (NSR) Program for Particulate Matter Less Than 2.5 Micrometers (PM_{2.5}), signed on May 8th, 2008. This testing shall be conducted utilizing methods as approved by the Commissioner. These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing. PM₁₀ and PM_{2.5} includes filterable and condensable PM₁₀.

In order to comply with the PM, PM₁₀, and PM_{2.5} limitations in the permit, the baghouse PCU-1 for the No Bake Foundry Sand Handling System (Unit A), and the Green Sand Foundry Sand Handling System (Unit D) shall be in operation and control emissions from the sand handling system at all times when the sand handling system is in operation.

- (b) This source utilizes one (1) natural gas fired thermal oxidizer (PCU-3) to control VOC emissions from the Thermal Sand Reclaimer with overall VOC destruction efficiency of 99.0 %. A compliance stack test for VOCs shall be performed at the natural gas fired thermal oxidizer (PCU-3), within five (5) years of the last valid stack test, with a maximum heat input rate of 0.475 MMBtu/hr, to determine the minimum thermal oxidizer temperature, fan amperage and duct velocity which is required to maintain overall VOC destruction efficiency of 99.0%. Since compliance with the VOC destruction efficiency and operating temperature specified for the oxidizer in the FESOP is needed to demonstrate compliance with 326 IAC 2-8 (FESOP), the source shall be required to conduct the testing outlined in Condition D.1.5(b).
- (c) Testing is not required for the VOC emissions from the coremaking at No Bake Foundry because conservative emission factors were used to calculate emissions from the core making operation. VOC emissions are also limited based on the limited binder usage per year.
- (d) Testing is not required for the VOC emissions from the melting, pouring and casting at No Bake Foundry because conservative emission factors were used to calculate emissions from this process. VOC emissions are also limited based on the limited binder usage per year.
- (e) Testing is not required on baghouses PCU-2 and PCU-4 because compliance will be demonstrated through proper operation and parametric monitoring of the baghouses.
- (f) Testing is not required on any of the other emission units at this source because they do not meet any of the criteria which would require a stack test.

Compliance Determination is required for the following emission units:

Emission Unit	Control Device/stack	Time frame for Testing	Pollutant	Frequency of Testing	Limit or Requirement
No Bake foundry sand handling system (Unit A)	PCU-1 baghouse/stack S/V-1	180 days after publication of revised test method	PM, PM ₁₀ , PM _{2.5}	Once every five (5) years	6.97lbs/hr PM, PM ₁₀ and PM _{2.5} each
No Bake foundry sand handling system (Unit D)	PCU-1 baghouse/stack S/V-1	180 days after publication of revised test method	PM, PM ₁₀ , PM _{2.5}	Once every five (5) years	4.21 lbs/hr PM, PM ₁₀ and PM _{2.5} each
Thermal sand reclamation (Unit C)	PCU-3 Thermal Oxidizer/stack S/V-3	within 5 years of last valid stack test	VOC	Once every five (5) years	VOC capture and control efficiency 99.0%

1. The last stack test occurred on November 29, 2004 for PM / PM₁₀ and VOC. The source was in compliance at that time.
2. The next scheduled PM/PM₁₀ test will be in 2009. However, due to the new federal rule regarding the PM_{2.5}, the test shall be performed per schedule below.
3. The next scheduled VOC test will be in 2009. The VOC test will be performed per schedule below.

Compliance Monitoring Requirements

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

- (1) The one (1) natural gas fired thermal oxidizer (PCU-3) has applicable compliance monitoring conditions as specified below:
 - (a) Parametric Monitoring:
 - (1) The permittee shall determine the Fan Amperage or Duct Pressure once per day when the thermal oxidizer is in operation.
 - (2) The permittee shall record the 3-hour average temperature on the thermal oxidizer (PCU-3).

These monitoring conditions are necessary because the thermal oxidizers (PCU-3) for the Thermal Sand Reclaimer (Unit C) must operate properly to ensure compliance with 326 IAC 2-8 (FESOP) and 326 IAC 8-1-6 (New Facilities; General Reduction Requirements).

- (2) The baghouse PCU-1, controlling emissions from Unit A and Unit D, baghouse PCU-2 controlling emissions from Unit B and Unit E operations, and the baghouse PCU-4 controlling emissions from Unit C, have applicable compliance monitoring conditions as specified below:
 - (a) Visible Emissions Notations
 The permittee shall perform daily visible emission notations of the of the S/V-1, and S/V-2, baghouse stacks.
 - (b) Baghouse Parametric Monitoring
 The Permittee shall record the pressure drop across the baghouse, PCU-1, PCU-2, and PCU-4, at least once per day when systems are in operation.

- (c) Broken or Failed Bag Detection
 The Permittee shall maintain the baghouse and replace broken or failed bags as needed.

These monitoring conditions are necessary because the baghouses (PCU-1, PCU-2 and PCU-4) controlling particulate emissions from No Bake Foundry and Green Sand Foundry must operate properly to ensure compliance with 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Process) and 326 IAC 2-8 and render 326 IAC 2-2 (Prevention of Significant Deterioration) and 326 IAC 2-3 (Emission Offset) not applicable.

The compliance monitoring is required for the following emission units:

Control	Parameter	Frequency	Range	Excursions and Exceedances
Control equipment -PCU-1, PCU-2 (Baghouses)	Water Pressure Drop	Daily	2.0 to 8.0 inches	Response Steps
	Visible Emissions		Normal-Abnormal	
Control equipment -PCU-4	Water Pressure Drop	Daily	0.25 to 12 inches	Response Steps
Thermal oxidizer PCU-3	Fan Amperage and Duct Pressure	Daily	based on the most recent stack test	Response Steps
	Operating Temperature 3-hour average		1200 ° F or higher	

Recommendation

The staff recommends to the Commissioner that the FESOP Renewable 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 May 28, 2008.

Conclusion

The operation of this Urschel Laboratories Incorporated shall be subject to the conditions of the attached FESOP Renewal No. F127-26605-00037.

Appendix A: Emission Calculations

Company Name: Urschel Laboratories Incorporated
Address City IN Zip: 2503 Calumet Avenue, Valparaiso, Indiana 46384
FESOP Permit No.: 127-26605-00037
Reviewer: Swarna Prabha

Uncontrolled Potential Emissions (tons/year)									
Emissions Generating Activity									
Pollutant	Sand Handling System	Induction Furnace, Pouring, Casting & Cooling	Thermal Sand Reclaimer	Sand Handling System	Fume Control System	Immersion Cleaning (Insignificant)	Melting, Pouring, Casting and Cooling (Insignificant)	*Insignificant Activities	TOTAL**
	Unit A (No bake foundry)	Unit B (No bake foundry)	Unit C (No bake foundry)	Unit D (Green Sand Foundry)	Unit E (Green Sand Foundry)	Unit G (cleaning Machine Parts)	Unit K (Investment Casting Foundry)		
PM	509.83	11.27	175.70	125.35	6.64	0.00	0.29	1.18	830.27
PM10	20.39	11.27	175.70	1.52	6.64	0.00	0.29	1.38	217.20
SO2	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.02	0.19
NOx	0.00	0.05	0.00	0.00	0.00	0.00	0.00	3.58	3.63
VOC	27.49	60.34	56.94	0.060	0.00	6.12	0.00	0.24	151.19
CO	0.00	10.99	0.00	0.00	0.00	0.00	3.31	3.01	17.31
total HAPs	7.14	12.11	0.00	0.10	0.74	0.87	0.11	0.50	21.58
worst case single HAP	4.82	3.65	0.00	0.06	0.43	0.331	0.06	0.23	9.59
	(Xylene)	(Phenol)		(Formaldehyde)	(Manganese)	(Methylene Chloride)	(Chromium)	(Chromium)	(Xylene)

Controlled Potential Emissions (tons/year)									
Emissions Generating Activity									
Pollutant	Sand Handling System	Induction Furnace, Pouring, Casting & Cooling	Thermal Sand Reclaimer	Sand Handling System	Fume Control System	Immersion Cleaning	Melting, Pouring, Casting and Cooling (Insignificant)	Insignificant Activities	TOTAL**
	Unit A (No bake foundry)	Unit B (No bake foundry)	Unit C (No bake foundry)	Unit D (Green Sand Foundry)	Unit E (Green Sand Foundry)	Unit G (cleaning Machine Parts)	Unit K (Investment Casting Foundry)		
PM	5.10	1.13	1.76	1.25	0.66	0.00	0.29	1.18	11.37
PM10	0.20	1.13	1.76	0.02	0.66	0.00	0.29	1.38	5.44
SO2	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.02	0.05
NOx	0.00	0.01	0.00	0.00	0.00	0.00	0.00	3.58	3.59
VOC	6.28	11.33	0.57	0.06	0.00	6.12	0.00	0.24	24.60
CO	0.00	2.06	0.00	0.00	0.00	0.00	0.00	3.01	5.07
total HAPs	1.34	5.87	0.00	1.00E-04	2.90E-03	0.87	0.11	0.50	8.70
worst case single HAP	0.91	0.685	0.00	negl.	negl.	0.33	0.06	0.23	2.21
	(Xylene)	(Phenol)				(Methylene Chloride)	(Chromium)	(Chromium)	(Xylene)

Total emissions based on rated capacity at 8,760 hours/year.

Insignificant activities emissions consists of natural gas combustion operations, welding, grinding, laser cutting operations, CO2 laser cutting operations, and pattern shop paint operation.

On May 8, 2008 U. S. EPA promulgated the new requirements for Prevention Of Significant Deterioration (PSD) for PM 2.5 emissions, and the effective date of these rules was July 15th, 2008. Indiana has three years from the publication of these rules to revise its PSD rules, 326 IAC2-2, to include those requirements. U. S. EPA has not yet established the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 for PM2.5 emissions. Therefore, until the U.S. EPA adopts specific provisions for PSD review for PM2.5 emissions, it has directed states to regulate PM10 emissions as a surrogate for PM2.5 emissions.

**Appendix A: Emissions Calculations
No-Bake Foundry - Unit A
Particulate Emissions**

Company Name: Urschel Laboratories Incorporated
Address City IN Zip: 2503 Calumet Avenue, Valparaiso, Indiana 46384
FESOP Permit No.: 127-26605-00037
Reviewer: Swarna Prabha

1. Particulate Matter Emissions From Emission Unit A (Sand Handling System) to Sand Handling System Baghouse (PCU-1) and Through S/V-1

Process	Emission Factor * (lb PM10/ton metal)
Moldmaking, Coremaking and Sand Handling	6
Shakeout and Cleaning	1.76
Total:	7.76

* Emission factors are from AP-42, Table 12.13-2

Pollutant	Maximum Throughput (lb metal/hr)	Uncontrolled Potential Emissions (lb/hr)	Uncontrolled Potential Emissions (ton/yr)	Baghouse Control Efficiency (%)	Controlled Potential Emissions (lb/hr)	Controlled Potential Emissions (ton/yr)
PM **	1200	116.4	509.83	99	1.16	5.10
PM10	1200	4.656	20.39	99	0.05	0.20

Note:

** Based on the stack test PM10 is equal to 4% of total PM.

There is no emission factor for PM2.5 in AP42, PM2.5 = PM10

Methodology

Uncontrolled Emissions (tons/yr) = Max. Metal Processing Rate (lb/hr) x Emission Factor (lb/ton) / 2,000 lb/ton x 8760 hrs/yr x 1ton/2000 lb

Controlled Emissions (tons/yr) = Max. Metal Processing Rate (lb/hr) x Emission Factor (lb/ton) / 2,000 lb/ton x 8760 hrs/yr x 1ton/2000 lb * (1-Control Efficiency)

Pollutant	Emission Factor (lb VOC/lb binder) *	Maximum Throughput (lb binder/yr)	Uncontrolled Potential Emissions (ton/yr)	Limited Throughput (lb binder/yr)	Controlled Potential Emissions (tons/yr)
VOC	0.066	588,672	19.43	106,720	3.52

Notes:

* VOC emission factors are based on the results of testing performed by the Ohio Cast Metals Association (OCMA) reported in "Technical and Economic Feasibility Study for Control of VOCs from Phenolic Urethane Cold Box and No Bake Core - and Mold - Making Operations in Foundries", RMT Inc. April 1998.

Methodology:

Emissions (ton/yr) = Maximum Throughput (lb binder/yr) x Emission Factor (lb VOC/lb binder) x 1 ton / 2000 lbs.

3. Application of Mold Wash (A)

VOC Emissions

Pollutant	Chemical	VOC Content (lb VOC/gal)	Maximum Usage (gal/yr)	Uncontrolled Potential Emissions (ton/yr)	Limited Usage (gal/yr)	Controlled Potential Emissions (tons/yr)
VOC	Ashland Chemical's Zircon	3.069	5,256	8.07	1,800	2.76

Methodology:

Emissions (ton/yr) = Maximum Throughput (gal/yr) x Emission Factor (lb VOC/gal) x 1 ton / 2000 lbs.

**Appendix A: Emissions Calculations
NO-Bake Foundry - Unit A
HAP Emission Calculations**

**Company Name: Urschel Laboratories Incorporated
Address City IN Zip: 2503 Calumet Avenue, Valparaiso, Indiana 46384
FESOP Permit No.: 127-26605-00037
Reviewer: Swarna Prabha**

Calculation of Hazardous Air Pollutants Released From Sand Binder System During Moldmaking and Coremaking With Phenolic Urethane No-Bake Based on Form R (Reporting of Binder Chemicals Used in Foundries)

Component	Part Fraction in the Sand (%)	Weight Fraction of Component In Each Part	Weight Fraction of Component Released to Air **	Weight Fraction of Component in Binder System Released to Air
Phenol Formaldehyde Polymer (Formaldehyde) *	0.5994	0.50	0.0200	5.994E-03
Aromatic Petroleum Distillates (Xylenes) *		0.30	0.0585	1.052E-02
Phenol *		0.07	0.0000	0.000E+00
Napthalene *		0.04	0.0585	1.403E-03
Dimethyl Glutarate		0.03	0.0000	0.000E+00
Dimethyl Adipate		0.03	0.0000	0.000E+00
Dimethyl Succinate		0.00	0.0000	0.000E+00
Polymeric MDI		0.4000	0.50	0.0000
Aromatic Petroleum Distillates (Xylenes) *	0.25		0.0585	5.850E-03
Methylene Diphenyldiisocyanate	0.20		0.0000	0.000E+00
Kerosene	0.03		0.0500	6.000E-04
Napthalene *	0.02		0.0585	4.680E-04
Aromatic Petroleum Distillates (Xylenes) *	0.0006	0.65	0.0585	2.282E-05
Phenylpropylpyridine		0.25	0.0000	0.000E+00
Napthalene *		0.05	0.0585	1.755E-06
1,2,4 Trimethylbenzene		0.05	0.0585	1.755E-06

* Hazardous Air Pollutants

** Orgain HAP emission factors for mixing, moldmaking, coremaking and mold storage are based on AFS Document "Form R Reporting of Binder Chemicals Used in Foundries", 1998.

Maximum Sand Mixing Rate = 8400 lbs/hr
 Maximum binder content of Sand = 0.8 %
 Maximum binder usage = 67.2 lb/hr
 Limited binder usage = 12.61 lb/hr

Summary of Organic HAP Emissions from Mixing, Moldmaking, Coremaking and Mold Storage

HAPs from Unit A	Weight Fraction of Component in Binder System Released to Air	Maximum Potential Emission (lb/hr)	Maximum Potential Emissions (ton/yr)	Controlled Potential Emission (lb/hr)	Controlled Potential Emissions (ton/yr)
Formaldehyde	5.994E-03	4.028E-01	1.764E+00	7.561E-02	3.312E-01
Xylene	1.639E-02	1.102E+00	4.825E+00	2.068E-01	9.057E-01
Napthalene	1.872E-03	1.258E-01	5.511E-01	2.362E-02	1.034E-01
Total HAPs:		1.630E+00	7.140E+00	3.060E-01	1.340E+00

**Appendix A: Emissions Calculations
NO-Bake Foundry - Unit B
Particulate and VOC Emission Calculations**

Company Name: Urschel Laboratories Incorporated
Address City IN Zip: 2503 Calumet Avenue, Valparaiso, Indiana 46384
FESOP Permit No.: 127-26605-00037
Reviewer: Swarna Prabha

2. Particulate Matter Emissions From Emission Unit B (Fume Control System) to Fume Control Baghouse (PCU-2)

and throughS/V-2

Process	Emission Factor * (lb PM10/ton metal)
Electric Induction Furnace	0.09
Pouring and Casting	2.8
Casting Cooling	1.4
Total:	4.29

* Emission factors are from AP-42, Table 12.13-2

Pollutant	Maximum Throughput (lb metal/hr)	Uncontrolled Potential Emissions (lb/hr)	Uncontrolled Potential Emissions (ton/yr)	Baghouse Control Efficiency (%)	Controlled Potential Emissions (lb/hr)	Controlled Potential Emissions (ton/yr)
PM/PM10 **	1200	2.574	11.27	90	0.26	1.13

Note:

** It is assumed that PM equal PM10

There is no emission factor for PM2.5 in AP42, PM2.5 = PM10

Methodology

Uncontrolled Emissions (tons/yr) = Max. Metal Processing Rate (lb/hr) x Emission Factor (lb/ton) / 2,000 lb/ton x 8760 hrs/yr x 1ton/2000 lb

Controlled Emissions (tons/yr) = Max. Metal Processing Rate (lb/hr) x Emission Factor (lb/ton) / 2,000 lb/ton x 8760 hrs/yr x 1ton/2000 lb * (1-Control Efficiency)

2. Pouring, Cooling and Shakeout (B)

Pollutant	Emission Factor (lb VOC/ lb binder) *	Maximum Throughput (lb binder/yr)	Uncontrolled Potential Emissions (ton/yr)	Limited Throughput (lb binder/yr)	Controlled Potential Emissions (tons/yr)
VOC	0.205	588,672	60.34	106,720	10.94

Notes:

* VOC emission factors are based on the results of testing conducted by the Casting Emissions Reduction Program (CERP) reported in "Phenolic Urethane/Iron No-Bake Baseline Emission Test", Technikon LLC, April 10, 2003.

Methodology:

Emissions (ton/yr) = Maximum Throughput (lb binder/yr) x Emission Factor (lb VOC/lb binder) x 1 ton / 2000 lbs.

**Appendix A: Emissions Calculations
NO-Bake Foundry-Unit B
HAP Emission Calculations**

Company Name: Urschel Laboratories Incorporated
Address City IN Zip: 2503 Calumet Avenue, Valparaiso, Indiana 46384
FESOP Permit No.: 127-26605-00037
Reviewer: Swarna Prabha

HAP Emissions From Pouring, Cooling and Shakeout at the New No Bake Foundry (Unit B)

Maximum Binder Usage = 67.2 lb binder/hr
Limited Binder Usage = 12.61 lb binder/hr

HAP	Emission Factor (lb/lb binder)	Potential Uncontrolled Emissions		Potential Controlled Emissions	
		lbs/hr	tons/yr	lbs/hr	tons/yr
Phenol	1.24E-02	8.33E-01	3.65E+00	1.56E-01	6.85E-01
m,p-Cresol	5.84E-03	3.92E-01	1.72E+00	7.36E-02	3.23E-01
Benzene	3.88E-03	2.61E-01	1.14E+00	4.89E-02	2.14E-01
Toluene	7.24E-04	4.87E-02	2.13E-01	9.13E-03	4.00E-02
o-Cresol	6.33E-04	4.25E-02	1.86E-01	7.98E-03	3.50E-02
m,p-Xylene	3.06E-04	2.06E-02	9.01E-02	3.86E-03	1.69E-02
Formaldehyde	2.52E-04	1.69E-02	7.42E-02	3.18E-03	1.39E-02
Aniline	2.01E-04	1.35E-02	5.92E-02	2.53E-03	1.11E-02
Styrene	1.86E-04	1.25E-02	5.47E-02	2.35E-03	1.03E-02
o-Xylene	1.05E-04	7.06E-03	3.09E-02	1.32E-03	5.80E-03
Ethyl Benzene	8.01E-05	5.38E-03	2.36E-02	1.01E-03	4.42E-03
Biphenyl	5.78E-05	3.88E-03	1.70E-02	7.29E-04	3.19E-03
Acetaldehyde	4.31E-05	2.90E-03	1.27E-02	5.43E-04	2.38E-03
Acrolein	1.13E-05	7.59E-04	3.33E-03	1.42E-04	6.24E-04
Prpionaldehyde	7.91E-06	5.32E-04	2.33E-03	9.97E-05	4.37E-04
2-Butanone	4.45E-06	2.99E-04	1.31E-03	5.61E-05	2.46E-04
Hexane	4.39E-06	2.95E-04	1.29E-03	5.54E-05	2.42E-04
POMS	1.36E-03	9.14E-02	4.00E-01	1.71E-02	7.51E-02
Total HAPs:		1.75E+00	7.68E+00	3.29E-01	1.44E+00
Worst Case HAP (Phenol)		8.33E-01	3.65E+00	1.56E-01	6.85E-01

Notes:

* Organic HAP emission factors for Pouring, Cooling and Shakeout are based on the results of testing conducted by the Casting Emissions Reduction Program (CERP) reported in "Phenolic Urethane/Iron No-Bake Baseline Emission Test", Technikon LLC, April 10, 2003.

unit B

Metallic Hazardous Air Pollutant Emissions from NO-Bake Foundry:

Metallic hazardous air pollutant (HAPs) are released during pouring, cooling and shakeout operations. The metallic HAPs are constituents of the metals that will be cast in the new no-bake foundry. The vast majority of castings to be produced in the new no-bake foundry will be stainless steel or bronze. The estimates of metallic HAPs emissions are based on the potential emissions of each HAP present as a constituent in the metals. The highest potential emission rate for each HAP from each of the two metals (stainless steel and bronze) is reported as the potential to emit that HAP.

It is assumed that the weight fraction of a HAP in the PM10 emission from pouring and cooling is the same as the weight fraction of the HAP as a constituent of stainless steel and for bronze, the baghouse dust collected in the existing green sand foundry.

Appendix A: Emissions Calculations

NO-Bake Foundry-Unit B

HAP Emission Calculations

Company Name: Urschel Laboratories Incorporated
Address City IN Zip: 2503 Calumet Avenue, Valparaiso, Indiana 46384
FESOP Permit No.: 127-26605-00037
Reviewer: Swarna Prabha

Pollutant	Weight Percent in Typical Stainless Steel (%)	Uncontrolled Potential Emissions (lb/hr)	Uncontrolled Potential Emissions (ton/yr)
Stainless Steel Casting			
Chromium	20.290	0.5222646	2.29E+00
Cobalt	7.960	0.2048904	8.97E-01
Manganese	1.810	0.0465894	2.04E-01
Nickel	8.980	0.2311452	1.01E+00
Selenium	0.025	0.0006435	2.82E-03
	Weight Percent in Typical Stainless Steel (%)		
Bronze Casting *			
Antimony	0.00071	1.83E-05	8.00E-05
Arsenic	0.00022	5.66E-06	2.48E-05
Cadmium	0.01900	4.89E-04	2.14E-03
Chromium	0.00620	1.60E-04	6.99E-04
Cobalt	0.00056	1.44E-05	6.31E-05
Lead	0.17000	4.38E-03	1.92E-02
Manganese	0.65000	1.67E-02	7.33E-02
Nickel	0.00260	6.69E-05	2.93E-04

* Metal HAPs emission factors from Bronze Casting are based on the analysis of the baghouse dust from the fume control baghouse, which services the existing green sand foundry, provides weight percents of HAPs in baghouse dust.

Worst Case Emissions

Pollutant	Calculated Potential Emissions (ton/yr)		Worst Case Potential Emissions
	Stainless Steel	Bronze	
Antimony	0.00E+00	8.00E-05	8.00E-05
Arsenic	0.00E+00	2.48E-05	2.48E-05
Cadmium	0.00E+00	2.14E-03	2.14E-03
Chromium	2.29E+00	6.99E-04	2.29E+00
Cobalt	8.97E-01	6.31E-05	8.97E-01
Lead	0.00E+00	1.92E-02	1.92E-02
Manganese	2.04E-01	7.33E-02	2.04E-01
Nickel	1.01E+00	2.93E-04	1.01E+00
Selenium	2.82E-03	0.00E+00	2.82E-03
		Total HAP:	4.43E+00
		Worst Case HAP:	2.29E+00

**Appendix A: Emissions Calculations
N0-Bake Foundry-Unit C
HAP Emission Calculations**

**Company Name: Urschel Laboratories Incorporated
Address City IN Zip: 2503 Calumet Avenue, Valparaiso, Indiana 46384
FESOP Permit No.: 127-26605-00037
Reviewer: Swarna Prabha**

3. Particulate Matter Emissions From Emission Unit C (Thermal Sand Reclaimer) to Thermal Sand Reclaimer Baghouse (PCU-4) and Through S/V-3

Pollutant	Outlet Grain Loading (gr/acf)	Baghouse Control Efficiency (%)	Flow Rate (acfm)	Uncontrolled Potential Emissions (lb/hr)	Uncontrolled Potential Emissions (ton/yr)	Controlled Potential Emissions (lb/hr)	Controlled Potential Emissions (ton/yr)
PM/PM10 *	0.0072	99	6500	40.11	175.70	0.40	1.76

Note:

* It is assumed that PM equal PM10

There is no emission factor for PM2.5 in AP42, PM2.5 = PM10

Methodology

Uncontrolled PM/PM10 = grain loading (gr/acf outlet) * Flow rate (acfm) * (60 min/hr) * (1 lb/7000 gr) * 4.38 (tons/yr / lb/hr) / (1- control efficiency %)

Controlled PM/PM10 = grain loading (gr/acf outlet) * Flow rate (acfm) * (60 min/hr) * (1 lb/7000 gr) * 4.38 (tons/yr / lb/hr)

4. Thermal Sand Reclamation Operation (C)

Maximum spent Sand Throughput rate (lb/hr):	1000
Maximum VOC content of spend Sand (%):	1.3
*Control Efficiency of the Thermal Oxidizer (%):	99

Pollutant	Uncontrolled Potential Emissions (ton/yr)	Controlled Potential Emissions (tons/yr)
VOC	56.94	0.57

* The control efficiency of the Thermal Oxidizer is 99% based on the diagnostic stack testing analytical results.

Methodology:

Uncontrolled Potential Emissions (ton/yr) = Maximum Throughput (lb/yr) x Emission Factor (%) x 1 ton / 2000 lbs x 8760 hours/yr

Controlled Potential Emissions (ton/yr) = Maximum Throughput (lb/yr) x Emission Factor (%) x 1 ton / 2000 lbs x 8760 hours/yr (1-Control Efficiency)

The analytical results from diagnostic stack testing indicate that the overall control efficiency of the thermal oxidizer (PCU3) is lower than the established FESOP limit of 99.9%.

The source requests that the overall control efficiency of the thermal oxidizer be revised to 99%.

**Appendix A: Emissions Calculations
Green Sand Foundry- Unit D
Particulate and HAPs Emissions**

**Company Name: Urschel Laboratories Incorporated
Address City IN Zip: 2503 Calumet Avenue, Valparaiso, Indiana 46384
FESOP Permit No.: 127-26605-00037
Reviewer: Swarna Prabha**

1. Green Sand Handling System (Emission Unit ID: D)

Process	Total (lbs)	
Dust captured in the baghouse	2,576	based on June 2003 test run
Sand Handled	189,922	based on June 2003 test run

PM Emission Factor: $\frac{2,576 \text{ lbs dust caught}}{189,922 \text{ Pound of Sand}} = 0.0136 \text{ lb dust / lb sand} \times 2000 \text{ lb / ton} = 27.2 \text{ lb PM/ton sand}$

Pollutant	Emission factor (lb/ton)	Maximum Throughput (tons sand / day)	Uncontrolled Potential Emissions (lb/hr)	Uncontrolled Potential Emissions (ton/yr)	Baghouse Control Efficiency (%)	Controlled Potential Emissions (lb/hr)	Controlled Potential Emissions (ton/yr)
PM	27.2	25	28.620	125.354	99	0.29	1.25
PM10	0.33	25	0.347	1.521	99	0.0035	0.0152
Metallic HAPs	Emission factor (wt%)						
Arsenic	0.000023	25	6.58E-04	2.88E-03	99	6.58E-06	2.88E-05
Cadmium	0.000005	25	1.43E-04	6.27E-04	99	1.43E-06	6.27E-06
Chromium	0.000033	25	9.44E-04	4.14E-03	99	9.44E-06	4.14E-05
Cobalt	0.000009	25	2.58E-04	1.13E-03	99	2.58E-06	1.13E-05
Lead	0.000057	25	1.63E-03	7.15E-03	99	1.63E-05	7.15E-05
Manganese	0.000200	25	5.72E-03	2.51E-02	99	5.72E-05	2.51E-04
Nickel	0.000023		6.58E-04	2.88E-03	99	6.58E-06	2.88E-05
Total HAPs:			1.00E-02	4.39E-02		1.00E-04	4.39E-04

NOTE:

PM10 Emission Factor: Testing conducted on April 4, 2003 for PM10 (captured emissions) was performed at the inlet duct to the Sand Handling Baghouse.

The average of the three tests runs demonstrated a captured emission factor of 0.33 pounds of PM10 per ton of sand throughput.

There is no Emission Factor for PM 2.5 in AP 42, PM2.5 = PM10

HAP Emission Factors: Samples of the baghouse catch at the baghouse were obtained and analyzed for metallic HAPs by total constituent analyses

**Appendix A: Emissions Calculations
Green Sand Foundry - Unit D
HAPs and VOC Emissions**

**Company Name: Urschel Laboratories Incorporated
Address City IN Zip: 2503 Calumet Avenue, Valparaiso, Indiana 46384
FESOP Permit No.: 127-26605-00037
Reviewer: Swarna Prabha**

HAPS and Volatile Organic Compounds (VOC) Emissions

1. Green Sand Foundry (D)

Phenol Content in Sand (lb/ton core sand):	56
Formaldehyde Content in Sand (lb/ton core sand):	4

Pollutant	Emission Factor (%) *	Maximum Throughput (Core/hr)	Uncontrolled Potential Emissions	Controlled Potential Emissions
Phenol	0	0.167	0	0
Formaldehyde	2	0.167	0.059	0.059

Notes:

* VOC emission factors are from the AFS Document, "Form R Reporting of Binder Chemicals Used in Foundries", 1998. VOC emissions from pouring, cooling and shakeout are believed to be negligible because the green sand used for molds does not contain organic binders or coal derivatives.

Methodology:

Uncontrolled Potential Emissions (ton/yr) = VOC content of sand (lb/ton core sand) x VOC emission factor (%) x Max. Throughput (Core/hr) x 1ton/2000 lb x 8760 hrs/ 1 yr.

**Appendix A: Emissions Calculations
N0-Bake Foundry Unit E**

**Company Name: Urschel Laboratories Incorporated
Address City IN Zip: 2503 Calumet Avenue, Valparaiso, Indiana 46384
FESOP Permit No.: 127-26605-00037
Reviewer: Swarna Prabha**

2. Fume Control System (Emission Unit ID: E)

Process	Total (lbs)
Baghouse dust	1,800
Total amount of Bronze	716,102

based on dust hauled from the plant from February 2000 through April 2003 is 1,800 pounds

based on amount of bronze purchased and assumed to be melted and poured from February 2000 through April 2003 is 716,102

PM/PM10 Emission Factor: $\frac{1,800 \text{ lbs dust caught}}{716,102 \text{ Pound of Sand}} = 0.0025 \text{ lbs dust/lb bronze}$

Pollutant	Emission factor (lb/lb)	Maximum Throughput (lbs/hr)	Uncontrolled Potential Emissions (lb/hr)	Uncontrolled Potential Emissions (ton/yr)	Baghouse Control Efficiency (%)	Controlled Potential Emissions (lb/hr)	Controlled Potential Emissions (ton/yr)
PM/PM10	0.0025	600	1.515	6.636	90	0.15	0.66
Metallic HAPs	Emission factor (wt%)						
Antimony	0.00071	600	1.08E-03	4.71E-03	99	1.08E-05	4.71E-05
Arsenic	0.00022	600	3.33E-04	1.46E-03	99	3.33E-06	1.46E-05
Cadmium	0.01900	600	2.88E-02	1.26E-01	99	2.88E-04	1.26E-03
Chromium	0.00620	600	9.39E-03	4.11E-02	99	9.39E-05	4.11E-04
Cobalt	0.00056	600	8.48E-04	3.72E-03	99	8.48E-06	3.72E-05
Lead	0.01700	600	2.58E-02	1.13E-01	99	2.58E-04	1.13E-03
Manganese	0.06500	600	9.85E-02	4.31E-01	99	9.85E-04	4.31E-03
Nickel	0.00260	600	3.94E-03	1.73E-02	99	3.94E-05	1.73E-04
Total HAPs:			1.69E-01	7.39E-01		6.62E-04	2.90E-03

Note:

It is assumed that PM is equal to PM10.

There is no emission factor for PM2.5 in AP42, PM2.5 = PM10

HAP Emission Factors: Samples of the baghouse catch at the baghouse were obtained and analyzed for metallic HAPs by total constituent analyses

Methodology

Uncontrolled Emissions (tons/yr) = Max. Metal Processing Rate (lb/hr) x Emission Factor (lb/ton) / 2,000 lb/ton x 8760 hrs/yr x 1ton/2000 lb

Controlled Emissions (tons/yr) = Max. Metal Processing Rate (lb/hr) x Emission Factor (lb/ton) / 2,000 lb/ton x 8760 hrs/yr x 1ton/2000 lb * (1-Control Efficiency)

Appendix A: Emissions Calculations

Immersion Cold Cleaning-Unit G

VOC Emissions

Company Name: Urschel Laboratories Incorporated
Address City IN Zip: 2503 Calumet Avenue, Valparaiso, Indiana 46384
FESOP Permit No.: 127-26605-00037
Reviewer: Swarna Prabha

2. Immersion Cleaning (Cold Cleaning) Operations (G)

	% Evaporated	Average Bulk Density (lb/gal)	Total Weight of Solvent Used (lb/yr)	Total Volume of Solvents Used (gal/yr)	Total Volume of Solvents Disposed (gal/yr)
Cleaning Solvent (VOC)	100	6.89	41,793	6,067	4,290

Total Uncontrolled Potential Emissions: 6.12 tons/yr
Total Controlled Potential Emissions: 6.12 tons/yr

Notes:

The total solvent purchased for calendar years 2001 and 2002 are representative of the anticipated maximum solvent usage rates over the next five years based on Urschel's solvent management program.

Methodology:

Uncontrolled Potential Emissions (ton/yr) = % VOC Evaporated x Total Weight of Solvent Used (lb/yr) x (1 - ((Total Volume of Solvents Used (gal/yr)/(Total Volume of Solvents Disposed (gal/yr)))) x 1 ton / 2000 lbs

**Appendix A: Emissions Calculations
Immersion Cleaning Operation HAPs**

**Company Name: Urschel Laboratories Incorporated
Address City IN Zip: 2503 Calumet Avenue, Valparaiso, Indiana 46384
FESOP Permit No.: 127-26605-00037
Reviewer: Swarna Prabha**

HAPs Emission Calculation

Immersion Cleaning Operation

Solvent Product	Max. Solvent Consumption (gal/hr)	Solvent Density (lb/gal)	VOC Emissions		HAP	Weight %	HAP Emissions	
			lb/hr	tons/yr			lb/hr	tons/yr
Intex 8270	0.028	7.840	0.216	0.944	Methylene Chloride	35.00	0.075	0.331
					Tetrachloroethylene	10.00	0.022	0.094
Perchem 1347	0.017	8.757	0.145	0.634	Glycol Ether Compounds	5.00	0.007	0.032
VM & P Naptha	0.121	6.255	0.759	3.326	Ethylbenzene	2.00	0.015	0.067
					Xylene	8.00	0.061	0.266
Jet Kleen	0.014	8.340	0.115	0.504	No HAPs			
Super Agitene	0.013	6.505	0.087	0.382	No HAPs			
Ardrox 6130	6.46E-03	7.423	0.048	0.210	No HAPs			
Satin Cement Seal	1.75E-03	7.506	0.013	0.058	Ethylbenzene	20.00	0.003	0.012
					Toluene	20.00	0.003	0.012
					Xylene	60.00	0.008	0.035
CRC Contact Cleaner	3.75E-04	5.755	0.002	0.009	No HAPs			
Acetone	3.34E-04	6.589	0.002	0.010	No HAPs			
Denatured Alcohol	3.34E-04	6.755	0.002	0.010	Methanol	20.00	0.000	0.002
					Methyl Isobutyl Ketone	20.00	0.000	0.002
Methyl Ethyl Ketone	3.34E-04	6.672	0.002	0.010	Methyl Ethyl Ketone	100.00	0.002	0.010
Brakleen	2.08E-04	11.593	0.002	0.011	Methyl Chloroform	70.00	0.002	0.007
					Tetrachloroethylene	24.00	0.001	0.003
Laquer Thinner	3.34E-04	6.505	0.002	0.010	Toluene	20.00	0.000	0.002
					Methyl Ethyl Ketone	20.00	0.000	0.002
Total:			1.40	6.12			0.20	0.87

**Appendix A: Emissions Calculations
No-Bake Foundry- Unit K**

**Company Name: Urschel Laboratories Incorporated
Address City IN Zip: 2503 Calumet Avenue, Valparaiso, Indiana 46384
FESOP Permit No.: 127-26605-00037
Reviewer: Swarna Prabha**

3. Particulate Matter and Metallic HAP Emissions from Existing Investment Casting Foundry (Emission Unit ID: K)

Operations	AP-42 PM/PM10 Emission Factor (lbs/ton metal)	90% Scaled down PM/PM10 Emission Factor (lb/ton metal)
Electric Induction Melting	0.09	0.009
Pouring and Casting	2.80	0.28
Casting Cooling	1.40	0.14
Total:	4.29	0.429

Note: There are no published emission factors for emissions of particulate matter and HAPs from small stainless steel investment casting foundries. Emission Factors in EPA publications apply to large steel foundries employing sand casting processes. Use of the published emission factors are believed to grossly overestimate PM/PM10 emissions from the small stainless steel foundry. To estimate emissions from the stainless steel foundry, emission factors for large steel sand casting foundries, published in EPA's AP-42, page 12.13-6, Table 12.13-2, January 1995 were used. These factors were decreased by 90% to account for the differences in scale.

Pollutant	Emission factor (lb/ton)	Maximum Throughput (lbs metal / hr)	Uncontrolled Potential Emissions (lb/hr)	Uncontrolled Potential Emissions (ton/yr)	Baghouse Control Efficiency (%)	Controlled Potential Emissions (lb/hr)	Controlled Potential Emissions (ton/yr)
PM/PM10	0.429	310	0.066	0.291	0	0.066	0.291
CO	4.88	310	0.756	3.313	0	0.756	3.313
Metallic HAPs	Emission factor (wt%) *						
Chromium	0.2029		0.00E+00	0.00E+00	99	0.00E+00	0.00E+00
Cobalt	0.0796		0.00E+00	0.00E+00	99	0.00E+00	0.00E+00
Manganese	0.0181		0.00E+00	0.00E+00	99	0.00E+00	0.00E+00
Nickel	0.0898		0.00E+00	0.00E+00	99	0.00E+00	0.00E+00
Selenium	0.00025		0.00E+00	0.00E+00	99	0.00E+00	0.00E+00
Total HAPs:			0.00E+00	0.00E+00		0.00E+00	0.00E+00

* Weight fractions of the constituents of stainless steel that are HAPs are the same weight fractions in PM/PM10 emissions.

Methodology

Uncontrolled Emissions (tons/yr) = Max. Metal Processing Rate (lb/hr) x Emission Factor (lb/ton) / 2,000 lb/ton x 8760 hrs/yr x 1ton/2000 lb

Controlled Emissions (tons/yr) = Max. Metal Processing Rate (lb/hr) x Emission Factor (lb/ton) / 2,000 lb/ton x 8760 hrs/yr x 1ton/2000 lb * (1-Control Efficiency)

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PROCESS	Number of Stations	Max. electrode consumption per station (lbs/hr)	EMISSION FACTORS * (lb pollutant / lb electrode)		HAP Weight %				EMISSIONS (lb/hr)					TOTAL HAPS (lb/hr)
			PM = PM10		Mn	Ni	Cobalt	Cr	PM = PM10	Mn	Ni	Cobalt	Cr	
Stick Welding (E308L-17)	1	0.21	5.40E-03	0.0118	0.0898	0.0796	0.2029	1.13E-03	1.33812E-05	1.02E-04	9.03E-05	2.30E-04	3.45E-04	
Stick Welding (E309L-17)	1	0.72	5.40E-03	0.0118	0.0898	0.0796	0.2029	3.89E-03	4.58784E-05	3.49E-04	3.09E-04	7.89E-04	1.18E-03	
Stick Welding (E316L-17)	1	0.155	3.20E-03	0.0118	0.0898	0.0796	0.2029	4.96E-04	5.8528E-06	4.45E-05	3.95E-05	1.01E-04	1.51E-04	
EMISSION TOTALS									PM = PM10	Mn	Ni	Cobalt	Cr	Total HAPs
Potential Emissions lbs/hr									0.00	4.96E-04	4.39E-04	1.12E-03	1.68E-03	3.73E-03
Potential Emissions lbs/day									0.00	1.19E-02	1.05E-02	2.69E-02	4.03E-02	8.96E-02
Potential Emissions tons/year									0.000	2.17E-03	1.92E-03	4.90E-03	7.36E-03	1.64E-02

METHODOLGY

* Stick Welding emission factors are from AP-42, Section 12.19-4, Table 12.19-1.

Welding emissions, lb/hr: (# of stations)(max. lbs of electrode used/hr/station)(emission factor, lb. pollutant/lb. of electrode used)

Emissions, lbs/day = emissions, lbs/hr x 24 hrs/day

Emissions, tons/yr = emissions, lb/hr x 8,760 hrs/day x 1 ton/2,000 lbs.

Appendix A: Welding and Cutting

Company Name: Urschel Laboratories Incorporated
Address City IN Zip: 2503 Calumet Avenue, Valparaiso, Indiana 46384
FESOP Permit No.: 127-26605-00037
Reviewer: Swarna Prabha

1. PM/PM10 Emissions from Grinding Operations

Grinding operations include the grinding of welds on machine frames, machine parts and covers.

Based on Engineering Judgement, the amount of PM/PM10 emitted from the grinding operation is equal to:

0.1 lbsPM/PM10
lb metal removed

Grinding Operation Properties:
 Maximum grinding rate (in/hr): 180
 Maximum Metal Width (inches): 1
 Maximum Depth of Metal (inches): 0.015
 Density of stainless steel (lb/in³): 0.285

Total metal removed = **0.770 lbs metal removed per hour**

$$\frac{0.77 \text{ lbs metal removed}}{\text{hr}} \times \frac{0.1 \text{ lb PM/PM10}}{\text{lb metal removed}} = \frac{0.077 \text{ lbs PM/PM10}}{\text{hr}}$$

$$\frac{0.077 \text{ lbs PM/PM10}}{\text{hr}} \times \frac{8760 \text{ hr}}{\text{yr}} \times \frac{1 \text{ ton}}{2,000 \text{ lbs}} = \frac{0.337 \text{ tons PM/PM10}}{\text{yr}}$$

2. PM/PM10 Emissions from Laser Cutting

Laser cutting is performed on stainless steel sheet material with nominal gauge of 13 to 16 gauge at a maximum speed of 127 inches of cut per minute

Based on mass balance, the amount of PM/PM10 emitted from the Laser cutting is equal to:

0.0303 lbsPM/PM10
lb metal removed

Grinding Operation Properties:
 Maximum grinding rate (in/hr): 7620
 Maximum Metal Width (inches): 0.005
 Maximum Metal Thickness (inches): 0.0897
 Density of stainless steel (lb/in³): 0.285

Total metal removed = **0.974 lbs metal removed per hour**

$$\frac{0.974 \text{ lbs metal removed}}{\text{hr}} \times \frac{0.0303 \text{ lb PM/PM10}}{\text{lb metal removed}} = \frac{0.0295 \text{ lbs PM/PM10}}{\text{hr}}$$

$$\frac{0.0295 \text{ lbs PM/PM10}}{\text{hr}} \times \frac{8760 \text{ hr}}{\text{yr}} \times \frac{1 \text{ ton}}{2,000 \text{ lbs}} = \frac{0.129 \text{ tons PM/PM10}}{\text{yr}}$$

**Appendix A: Welding and Cutting
CO2 Laser cutting**

**Company Name: Urschel Laboratories Incorporated
Address City IN Zip: 2503 Calumet Avenue, Valparaiso, Indiana 46384
FESOP Permit No.: 127-26605-00037
Reviewer: Swarna Prabha**

3. PM/PM10 Emissions from CO2 Laser Cutting

Plasma torch cutting is performed on stainless steel plate with a maximum thickness of 0.75 inch at a maximum speed of 10 inches per minute.

Based on mass balance, the amount of PM/PM10 emitted from the Plasma cutting is equal to: 0.0018 lbsPM/PM10
inch cut

Grinding Operation Properties:
Maximum grinding rate (in/hr): 600
Maximum Metal Thickness (inches): 0.75
Cut width (Inches): 0.038
Density of Stainless steel (lbs/in³): 0.285
% Metal Emitted: 3.03%

Total metal removed = **4.874 lbs metal removed per hour**

$$\frac{4.874 \text{ lbs}}{\text{hr}} \times \frac{0.03 \text{ lb PM/PM10}}{\text{lb metal removed}} = \frac{0.148 \text{ lbs PM/PM10}}{\text{hr}}$$

$$\frac{0.148 \text{ lbs PM/PM10}}{\text{hr}} \times \frac{8760 \text{ hr}}{\text{yr}} \times \frac{1 \text{ ton}}{2,000 \text{ lbs}} = \frac{0.647 \text{ tons PM/PM10}}{\text{yr}}$$

CO2 Laser cutting is performed on stainless steel sheet material with nominal gauge of 13 to 16 gauge at a maximum speed of 60 inches of cut per minute

Based on mass balance, the amount of PM/PM10 emitted from the Laser cutting is equal to: 0.0303 lbsPM/PM10
lb metal removed

Metallic HAPs emissions from Grinding, Laser cutting and Plasma Cutting Operations

Operation	PM/PM10 Emissions	Weight Percent HAPs *					Total
		Chromium	Cobalt	Nickel	Selenium	Manganese	
		20.29%	7.96%	8.98%	0.025%	1.81%	
	ton/yr	HAP Emissions (tons/yr)					
Welding		7.36E-03	4.90E-03	1.92E-03	0	2.17E-03	1.64E-02
Grinding Operation	0.34	6.84E-02	2.68E-02	3.03E-02	8.43E-05	6.10E-03	1.32E-01
Laser Cutting	0.13	2.62E-02	1.03E-02	1.16E-02	3.23E-05	2.33E-03	5.04E-02
Co2 Laser cutting	0.65	1.31E-01	5.15E-02	5.81E-02	1.62E-04	1.17E-02	2.53E-01
Total	1.11	2.33E-01	8.86E-02	9.99E-02	2.78E-04	2.01E-02	4.35E-01

* HAP emission factors represent a typical metallic HAP content in stainless steel. Weight fractions of metallic constituents in stainless steel are the same as the weight fractions of those constituents in particulate matter emissions.

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Heat Input Capacity MMBtu/hr
8.2

Potential Throughput MMCF/yr
71.6

Facilities	MMBtu/hr
Two Sand Heater Cooler Classifiers each rated at 0.375 MMBtu/hr (EQ-3A and EQ-3B)	0.75
Ladle torches (2) (EQ-12A)	1.5
Thermal Unit (Incinerator) (PCU-3)	0.465
Autoclave Boiler (EQ-19)	0.89
Ceramic Mold Furnace (EQ-20)	2.52
Dry Off Oven	0.75
Pacific Kiln (K-1)	1.3
Total	8.175

Emission Factor in lb/MMCF	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
	1.9	7.6	0.6	100.0	5.5	84.0
				**see below		
Potential Emission in tons/yr	0.07	0.27	0.02	3.58	0.20	3.01

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
 **Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32
 There is no emission factor for PM2.5 in AP42, PM2.5 = PM10

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

Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

HAPs - Organics

Emission Factor in lb/MMcf	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential Emission in tons/yr	7.519E-05	4.297E-05	2.685E-03	6.445E-02	1.217E-04

HAPs - Metals

Emission Factor in lb/MMcf	Lead	Cadmium	Chromium	Manganese	Nickel
	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	1.790E-05	3.939E-05	5.013E-05	1.361E-05	7.519E-05

Total HAPs tons per year= 6.757E-02

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
No-Bake Foundry- Pattern Shop**

**Company Name: Urschel Laboratories Incorporated
Address City IN Zip: 2503 Calumet Avenue, Valparaiso, Indiana 46384
FESOP Permit No.: 127-26605-00037
Reviewer: Swarna Prabha**

VOC Emissions from Pattern Shop Finishing room in No Bake Foundry

Coating Material	Maximum Annual Consumption (gal/yr)	VOC Content (lb/gal)	Annual Emissions	
			lbs/yr	tons/yr
Sherwin Williams Lacquer Primer (Red Oxide)	3	5.71	17.13	0.0086
Sherwin Williams Lacquer Thinner Fast	3	5.49	16.47	0.0082
Freeman Repro Lam A	13	1.14	14.82	0.0074
Freeman Repro Lam B	13	0.82	10.66	0.0053
Freeman Repro Surface Coat A	3	1.17	3.51	0.0018
Freeman Repro Surface Coat B	3	0.78	2.34	0.0012
Freeman Repro A-R A-Side	13	1.27	16.51	0.0083
Freeman Repro A-R B-Side	13	1.04	13.52	0.0068
Total:			94.96	0.04748

Notes:

Methodology:

Emissions (ton/yr) = Maximum Throughput (gal/yr) x Emission Factor (lb VOC/gal) x 1 ton / 2000 lbs.