

**CONSTRUCTION PERMIT
OFFICE OF AIR MANAGEMENT**

**Auburn Foundry, Inc.
Plant #1
635 West 11th Street
Auburn, Indiana 46706**

is hereby authorized to construct

a modification of the Auburn Foundry, Inc., Plant #1, consisting of the addition of the following:

- (a) one (1) natural gas fired core drying oven rated at 1.2 million British thermal units per hour;
- (b) one (1) Beardsley & Piper CB-18 core making machine with a maximum cored sand throughput of 4,500 pounds per hour, and one (1) Beardsley & Piper CB-50 core making machine with a maximum cored sand throughput of 6,600 pounds per hour, both controlled by one (1) packed tower scrubber (ID No. 703) venting to one (1) stack; and
- (c) sand handling/binder mixing operations for the aforementioned two (2) core making machines, processing a maximum of 11,100 pounds of sand per hour. The sand handling/binder mixing operations will be controlled by an existing permitted baghouse (ID No. 78).

This permit is issued to the above mentioned company (herein known as the Permittee) under the provisions of 326 IAC 2-1 and 40 CFR 52.780, with conditions listed on the attached pages.

Construction Permit No.: CP-033-5296-00002	
Issued by: Paul Dubenetzky, Branch Chief Office of Air Management	Issuance Date:

Construction Conditions

General Construction Conditions

1. That the data and information supplied with the application shall be considered part of this permit. Prior to any proposed change in construction which may affect allowable emissions, the change must be approved by the Office of Air Management (OAM).
2. That this permit to construct does not relieve the permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

Effective Date of the Permit

3. That pursuant to IC 13-15-5-3, this permit becomes effective upon its issuance.
4. That pursuant to 326 IAC 2-1-9(b)(Revocation of Permits), the Commissioner may revoke this permit if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.
5. That notwithstanding Construction Condition No. 6, all requirements and conditions of this construction permit shall remain in effect unless modified in a manner consistent with procedures established for modifications of construction permits pursuant to 326 IAC 2 (Permit Review Rules).

First Time Operation Permit

6. That this document shall also become a first-time operation permit pursuant to 326 IAC 2-1-4 (Operating Permits) when, prior to start of operation, the following requirements are met:
 - (a) The attached affidavit of construction shall be submitted to the Office of Air Management (OAM), Permit Administration & Development Section, verifying that the facilities were constructed as proposed in the application. The facilities covered in the Construction Permit may begin operating on the date the Affidavit of Construction is postmarked or hand delivered to IDEM.
 - (b) If construction is completed in phases; i.e., the entire construction is not done continuously, a separate affidavit must be submitted for each phase of construction. Any permit conditions associated with operation start up dates such as stack testing for New Source Performance Standards (NSPS) shall be applicable to each individual phase.
 - (c) Permittee shall receive an Operation Permit Validation Letter from the Chief of the Permit Administration & Development Section and attach it to this document.
 - (d) The operation permit will be subject to annual operating permit fees pursuant to 326 IAC 2-1-7.1(Fees).

- (e) The Permittee has submitted their Part 70 permit on May 31, 1996, for the existing source. The equipment being reviewed under this permit shall be incorporated in the submitted Part 70 application.
7. That when the facility is constructed and placed into operation the following operation conditions shall be met:

Operation Conditions

General Operation Conditions

1. That the data and information supplied in the application shall be considered part of this permit. Prior to any change in the operation which may result in an increase in allowable emissions exceeding those specified in 326 IAC 2-1-1 (Construction and Operating Permit Requirements), the change must be approved by the Office of Air Management (OAM).
2. That the permittee shall comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder.

Preventive Maintenance Plan

3. That pursuant to 326 IAC 1-6-3 (Preventive Maintenance Plans), Auburn Foundry, Inc., shall prepare and maintain a preventive maintenance plan, including the following information:
 - (a) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices.
 - (b) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions.
 - (c) Identification of the replacement parts which will be maintained in inventory for quick replacement.

The preventive maintenance plan shall be submitted to IDEM, OAM upon request and shall be subject to review and approval.

Transfer of Permit

4. That pursuant to 326 IAC 2-1-6 (Transfer of Permits):
 - (a) In the event that ownership of the Auburn Foundry, Inc., Plant #1 is changed, Auburn Foundry, Inc., shall notify OAM, Permit Branch, within thirty (30) days of the change. Notification shall include the date or proposed date of said change.
 - (b) The written notification shall be sufficient to transfer the permit from Auburn Foundry, Inc., to the new owner.
 - (c) The OAM shall reserve the right to issue a new permit.

Permit Revocation

5. That pursuant to 326 IAC 2-1-9(a)(Revocation of Permits), this permit to construct and operate may be revoked for any of the following causes:
- (a) Violation of any conditions of this permit.
 - (b) Failure to disclose all the relevant facts, or misrepresentation in obtaining this permit.
 - (c) Changes in regulatory requirements that mandate either a temporary or permanent reduction of discharge of contaminants. However, the amendment of appropriate sections of this permit shall not require revocation of this permit.
 - (d) Noncompliance with orders issued pursuant to 326 IAC 1-5 (Episode Alert Levels) to reduce emissions during an air pollution episode.
 - (e) For any cause which establishes in the judgment of IDEM, the fact that continuance of this permit is not consistent with purposes of 326 IAC 2-1 (Permit Review Rules).

Availability of Permit

6. That a copy of this permit shall be available on the premises of the source.

Malfunction Condition

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

Annual Emission Reporting

8. That pursuant to 326 IAC 2-6 (Emission Reporting), the owner/operator of Auburn Foundry, Inc., Plant #1, must annually submit an emission statement for the source. This statement must be received by July 1 of each year and must comply with the minimum requirements specified in 326 IAC 2-6-4. A copy of this rule is enclosed. The annual statement must be submitted to:

**Data Support Section, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015**

The annual emission statement covers the twelve (12) consecutive month time period starting January 1 and ending December 31.

Opacity Limitations

9. That pursuant to 326 IAC 5-1-2 (Visible Emission Limitations) except as provided in 326 IAC 5-1-3 (Temporary Exemptions), the visible emissions shall meet the following:
- (a) visible emissions shall not exceed an average of 40% opacity in 24 consecutive readings.
 - (b) visible emissions shall not exceed 60% opacity for more than a cumulative total of 15 minutes (60 readings) in a 6-hour period.

Particulate Matter Limitation

10. That pursuant to 326 IAC 6-3 (Process Operations) and 326 IAC 2-2 (Prevention of Significant Deterioration (PSD) Requirements), the baghouse (ID No. 78) controlling the sand handling/binder mixing operation for the two (2) core making machines shall be in operation at all times when the sand handling/binder mixing operation for the two (2) core machines is in operation. This process shall not exceed the allowable particulate matter (PM) emission rate of 4.5 pounds per hour.

Baghouse Operating Condition

11. That the baghouse (ID No. 78) shall be operated at all times when the sand handling/binder mixing operation for the two (2) core machines is in operation.
- (a) The permittee shall take readings of the total static pressure drop across the baghouse, at least once per day. Unless operated under conditions for which the Preventive Maintenance Plan specifies otherwise, the pressure drop across the baghouse shall be maintained within the range of 3 and 10 inches of water. The Preventive Maintenance Plan for the baghouse shall contain troubleshooting contingency and corrective actions for when the pressure reading is outside of this range for any one reading.
 - (b) The instrument used for determining the pressure shall be subject to approval by IDEM, OAM, and shall be calibrated at least once every six (6) months.
 - (c) The gauge employed to take the pressure drop across the baghouses or any part of the facility shall have a scale such that the expected normal reading shall be no less than 20 percent of full scale and be accurate within $\pm 2\%$ of full scale reading. The instrument shall be quality assured and maintained as specified by the vendor.
 - (d) An inspection shall be performed each calendar quarter of the baghouse. Defective bags shall be replaced. A record shall be kept of the results of the inspection and the number of bags replaced.
 - (e) In the event that a bag's failure has been observed:

- (i) The affected compartments will be shut down immediately until the failed units have been replaced.
- (ii) Based upon the findings of the inspection, any additional corrective actions will be devised within eight (8) hours of discovery and will include a timetable for completion.

Scrubber Operating Condition

12. That the packed tower scrubber (ID No. 703) shall be operated at all times when the two (2) core making machines are in operation.
- (a) The permittee shall monitor and record the acid content and acid/water recirculation pump pressure of the scrubber, at least once per day. The Preventive Maintenance Plan for the scrubber shall contain troubleshooting contingency and corrective actions for when the acid content and acid/water recirculation pump pressure readings are outside of the normal range for any one reading.
 - (b) The instruments used for determining the acid content shall be subject to approval by IDEM, OAM, and shall be calibrated at least once every six (6) months.
 - (c) The gauge employed to take the acid/water recirculation pump pressure shall have a scale such that the expected normal reading shall be no less than 20 percent of full scale and be accurate within $\pm 2\%$ of full scale reading. The instrument shall be quality assured and maintained as specified by the vendor.
 - (d) An inspection shall be performed each calendar quarter of the scrubber. The defective scrubber parts shall be repaired or the scrubber replaced. A record shall be kept of the results of the inspection and the number of scrubbers replaced.
 - (e) In the event that a scrubber's failure has been observed:
 - (i) The affected unit will be shut down immediately until the failed unit has been repaired or replaced.
 - (ii) Based upon the findings of the inspection, any additional corrective actions will be devised within eight (8) hours of discovery and will include a timetable for completion.

Volatile Organic Compounds

13. That pursuant to 326 IAC 2-1-3(i)(8), records of volatile organic compound (VOC) containing material usages from equipment covered under this permit shall be maintained for a minimum period of 36 months and made available upon request of the Office of Air Management (OAM). Any change or modification which may increase potential VOC emissions, from equipment covered under this permit, to 40 tons per year or greater shall obtain a PSD permit pursuant to 326 IAC 2-2 and 40 CFR 52.21 before such change may occur.

Record Keeping Requirements

14. That a log of information necessary to document compliance with operation permit condition numbers eleven (11), twelve (12) and thirteen (13) shall be maintained. These records shall be kept for at least the past 36 month period and made available upon request to the Office of Air Management (OAM).

MALFUNCTION REPORT

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR MANAGEMENT
FAX NUMBER - (317) 233-5967**

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

THIS FACILITY MEETS THE APPLICABILITY REQUIREMENTS BECAUSE: IT HAS POTENTIAL TO EMIT 25 LBS/HR PARTICULATES ? _____, 100 LBS/HR VOC ? _____, 100 LBS/HR SULFUR DIOXIDE ? _____ OR 2000 LBS/HR OF ANY OTHER POLLUTANT ? _____ EMISSIONS FROM MALFUNCTIONING CONTROL EQUIPMENT OR PROCESS EQUIPMENT CAUSED EMISSIONS IN EXCESS OF APPLICABLE LIMITATION _____.

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

THIS INCIDENT MEETS THE DEFINITION OF 'MALFUNCTION' AS LISTED ON THE NEXT PAGE ? Y N

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

COMPANY: Auburn Foundry, Inc. - Plant #1 PHONE NO. (219) 925-0900

LOCATION: (CITY AND COUNTY) Auburn, DeKalb County

PERMIT NO. 5296 AFS PLANT ID: 00002 AFS POINT ID: _____ INSP:
CONTROL/PROCESS DEVICE WHICH MALFUNCTIONED AND REASON: _____

DATE/TIME MALFUNCTION STARTED: / /19 _____ AM / PM

ESTIMATED HOURS OF OPERATION WITH MALFUNCTION CONDITION:

DATE/TIME CONTROL EQUIPMENT BACK-IN SERVICE / /19 _____ AM/PM

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

ESTIMATED AMOUNT OF POLLUTANT EMITTED DURING MALFUNCTION: _____

MEASURES TAKEN TO MINIMIZE EMISSIONS: _____

REASONS WHY FACILITY CANNOT BE SHUTDOWN DURING REPAIRS:

CONTINUED OPERATION REQUIRED TO PROVIDE ESSENTIAL* SERVICES: _____

CONTINUED OPERATION NECESSARY TO PREVENT INJURY TO PERSONS: _____

CONTINUED OPERATION NECESSARY TO PREVENT SEVERE DAMAGE TO EQUIPMENT: _____

INTERIM CONTROL MEASURES: (IF APPLICABLE) _____

MALFUNCTION REPORTED BY:

_____ TITLE: _____
(SIGNATURE IF FAXED)

MALFUNCTION RECORDED BY: _____ DATE: _____ TIME: _____

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

326 IAC 1-6-1 Applicability of rule

Sec. 1. The requirements of this rule (326 IAC 1-6) shall apply to the owner or operator of any facility which has the potential to emit twenty-five (25) pounds per hour of particulates, one hundred (100) pounds per hour of volatile organic compounds or SO₂, or two thousand (2,000) pounds per hour of any other pollutant; or to the owner or operator of any facility with emission control equipment which suffers a malfunction that causes emissions in excess of the applicable limitation.

326 IAC 1-2-39 “Malfunction” definition

Sec. 39. Any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner. (Air Pollution Control Board; 326 IAC 1-2-39; filed Mar 10, 1988, 1:20 p.m. : 11 IR 2373)

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

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

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

Technical Support Document (TSD) for New Construction and Operation

**Auburn Foundry, Inc.
Plant #1
635 West 11th Street
Auburn, Indiana 46706**

The Office of Air Management (OAM) has reviewed an application from Auburn Foundry, Inc. relating to the construction and operation of a modification of the Auburn Foundry, Inc., Plant #1, consisting of the addition of the following:

- (a) one (1) natural gas fired core drying oven rated at 1.2 million British thermal units per hour;
- (b) one (1) Beardsley & Piper CB-18 core making machine with a maximum cored sand throughput of 4,500 pounds per hour, and one (1) Beardsley & Piper CB-50 core making machine with a maximum cored sand throughput of 6,600 pounds per hour, both controlled by one (1) packed tower scrubber (ID No. 703) venting to one (1) stack; and
- (c) sand handling/binder mixing operations for the aforementioned two (2) core making machines, processing a maximum of 11,100 pounds of sand per hour. The sand handling/binder mixing operations will be controlled by an existing permitted baghouse (ID No. 78).

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (°F)
703	core machines	30	2.67	10,000	70

Enforcement Issue

IDEM is aware that the two (2) core machines and one (1) core drying oven have been constructed and operated prior to receipt of the proper permit. IDEM is reviewing this matter and will take appropriate action. This proposed permit is intended to satisfy the requirements of the construction permit rules.

Recommendation

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

An application for the purposes of this review was received on February 6, 1996, with additional information received on June 17, 1996, and November 22, 1996.

Emissions Calculations

See Appendix A (Emissions Calculation Spreadsheets, 5 pages) for detailed calculations.

Total Allowable Emissions

Indiana Permit Allowable Emissions Definition (after compliance with applicable rules, based on 8,760 hours of operation per year at rated capacity):

Pollutant	Emissions (tons/year)
Particulate Matter (PM)	56.8
Particulate Matter (PM10)	39.8
Volatile Organic Compounds (VOC)	24.5
Carbon Monoxide (CO)	0.1
Nitrogen Oxides (NO _x)	0.5
worst case single Hazardous Air Pollutant (HAP)	9.6
total Hazardous Air Pollutants (HAPs)	10.7

Allowable emissions (as defined in the Indiana Rule) of particulate matter (PM) are greater than 25 tons per year. Therefore, pursuant to 326 IAC 2-1, Sections 1 and 3, a construction permit is required.

County Attainment Status

Volatile organic compounds (VOC) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating rule applicability relating to the ozone standards. DeKalb County has been designated as attainment or unclassifiable for ozone. Therefore, VOC emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

DeKalb County has been classified as attainment or unclassifiable for all other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

Source Status

Existing Source PSD Definition (emissions after controls, based on 8,760 hours of operation per year at rated capacity, per AIRS Facility Subsystem Quick Look Report dated 9-18-96)

Pollutant	Emissions (ton/yr)
PM	209.0
PM10	186.0
SO ₂	118.0
VOC	13.0
CO	19,053.0
NO _x	13.0

This existing source is a major stationary source because it is in one of the 28 listed source categories and at least one regulated pollutant is emitted at a rate of 100 tons per year or more.

Proposed Modification

Allowable PSD emissions from the proposed modification (after compliance with applicable rules, after baghouse control for the sand handling/binder mixing operations, and wet scrubber control for triethylamine emissions from the core making operations, based on 8,760 hours of operation per year at rated capacity):

Pollutant	PM (ton/yr)	PM10 (ton/yr)	VOC (ton/yr)	CO (ton/yr)	NO _x (ton/yr)
Proposed Modification	1.8	1.3	15.0	0.1	0.5
PSD Significant Level	25	15	40	100	40

This modification to an existing major source is not major because the emissions increase is less than PSD significant levels. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements do not apply.

Federal Rule Applicability

There are no New Source Performance Standards (326 IAC 12) applicable to this facility.

State Rule Applicability

326 IAC 2-6 (Emission Reporting)

Auburn Foundry, Inc. Plant #1 is subject to 326 IAC 2-6 because it has source wide potential emissions of greater than 100 tons per year of PM, carbon monoxide (CO) and sulfur dioxide (SO₂) (see existing source emissions). Pursuant to this rule, the owner/operator of this source must annually submit an emission statement of the source. The annual statement must be received by July 1 of each year and must contain the minimum requirements as specified in 326 IAC 2-6-4. A copy of the applicable rule will be enclosed with the permit.

326 IAC 5-1-2 (Visible Emission Limitations)

Visible emissions from this modification of a source located in an attainment county for PM shall not exceed, except as provided in 326 IAC 5-1-3 (Temporary Exemptions), an average of forty percent (40%) opacity in twenty-four (24) consecutive readings, and sixty percent (60%) opacity for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) in a six (6) hour period.

326 IAC 6-3 (Particulate Emission Limitations)

The sand handling/binder mixing operations for the two (2) core making machines are subject to particulate matter emission limitations under 326 IAC 6-3. Pursuant to this rule, particulate emission from the sand/binder mixing operations shall be limited by the following equation:

$$E = 4.10P^{0.67} \text{ (for process weights up to 60,000 lbs/hr)}$$

where E = maximum allowable PM emissions in lbs/hr
P = process weight in tons/hr

$$= (11,100 \text{ lb/hr sand} + 11.9 \text{ lb/hr part 1 binder} + 10.2 \text{ lb/hr part 2 binder} + 2.2 \text{ lb/hr catalyst} + 1.1 \text{ lb/hr release agent}) * (1 \text{ ton}/2,000 \text{ lbs}) = 5.56 \text{ ton/hr}$$
$$E = 4.10(5.56^{0.67}) = 12.9 \text{ lbs/hr} = 56.7 \text{ ton/yr}$$

However, at this allowable emission rate (56.7 tons per year) this modification would be subject to the Prevention of Significant Deterioration (PSD) requirements per 326 IAC 2-2, for PM potentials greater than 25 tons per year and PM10 (based on $PM_{10} = 0.70PM$, $56.7 * 0.7 = 39.7$ tons per year) emissions greater than 15 tons per year. Allowable emissions must therefore be truncated below 25 tons PM per year, and 15 tons PM10 per year. The allowable emissions are truncated as follows:

14.0 PM10 tons/yr minus emissions from non-sand handling/mixing operations (core drying oven, 0.1 PM10 tons/yr): $14.0 - 0.1 = 13.9$ PM10 tons/yr remaining allowable for sand handling/mixing. $13.9 \text{ PM}_{10} \text{ tons/yr} * (PM/0.70 \text{ PM}_{10}) = 19.9 \text{ PM tons/yr}$ (4.5 pounds per hour).

By truncating the allowable emission rate for the sand handling/binder mixing operations, source wide PM10 allowables are truncated to 14.0 tons per year, and PM allowables are truncated to 20.0 tons per year. Therefore, the requirements of 326 IAC 2-2 do not apply. Sand handling/binder mixing operation controlled emissions (1.8 tons/yr) are less than allowable emissions (13.9 tons/yr), and will therefore comply with the requirements of 326 IAC 6-3.

326 IAC 8-1-6 (New facilities; General Reduction Requirements)

This modification is not subject to the requirements of 326 IAC 8-1-6. This rule is applicable to new facilities (as of January 1, 1980) which have potential emissions of 25 tons or more per year. Potential emissions from each of the two (2) new core making machine facilities are less than 25 tons per year, therefore the requirements of this rule do not apply.

Air Toxic Emissions

Indiana presently requests applicants to provide information on emissions of the 189 hazardous air pollutants set out in the Clean Air Act Amendments of 1990. These pollutants are either carcinogenic or otherwise considered toxic and are commonly used by industries. They are listed as air toxics on the Office of Air Management (OAM) Construction Permit Application Form Y.

This modification will emit levels of air toxics less than those which constitute a major source according to Section 112 of the 1990 Amendments to Clean Air Act.

Conclusion

The construction of this modification of the Auburn Foundry, Inc., Plant #1, consisting of two (2) core making machines and one (1) core bake oven, will be subject to the conditions of the attached proposed **Construction Permit No. CP-033-5296, Plt ID No. 033-00002.**

Indiana Department of Environmental Management Office of Air Management

Addendum to the Technical Support Document for New Construction and Operation

Source Name: Auburn Foundry, Inc. - Plant #1
Source Location: 635 West 11th Street, Auburn, Indiana 46706
County: DeKalb
Construction Permit No.: CP-033-5296-00002
SIC Code: 3321
Permit Reviewer: Luke N. McHale/Enviroplan

On February 11, 1997, the Office of Air Management (OAM) had a notice published in the Auburn Evening Star, Auburn, Indiana, stating that Auburn Foundry, Inc., had applied for a construction permit to construct and operate a modification of the existing Auburn Foundry Plant #1 consisting of the addition of one (1) natural gas fired core drying oven and two (2) core making machines with baghouse control for sand handling operations. The notice also stated that OAM proposed to issue a permit for this installation and provided information on how the public could review the proposed permit and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this permit should be issued as proposed.

The OAM has determined that:

1. Construction Condition six (6)(e) is revised as follows, because Auburn Foundry, Inc. - Plant #1, has already submitted their Title V Application:
 - (e) The Permittee has submitted their Part 70 permit on May 31, 1996, for the existing source. The equipment being reviewed under this permit shall be incorporated in the submitted Part 70 application.
2. Operation Condition twelve (12)(d) is revised as follows, to replace the phrase "defective scrubber shall be replaced" with "defective scrubber parts shall be repaired or the scrubber replaced":
 - (d) An inspection shall be performed each calendar quarter of the scrubber. The defective scrubber parts shall be repaired or the scrubber replaced. A record shall be kept of the results of the inspection and the number of scrubbers replaced.
3. Operation Condition (12)(e)(i) is revised as follows, to insert the phrase "repaired or" in the condition:
 - (e) In the event that a scrubber's failure has been observed:
 - (i) The affected unit will be shut down immediately until the failed unit has been repaired or replaced.

On March 12, 1997, Auburn Foundry, Inc., submitted a comment on the proposed construction permit. A summary of the comment and corresponding response is as follows:

Comment:

Due to the physical layout of baghouse (ID No. 78) and the type of intermittent process that it controls, the proper operation pressure drop across this baghouse ranges from 3 to 10 inches.

Response:

Operation Condition eleven (11)(a) is revised as follows:

- (a) The permittee shall take readings of the total static pressure drop across the baghouse, at least once per day. Unless operated under conditions for which the Preventive Maintenance Plan specifies otherwise, the pressure drop across the baghouse shall be maintained within the range of 3 and 10 inches of water. The Preventive Maintenance Plan for the baghouse shall contain troubleshooting contingency and corrective actions for when the pressure reading is outside of this range for any one reading.

Mail to: Permit Administration & Development Section
Office Of Air Management
100 North Senate Avenue
P. O. Box 6015
Indianapolis, Indiana 46206-6015

Auburn Foundry, Inc.
635 West 11th Street
Auburn, IN 46706

Affidavit of Construction

I, _____, being duly sworn upon my oath, depose and say:
(Name of the Authorized Representative)

- 1. I live in _____ County, Indiana and being of sound mind and over twenty-one (21) years of age, I am competent to give this affidavit.
- 2. I hold the position of _____ for _____.
(Title) (Company Name)
- 3. By virtue of my position with _____, I have personal
(Company Name)
knowledge of the representations contained in this affidavit and am authorized to make these representations on behalf of _____.
(Company Name)
- 4. I hereby certify that Auburn Foundry, Inc., 635 West 11th Street, IN 46706, has constructed the two (2) new core making machines and one (1) new core oven in conformity with the requirements and intent of the construction permit application received by the Office of Air Management on February 6, 1996, and as permitted pursuant to **Construction Permit No. CP-033-5296, Plant ID No. 033-00002** issued on _____.
- 5. I hereby certify that Auburn Foundry, Inc. is now subject to the Title V program and will submit a Title V (or FESOP) operating permit application within twelve (12) months from the postmarked submission date of this Affidavit of Construction

Further Affiant said not.

I affirm under penalties of perjury that the representations contained in this affidavit are true, to the best of my information and belief.

Signature

Date

STATE OF INDIANA)
)SS

COUNTY OF _____)

Subscribed and sworn to me, a notary public in and for _____ County and State of
Indiana on this _____ day of _____, 19 _____.
My Commission expires: _____

Signature

Name (typed or printed)

Appendix A: Emission Calculations

Company Name: Auburn Foundry, Inc. - Plant #1
Address City IN Zip: 635 West 11th Street, Auburn, Indiana 46706
CP: 033-5296
Plt ID: 033-00002
Reviewer: Luke N. McHale
Date: November 22, 1996

Allowable Emissions Definition (tons/year)

Emissions Generating Activity			
Pollutant	Core Making*	Core Drying Oven	Total
PM	56.70	0.06	56.8
PM10	39.69	0.06	39.8
SO2	0.00	0.00	0.0
NOx	0.00	0.53	0.5
VOC	24.42	0.03	24.5
CO	0.00	0.11	0.1
worst case single HAP	9.64	0.00	9.6
total HAPs	10.69	0.00	10.7

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

*PM Allowables are per 326 IAC 6-3-2

Modification PSD Definition (tons/year)

Emissions Generating Activity			
Pollutant	Core Making	Core Drying Oven	Total
PM	1.75	0.06	1.8
PM10	1.23	0.06	1.3
SO2	0.00	0.00	0.0
NOx	0.00	0.53	0.5
VOC	14.98	0.03	15.0
CO	0.00	0.11	0.1
worst case single HAP	0.19	0.00	0.2
total HAPs	1.24	0.00	1.2

Total emissions based on rated capacities at 8,760 hours/year, after control.

Appendix A: Emission Calculations
Natural Gas Combustion
MM Btu/hr 0.3 - < 10
Core Drying Oven

Company Name: Auburn Foundry, Inc. - Plant #1
Address City IN Zip: 635 West 11th Street, Auburn, IN 46706
CP: 033-5296
Plt ID: 033-00002
Reviewer: Luke N. McHale
Date: November 22, 1996

Heat Input Capacity
MMBtu/hr

Potential Throughput
MMCF/yr

1.2

10.5

Heat Input Capacity includes:
one (1) 1.2 MMBtu/hr core drying oven

	Pollutant					
	PM	PM10	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	12.0	12.0	0.6	100.0	5.3	21.0
Potential Emission in tons/yr	0.06	0.06	0.00	0.53	0.03	0.11

Methodology

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Emission Factors for NOx: uncontrolled = 100, Low Nox Burner = 17, Flue gas recirculation = 36

Emission Factors for CO: uncontrolled = 21, Low NOx Burner = 27, Flue gas recirculation = ND

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, and 1.4-3, SCC #1-03-006-03

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Appendix A: Emission Calculations

PM Emissions from Core Making

Company Name: Auburn Foundry, Inc. - Plant #1
Address City IN Zip: 635 West 11th Street, Auburn, Indiana 46706
CP: 033-5296
Pit ID: 033-00002
Reviewer: Luke N. McHale
Date: November 22, 1996

State Potential Emissions (uncontrolled):					
Operation	Maximum Sand Throughput (lbs/hr)	PM Emission Factor (lbs PM/ton sand)	PM10 Emission Factor (lbs PM10/ton sand)	Potential Uncontrolled PM Emissions (tons/yr)	Potential Uncontrolled PM10 Emissions (tons/yr)
Sand Handling/Mixing	11,100	3.6	2.5	87.51	61.26
Core Baking*	-	-	-	-	-
Total State Potential Emissions (tons/yr):				87.51	61.26
Federal Potential Emissions (controlled):					
Material		Control Device	Control Efficiency	Potential Controlled PM Emissions (tons/yr)	Potential Controlled PM10 Emissions (tons/yr)
Sand Handling/Mixing		baghouse	98.0%	1.75	1.23
Core Baking*		-	-	-	-
Total Federal Potential Emissions (tons/yr):				1.75	1.23

Note:

*Core Baking is not performed to cure cores, but only to drive off excess moisture. Cores are formed with a binder/catalyst cold box system and are already cured prior to baking. Due to the type of process, the core baking has negligible PM emissions.

Methodology:

Potential Uncontrolled Emissions = Maximum Sand Throughput (lbs/hr) * (ton/2,000 lbs) * E.F (lbs/ton sand) * (8,760 hrs/yr) * (ton/2,000 lbs)

Potential Controlled Emissions = Potential Uncontrolled Emissions * (1 - Control Efficiency)

PM Emission Factor taken from AP-42, 5th edition, Table 12.10-7, for uncontrolled sand handling at a grey iron foundry.

PM10 Emission Factor based on PM10 = 0.70 PM, from AP-42, 5th edition, Table 12.10-9, Particle Size Distribution Data for Gray Iron Foundries, for Shakeout.

Appendix A: Emission Calculations

VOC Emissions from Core Making

Company Name: Auburn Foundry, Inc. - Plant #1
Address City IN Zip: 635 West 11th Street, Auburn, Indiana 46706
CP: 033-5296
Plt ID: 033-00002
Reviewer: Luke N. McHale
Date: November 22, 1996

State Potential Emissions (uncontrolled):					
Material	Number of Core Machines	Maximum Raw Material Rate per Machine (lbs/hr)	Weight % Volatile	Weight % Flash Off	Potential Uncontrolled VOC Emissions (tons/yr)
Part 1 Binder	2	5.94	20.0%	50.0%	5.20
Part 2 Binder	2	5.12	22.5%	50.0%	5.05
TEA Catalyst	2	1.10	100.0%	0.0%	9.64
Release Agents	2	0.56	92.5%	0.0%	4.54
Total State Potential Emissions (tons/yr):					24.42
Federal Potential Emissions (controlled):					
Material		Potential Uncontrolled PM Emissions (tons/yr)	Control Device	Control Efficiency	Potential Controlled VOC Emissions (tons/yr)
Part 1 Binder		5.20	none	0.0%	5.20
Part 2 Binder		5.05	none	0.0%	5.05
TEA Catalyst		9.64	wet scrubber	98.0%	0.19
Release Agents		4.54	none	0.0%	4.54
Total Federal Potential Emissions (tons/yr):					14.98

Methodology:

Potential Uncontrolled Emissions = Number of Machines * Max. Material per Machine (lb/hr) * Wt. % Volatiles * Weight % Flash Off * (8,760 hr/yr) * (1 ton/2,000 lb)

Potential Controlled Emissions = Potential Uncontrolled Emissions * (1 - Control Efficiency)

Weight % flash off is taken from the American Foundrymen's Society, Inc. Document "Form R Reporting of Binder Chemicals Used in Foundries," Table for Phenolic Urethane Coldbox.

Emissions from materials retained in the cores are assumed to be negligible due to pyrolysis during pouring operations.

Appendix A: Emission Calculations**HAP Emissions from Core Making**

Company Name: Auburn Foundry, Inc. - Plant #1
Address City IN Zip: 635 West 11th Street, Auburn, Indiana 46706
CP: 033-5296
Plt ID: 033-00002
Reviewer: Luke N. McHale
Date: November 22, 1996

Material	Number of Core Machines	Maximum Raw Material Rate per Machine (lbs/hr)	weight % naphthalene	weight % phenol	weight % xylene	weight % formaldehyde	weight % cumene	weight % triethylamine	Potential naphthalene Emissions (ton/yr)	Potential phenol Emissions (ton/yr)	Potential xylene Emissions (ton/yr)	Potential formaldehyde Emissions (ton/yr)	Potential cumene Emissions (ton/yr)	Potential triethylamine Emissions (ton/yr)	TOTAL Potential Emissions (ton/yr)
			weight % flash off	weight % flash off	weight % flash off	weight % flash off	weight % flash off	weight % flash off	weight % flash off						
Part 1 Binder	2	5.94	1.43% 50.00%	6.00% 10.00%	0.43% 50.00%	0.30% 10.00%	0.15% 50.00%	0.00% n/a	0.37	0.31	0.11	0.02	0.04	0.00	0.85
Part 2 Binder	2	5.12	0.85% 50.00%	0.00% n/a	0.05% 50.00%	0.00% n/a	0.00% n/a	0.00% n/a	0.19	0.00	0.01	0.00	0.00	0.00	0.20
TEA Catalyst	2	1.10	0.00% n/a	0.00% n/a	0.00% n/a	0.00% n/a	0.00% n/a	100.00% 100.00%	0.00	0.00	0.00	0.00	0.00	9.64	9.64
Release Agents	2	0.56	0.00% n/a	0.00% n/a	0.00% n/a	0.00% n/a	0.00% n/a	0.00% n/a	0.00	0.00	0.00	0.00	0.00	0.00	0.00
									0.56	0.31	0.12	0.02	0.04	9.64	10.69

Methodology:

Potential Emissions = Number of Machines * Max. Material per Machine (lb/hr) * Wt. % HAP * weight % flash off * (8,760 hr/yr) * (1 ton/2,000 lb)

Weight % flash off is taken from the American Foundrymen's Society, Inc. Document "Form R Reporting of Binder Chemicals Used in Foundries," Table for Phenolic Urethane Coldbox.

Materials which do not flash off are either consumed by reaction or are retained in the core. Emissions from materials retained in the core are assumed to be negligible due to pyrolysis during pouring operations.