CONSTRUCTION PERMIT
OFFICE OF AIR MANAGEMENT

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

(herein known as the Permittee) is hereby authorized to construct the facilities listed in Section A (Source Summary) of this permit.

This permit is issued to the above mentioned company (herein known as the Permittee) under the provisions of 326 IAC 2-1, 326 IAC 2-2, 40 CFR 52.780 and 40 CFR 124, with conditions listed on the attached pages.

Construction Permit No.: CP-123-8451-00019	
Issued by: Paul Dubenetzky, Branch Chief Office of Air Management	Issuance Date:

SECTION A SOURCE SUMMARY

This construction permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Management (OAM) and presented in the permit application.

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

The Permittee owns and operates a grey iron foundry.

Responsible Official:	Gary L. Thoe, President
Source Address:	9856 State Highway 66, Tell City, Indiana 47586
Mailing Address:	P.O. Box 249, Waupaca, Wisconsin 54981
SIC Code:	3321
County Location:	Perry
County Status:	Attainment for all criteria pollutants

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

This source modification for Waupaca Foundry, Inc. (Waupaca), relates to the expansion to the existing Plant 5 Phase I operations and to the proposed Plant 5 Phase II project involving the construction and operation of a ductile iron cupola, core making process, four production lines and sand handling and ancillary operations:

Plant 5 Phase 1 Modifications:

(a) Sand Handling System

(1) Increase throughput capacity of the existing return sand handling/screening process, identified as P21, from 400 tons of sand per hour to 480 tons of sand per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C01A-L, that exhausts to Stack S01;

(2) Increase throughput capacity of the existing sand cooling/water addition process, identified as P22, from 400 tons of sand per hour to 480 tons of sand per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C01A-L, that exhausts to Stack S01; and

(3) Increase throughput capacity of the existing sand mulling/handling process, identified as P23, from 400 tons of sand per hour to 480 tons of sand per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C01A-L, that exhausts to Stack S01.

(b) Melting and Casting Operations

(1) Increase production capacity of the existing cupola iron melting system, identified as P30, from 60 tons of iron per hour to 80 tons of iron per hour. Volatile organic compound emissions are controlled by one (1) recuperative incinerator, identified as C11A. Sulfur dioxide emissions are controlled by one (1) lime injection system, identified as C12A. Particulate matter emissions are controlled by one (1) baghouse system, identified as C09A. The gases are then exhausted to Stack S09A; and

(2) Increase capacity of the existing Line 1 pouring/mold cooling process, identified as P01, from 18 tons of iron per hour to 25 tons of iron per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C02A-L, that exhausts to Stack S01, or by one (1) baghouse system, identified as C04, that exhausts to Stack S04.

(c) Cleaning and Finishing Operations

(1) Increase throughput capacity of the existing Line 1 shakeout process, identified as P02, from 18 tons of iron per hour to 25 tons of iron per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C02A-L, that exhausts to Stack S01;

(2) Increase capacity of the existing Line 1 cast cooling process, identified as P03, from 18 tons of iron per hour to 25 tons of iron per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C03A-L, that exhausts to Stack S01, or by one (1) baghouse system, identified as C04, that exhausts to Stack S04;

(3) Increase throughput capacity of the existing Line 1 pick & sort process, identified as P04, from 18 tons of iron per hour to 25 tons of iron per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C03A-L, that exhausts to Stack S01;

(4) Increase throughput capacity of the existing Line 1 cleaning & grinding process, identified as P05, from 18 tons of iron per hour to 25 tons of iron per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C07A-I, that exhausts to Stack S07; and

(5) One (1) additional baghouse system to handle the increased production capacity from processes P01 to P04.

Plant 5 Phase II Operations:

(a) Sand Handling System

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

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

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

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

(b) Core Preparation

(1) One (1) phenolic-urethane core sand handling system, identified as P42, with a maximum production capacity of 20 tons of cores per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C08, that exhausts to Stack S08B; and

(2) One (1) phenolic-urethane core making process, identified as P43, with a maximum production capacity of 20 tons of cores per hour. Volatile organic compound emissions are controlled by one (1) packed bed scrubber (or equivalent), identified as C14. The gases are then exhausted to Stack S14.

(c) Furnace Charge Preparation

(1) Raw material handling including iron handling at a maximum rate of 150 tons per hour, alloys handling at a maximum rate of 1.5 tons per hour, coke handling at a maximum rate of 15 tons per hour, and limestone handling at a maximum rate of 4.5 tons per hour;

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

(3) One (1) enclosed cupola charge make-up and handling unit with a maximum charge of 91.2 tons per hour.

(d) Melting and Casting Operations

(1) One (1) cupola iron melting system, identified as P33, with a maximum melt rate of 80 tons of iron per hour. Volatile organic compound emissions are controlled by one (1) recuperative incinerator, identified as C11B. Sulfur dioxide emissions are controlled by one (1) lime injection system (or equivalent), identified as C12B Particulate matter emissions are controlled by one (1) baghouse system, identified as C09B. The gases are then exhausted to Stack S09B;

(2) One (1) ladle filling and iron transport station with a maximum capacity of 150 tons of iron per hour, and a ladle cleaning station with a maximum usage of 13.2 burn bars per hour;

(3) One (1) ductile iron treatment station, identified as P35, with a maximum production capacity of 80 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15;

(4) Line 5 pouring/mold cooling process, identified as P60, with a maximum production capacity of 25 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15;

(5) Line 6 pouring/mold cooling process, identified as P65, with a maximum production capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15;

(6) Line 7 pouring/mold cooling process, identified as P70, with a maximum production capacity of 30 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15; and

(7) Line 8 pouring/mold cooling process, identified as P75, with a maximum production capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15.

(e) Cleaning and Finishing Operations

(1) Line 5 shakeout process, identified as P61, with a maximum throughout capacity of 25 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15, that exhaust to Stack S15 or by one (1) baghouse system, identified as C16, that exhaust to Stack S16;

(2) Line 5 cast cooling process, identified as P62, with a maximum capacity of 25 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15.

(3) Line 5 pick and sort process, identified as P63, with a maximum throughput capacity of 25 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(4) Line 5 cleaning and grinding system, identified as P64, with a maximum throughput capacity of 25 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(5) Line 6 shakeout process, identified as P66, with a maximum throughput capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15, that exhaust to Stack S15 or by one (1) baghouse system, identified as C16, that exhaust to Stack S16;

(6) Line 6 cast cooling process, identified as P67, with a maximum capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15, that exhaust to Stack S15 or by one (1) baghouse system, identified as C16, that exhaust to Stack S16;

(7) Line 6 pick and sort process, identified as P68, with a maximum throughput capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(8) Line 6 cleaning and grinding system, identified as P69, with a maximum throughput

capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(9) Line 7 shakeout process, identified as P71, with a maximum production capacity of 30 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15, that exhaust to Stack S15 or by one (1) baghouse system, identified as C16, that exhaust to Stack S16;

(10) Line 7 cast cooling process, identified as P72, with a maximum production capacity of 30 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15, that exhaust to Stack S15 or by one (1) baghouse system, identified as C16, that exhaust to Stack S16;

(11) Line 7 pick and sort process, identified as P73, with a maximum throughput capacity of 30 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(12) Line 7 cleaning and grinding system, identified as P74, with a maximum throughput capacity of 30 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(13) Line 8 shakeout process, identified as P76, with a maximum throughput capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(14) Line 8 cast cooling process, identified as P77, with a maximum capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(15) Line 8 pick and sort process, identified as P78, with a maximum throughput capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16; and

(16) Line 8 cleaning and grinding system, identified as P79, with a maximum throughput capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16.

(f) Combustion Facilities:

(1) One (1) natural gas fired burner, identified as P53B, with a maximum heat input rate of 11.5 MMBtu per hour exhausting to Stack S13; and

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

Section B Construction Conditions

B.1 General Construction Conditions

(a) The data and information supplied with the application shall be considered part of this permit. Prior to any proposed change in construction which may result in an increase in allowable emissions, the change must be approved by IDEM, OAM.

(b) 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.

(c) Notwithstanding Construction Condition B.4, 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).

(d) When the facility is constructed and placed into operation, the operation conditions required by Section C and Section D shall be met.

B.2 Effective Date of the Permit

Pursuant to 40 CFR Parts 124.15, 124.19 and 124.20, the effective date of this permit will be thirty-three (33) days from its issuance.

B.3 Permit Revocation

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.

B.4 First Time Operation Permit

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:

Indiana Department of Environmental Management
Permit Administration & Development Section, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, IN 46206-6015

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, OAM.

(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) The 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 2-7-19 (Fees).

(e) Pursuant to 326 IAC 2-7-4, the Permittee shall apply for a Title V operating permit within twelve (12) months after the source becomes subject to Title V. This 12-month period starts at the postmarked submission date of the Affidavit of Construction. If the construction is completed in phases, the 12-month period starts at the postmarked submission date of the Affidavit of Construction that triggers the Title V applicability. The operation permit issued shall contain as a minimum the conditions in the Operation Conditions section of this permit.

B.5 BACT Determination for Phase Construction

Pursuant to 40 CFR 52.21(j)(4), for phase construction projects, the determination of BACT shall be reviewed and modified as appropriate at the latest reasonable time which occurs no later than eighteen (18) months prior to commencement of construction of each independent phase of the project.

SECTION C SOURCE OPERATION CONDITIONS

Entire Source

General Conditions:

C.1 General Operation Conditions

(a) 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 IDEM, OAM.

(b) 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.

C.2 Transfer of Permit

Pursuant to 326 IAC 2-1-6 (Transfer of Permits), the following requirements shall apply:

(a) In the event that ownership of this foundry is changed, the Permittee shall notify:

Indiana Department of Environmental Management
Permits Branch, Office of Air Management
100 North Senate Avenue, P.O. Box 6015
Indianapolis, Indiana 46206-6015

within thirty (30) days of the change. Notification shall include the date or proposed date of said change.

(b) A written notification shall be sufficient to transfer the permit from the current owner to the new owner.

(c) IDEM, OAM shall reserve the right to issue a new permit.

C.3 Permit Revocation

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; or

(e) for any cause which establishes in the judgment of IDEM, OAM, the fact that continuance

of this permit is not consistent with purposes of 326 IAC 2-1 (Permit Review Rules).

C.4 Availability of Permit

Pursuant to 326 IAC 2-1-3(l), the Permittee shall maintain the applicable permit on the premises of this source and shall make this permit available for inspection by IDEM, OAM, or other public official having jurisdiction.

C.5 Open Burning

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.

C.6 Emergency Reduction Plans

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

(a) The Permittee shall prepare written Emergency Reduction Plans (ERPs) consistent with safe operating procedures.

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

Indiana Department of Environmental Management
Compliance Branch, Office of Air Management
100 North Senate Avenue, P.O. Box 6015
Indianapolis, Indiana 46206-6015

within ninety (90) calendar days from the date on which this source commences operation.

(c) If the ERP is disapproved by IDEM, OAM the Permittee shall have an additional thirty (30) days to resolve the differences and submit an approvable ERP. If after this time, the Permittee does not submit an approvable ERP, IDEM, OAM shall supply such a plan.

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

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

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

C.7 Preventive Maintenance Plan

(a) Pursuant to 326 IAC 1-6-3 (Preventive Maintenance Plans), the Permittee shall prepare and maintain a Preventive Maintenance Plan, including the following information:

(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 of the replacement parts which will be maintained in inventory for quick replacement.

(b) Pursuant to 326 IAC 2-1-3(i)(8), the Preventive Maintenance Plan shall also contain the following information:

(1) corrective actions that will be implemented in the event an inspection indicates an out of specification situation;

(2) a time schedule for taking such corrective actions including a schedule for devising additional corrective actions for situations that may not have been predicted; and

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

(4) Preventive Maintenance Plans must be approved by IDEM, OAM and shall be submitted with the stack test protocol required by Operation Condition C.15 to:

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

at least thirty-five (35) days before the intended test date.

C.8 Compliance Monitoring Plan - Failure to Take Response Steps

(a) Pursuant to 326 IAC 2-1-3(j), the Permittee shall implement a compliance monitoring plan to ensure that reasonable information is available to evaluate its continuous compliance with applicable requirements. This compliance monitoring plan is comprised of:

(1) This Condition;

(2) The Compliance Determination and Monitoring requirements in Section C and Section D of this permit;

(3) The Record Keeping and Reporting Requirements in Section C and Section D of this permit; and

(4) A Compliance Response Plan (CRP) for each compliance monitoring condition of this permit. CRP's shall be submitted to IDEM, OAM upon request and shall be subject to review and approval by IDEM, OAM. The CRP shall be prepared within ninety (90) days after issuance of this permit by the Permittee and maintained on site, and is comprised of:

(A) Response steps that will be implemented in the event that compliance related information indicates that a response step is needed pursuant to the requirements of Section D of this permit; and

(B) A time schedule for taking such response steps including a schedule for devising additional response steps for situations that may not have been

predicted.

(b) For each compliance monitoring condition of this permit, appropriate response steps shall be taken when indicated by the provisions of that compliance monitoring condition. Failure to perform the actions detailed in the compliance monitoring conditions or failure to take the response steps within the time prescribed in the Compliance Response Plan, shall constitute a violation of the permit unless taking the response steps set forth in the Compliance Response Plan would be unreasonable.

(c) After investigating the reason for the excursion, the Permittee is excused from taking further response steps for any of the following reasons:

(1) The monitoring equipment malfunctioned, giving a false reading. This shall be an excuse from taking further response steps providing that prompt action was taken to correct the monitoring equipment; and

(2) The Permittee has determined that the compliance monitoring parameters established in the permit conditions are technically inappropriate, has previously submitted a request for an administrative amendment to the permit, and such request has not been denied; or

(3) An automatic measurement was taken when the process was not operating; or

(4) The process has already returned to operating within "normal" parameters and no response steps are required.

(d) Records and reports shall be kept of all instances in which the compliance related information was not met and of all response steps taken. In the event of an emergency or upset, the provisions of 326 IAC 1-6 requiring prompt corrective action to mitigate emissions shall apply.

C.9 Malfunction Condition

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 IDEM, 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]

Emission Limitations and Standards:

C.10 Visible Emissions Limitation

Pursuant to 326 IAC 5-1-2 (Visible Emission Limitations), the source shall comply with the following limitations:

(a) visible emissions shall not exceed an average of 40% opacity in any 24 consecutive readings; and

(b) visible emissions shall not exceed 60% opacity for more than a cumulative total of 15 minutes (60 readings) in any 6-hour period.

C.11 Fugitive Dust Emissions Limitation

Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions), the Permittee shall be in violation of 326 IAC 6-4 (Fugitive Dust Emissions) if any of the criteria specified in 326 IAC 6-4-2(1) through (4) are violated. Observations of visible emissions crossing the property line of the source at or near ground level must be made by a qualified representative of IDEM, OAM. [326 IAC 6-4-5(c)]

C.12 Fugitive Particulate Matter Emissions

Pursuant to 326 IAC 6-5 (Fugitive Particulate Matter Emissions Limitations), fugitive particulate matter emissions shall be controlled according to an approved *Fugitive Particulate Matter Emission Control Plan*. The Permittee shall maintain the plan on the premises of this source and shall make the plan available for inspection by IDEM, OAM, or other public official having jurisdiction.

Compliance Determination and Monitoring:

C.13 Visible Emission Determination

Pursuant to 326 IAC 5 and 326 IAC 6, visible emissions from the source shall be measured using one or both of the following procedures to demonstrate compliance with the opacity limitations:

(a) visible emissions observations performed in accordance with the applicable procedures under 326 IAC 5-1-4 and 40 CFR 60, Appendix A, Method 9; or

(b) continuous opacity monitoring data recorded in accordance with the applicable procedures under 40 CFR 60, Appendix B, Performance Specification 1 and 326 IAC 3-1.1.

A violation determined by one of the above methods shall not be refuted by the other method.

C.14 Ambient Monitoring

Pursuant to 326 IAC 2-2-4, the Permittee shall establish ambient monitoring sites for PM_{10}, SO_2, and meteorological data described in (a) through (f). These sites shall begin collecting valid data prior to the commencement of operation of the ductile iron cupola, identified as P33.

(a) The monitoring must be performed using U.S. EPA approved methods, procedures, and

quality assurance programs. A Quality Assurance Plan and Protocol shall be submitted to:

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

within 90 calendar days prior to commencement of monitoring. The Quality Assurance Plan and Protocol must be approved by IDEM, OAM prior to commencement of monitoring.

(b) The two (2) monitoring sites shall be established at a downwind location and an upwind location to be approved by IDEM, OAM. All monitors shall meet the operating and maintenance criteria outlined in IDEM, OAM Quality Assurance Manual.

(c) The ambient data for PM_{10}, SO_2 and meteorological data shall be collected following the initial compliance demonstration. IDEM, OAM reserves the authority to require the Permittee to monitor for compliance with the National Ambient Air Quality Standards (NAAQS) for $PM_{2.5}$ in the event that such information is necessary to demonstrate compliance with the standard.

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

(1) wind direction,

(2) wind speed, and

(3) temperature.

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

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

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

(f) The Permittee may petition IDEM, OAM for the removal of the monitoring site if it has been established that the PM and SO_2 levels will continue to comply with the NAAQS with an adequate margin of safety. The monitoring requirements may be continued if there exists a threat to the NAAQS or if determined to be warranted by IDEM, OAM.

C.15 Initial Performance Testing

(a) Pursuant to 326 IAC 2-1-3 (Construction and Operating Permit Requirements), the following compliance stack tests shall be performed within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up:

(1) Particulate Matter Compliance Tests:

Stack ID	Process	Process ID	Maximum Capacity	PM Emission Limitation
Phase I Modifications				
S01	combined emissions from processes vented to this stack			0.005 gr/dscf
S04	Line 1 Pouring/Mold Cooling & Cast Cooling	P01 & P03	25 tons iron/hr	0.005 gr/dscf
S07	Line 1 Cleaning/ Grinding	P05	25 tons iron/hr	0.005 gr/dscf
S09A	Phase I Cupola	P30	80 tons iron/hr	0.078 lb/ton iron
Phase II Operations				
S08	Core Sand Handling System	P42	20 tons cores/hr	0.005 gr/dscf
S09B	Phase II Cupola	P33	80 tons iron/hr	0.078 lb/ton iron
S15	Combined PM emissions from various processes (see subsection (b) below)			0.005 gr/dscf
S16	Combined PM emissions from various processes (see subsection (b) below)			0.005 gr/dscf

(2) Sulfur Dioxide (SO2) Compliance Tests:

Stack ID	Process	Process ID	Maximum Capacity	SO2 Emission Limitation
Phase I Modifications				
S01/ S04	Line 1 Pouring/Mold Cooling	P01	25 tons iron/hr	0.04 lb/ton iron
S09A	Phase I Cupola	P30	8 tons coke/hr	0.22 lb/ton iron
Phase II Operations				
S09B	Phase II Cupola	P33	8 tons coke/hr	0.22 lb/ton iron
S15	Combined emissions from various processes (see subsection (b) below)			3.69 lb/hr

(3) Volatile Organic Compound (VOC) Compliance Tests:

Stack ID	Process	Process ID	Maximum Capacity	VOC Emission Limitations
Phase I Modifications				
S01	Combined VOC emission limitation for modification:			9.18 lb/hr
	Combined VOC emission limitation from CP123-4593:			37.8 lb/hr
	Total VOC emission limitation for Stack S01:			47.0 lb/hr
S04	Line 1 Pouring/Mold Cooling	P01	25 tons iron/hr	4.55 lb/hr
S09A	Phase I Cupola	P30	80 tons iron/hr	0.02 lb/ton iron
Phase II Operations				
S09B	Phase II Cupola	P33	80 tons iron/hr	0.02 lb/ton iron
S14	Core Making Process	P43	20 tons cores/hr	0.63 lb/ton core
S15	Combined emissions from various processes (see subsection (b) below)			52.3 lb/hr
S16	Combined emissions from various processes (see subsection (b) below)			5.23 lb/hr

(4) Carbon Monoxide (CO) Compliance Tests:

Stack ID	Process	Process ID	Maximum Capacity	CO Emission Limitation
Phase I Modifications				
S09A	Phase I Cupola	P30	80 tons iron/hr	0.4 lb/ton iron
Phase II Operations				
S09B	Phase II Cupola	P33	80 tons iron/hr	0.4 lb/ton iron

(5) Nitrogen Oxide (NOx) Compliance Tests:

Stack ID	Process	Process ID	Maximum Capacity	NOx Emission Limitation
Phase I Modifications				

S01/ S04	Line 1 Pouring/Mold Cooling	P01	25 tons iron/hr	0.01 lb/ton iron
S09A	Phase I Cupola	P30	80 tons iron/hr	0.44 lb/ton iron
Phase II Operations				
S09B	Phase II Cupola	P33	80 tons iron/hr	0.44 lb/ton iron

(6) Lead (Pb) Compliance Tests:

Stack ID	Process	Process ID	Maximum Capacity	Lead Emission Limitation (lb/hr)
Phase I Modifications				
S01	Combined Pb emission limitation for modification:			0*
	Combined Pb emission limitation from CP123-4593:			0.024
	Total Pb emission limitation for Stack S01:			0.024
S04	Combined emission limitation from various processes (see subsection (b) below)			0.0006
S07	Pb emission limitation for modification:			0
	Pb emission limitation from CP123-4593:			0.0019**
	Total Pb emission limitation for Stack S07:			0.0019
S09A	Phase I Cupola	P30	80 tons iron/hr	0.27
Phase II Operations				
S09B	Phase II Cupola	P33	80 tons iron/hr	0.27
S15	Combined emissions from various processes (see subsection (b) below)			0.007
S16	Combined emissions from various processes (see subsection (b) below)			0.005

* The Pb limit established in CP-123-4593 for this process will remain the same.
** The Pb limit established in CP-123-4593 has been revised to reflect the most current speciation data for foundry operations. This speciation data was used for similar Phase II operations.

(7) Beryllium (Be) Compliance Tests:

Stack ID	Process	Process ID	Maximum Capacity	Be Emission Limitation (lb/hr)
Phase I Modifications				
S01	Combined Be emission limitation for modification:			0*
	Combined Be emission limitation from CP123-4593:			0.001

	Total Be emission limitation for Stack S01:			0.001
S04	Combined emissions from various processes (see subsection (b) below)			0.000012
S07	Be emission limitation for modification:			0*
	Be emission limitation from CP123-4593:			0.000017
	Total Be emission limitation for Stack S07:			0.000017
S09A	Phase I Cupola	P30	80 tons iron/hr	0.0008
Phase II Operations				
S09B	Phase II Cupola	P33	80 tons iron/hr	0.0008
S15	Combined emissions from various processes (see subsection (b) below)			0.0003
S16	Combined emissions from various processes (see subsection (b) below)			0.00009

* The Be limit established in CP-123-4593 for this process will remain the same.

(8) Organic Hazardous Air Pollutant (HAP) Compliance Tests:

Stack ID	Process	Process ID	Maximum Capacity	TEA Emission Limitation
Phase I Modifications				
S14	Core Making Process	P43	20 tons core/hr	0.18 lb/ton of cores

(b) Any stack which has multiple processes which exhaust to the same stack shall operate all of the processes simultaneously in accordance with 326 IAC 3-2.1 (Source Sampling Procedures).

(c) NOx compliance stack tests for Stacks S09A and S09B shall be performed every 12 months until the Title V permit is issued for this source.

(d) The SO2 continuous emissions monitoring (CEM) system data may be collected in lieu of SO2 compliance tests for Stack S09B. If used, this data shall coincide with the compliance tests.

(e) The capture and control efficiency of the scrubber unit associated with the core making process that exhausts to Stack S14 shall be measured during the compliance test. The overall control efficiency of TEA shall be at least 94% to demonstrate compliance with Operation Condition D.2.3.

(f) All compliance tests shall be performed according to 326 IAC 3-2.1 (Source Sampling Procedures) using the methods specified in the rule or as approved by the Commissioner.

(1) A test protocol shall be submitted to:

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

at least thirty-five (35) days before the intended test date. The Permittee shall develop and submit with the protocol for approval by IDEM, OAM, standard operating procedures to be followed during sampling, handling, analysis, quality control, quality assurance, and data reporting.

(2) The Compliance Data Section shall be notified of the actual test date at least two (2) weeks prior to the date. [326 IAC 3-2.1-2]

(3) All test reports must be received by the Compliance Data Section within 45 days of completion of the testing. [326 IAC 3-2.1-4]

(4) When the results of a compliance test performed exceed the level specified in any condition of this permit, the Permittee shall take appropriate corrective actions. The Permittee shall submit a description of these corrective actions to IDEM, OAM within thirty (30) days of receipt of the test results. The Permittee shall take appropriate action to minimize emissions from the affected facility while the corrective actions are being implemented. IDEM, OAM shall notify the Permittee within thirty (30) days if the corrective actions taken are deficient. The Permittee shall submit a description of additional corrective actions taken to IDEM, OAM within thirty (30) days of receipt of the notice of deficiency. IDEM, OAM reserves the authority to use enforcement activities to resolve noncompliant tests.

(5) Whenever the results of a compliance test performed exceed the level specified in any condition of this permit, a second test to demonstrate compliance shall be performed within 270 days. Failure of the second test to demonstrate compliance may be grounds for immediate revocation of this permit to operate the affected facility.

(g) IDEM, OAM retains the authority under 326 IAC 2-1-4(f) to require the Permittee to perform additional and future compliance testing as necessary.

Recordkeeping and Reporting Requirements:

C.16 Emission Reporting Requirement

Pursuant to 326 IAC 2-6 (Emission Reporting), the Permittee shall annually submit an emission statement of 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. The submittal should cover the period defined in 326 IAC 2-6-2(8) (Emission Statement Operating Year). The annual statement must be submitted to:

Indiana Department of Environmental Management
Technical Support and Modeling, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015.

The annual emission statement required by this permit shall be considered timely if:

(a) delivered by U.S. mail and postmarked on or before the date it is due; or

(b) delivered by any other method if it is received and stamped by IDEM, OAM on or before the date it is due.

C.17 Recordkeeping Requirement

The Permittee shall maintain a log of information necessary to document compliance with Operation Conditions C.8, C.9, and C.15 as follows:

(a) The Permittee shall meet the following time lines for recordkeeping requirements:

(1) records of all instances in which the compliance related information was not met and of all response steps taken shall be maintained in accordance with Operation Condition No. C.8 for a minimum of 24 months;

(2) records of all malfunctions shall be maintained in accordance with Operation Condition No. C.9 for a minimum of 24 months; and

(3) records of the performance test results required by Operation Condition C.15 shall be maintained for a minimum of 24 months to demonstrate compliance with the emission limitations and operation standards required in Sections D.1 through D.6.

These records shall be kept at the source location and available within one (1) hour upon verbal request of an IDEM, OAM representative.

(b) Records of required monitoring information shall include, where applicable:

(1) the date, place, and time of sampling or measurements;

(2) the dates analyses were performed;

(3) the company or entity performing the analyses;

(4) the analytic techniques or methods used;

(5) the results of such analyses; and

(6) the operating conditions existing at the time of sampling or measurement.

(c) Support information shall include, where applicable:

(1) copies of all reports required by this permit;

(2) all original strip chart recordings for continuous monitoring instrumentation;

(3) all calibration and maintenance records; and

(4) records of any required preventive maintenance and corrective actions that were implemented. Such records shall briefly describe what was done and indicate who did it. Such records may include, but are not limited to work orders, quality

assurance procedures, quality control procedures, operator's standard operating procedures, manufacturer's specifications or their equivalent, and equipment "troubleshooting" guidance.

SECTION D.1 FACILITY OPERATION CONDITIONS SAND HANDLING OPERATIONS

Plant 5 Phase I Modifications:

(1) Increase throughput capacity of the existing return sand handling/screening process, identified as P21, from 400 tons of sand per hour to 480 tons of sand per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C01A-L, that exhausts to Stack S01;

(2) Increase throughput capacity of the existing sand cooling/water addition process, identified as P22, from 400 tons of sand per hour to 480 tons of sand per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C01A-L, that exhausts to Stack S01; and

(3) Increase throughput capacity of the existing sand mulling/handling process, identified as P23, from 400 tons of sand per hour to 480 tons of sand per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C01A-L, that exhausts to Stack S01.

Plant 5 Phase II Operations:

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

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

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

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

Emission Limitations and Standards:

D.1.1 Particulate Matter Emissions Limitations

Pursuant to 326 IAC 2-2-3(a)(3) (Prevention of Significant Deterioration (PSD) Rules), the particulate matter emissions from the sand handling operations shall be limited to the following:

Process	Process ID	Stack ID	Emission Limitation (gr/dscf)
Phase I Return Sand Handling/Screening Increase	P21	S01	0.005
Phase I Sand Cooling/Water Addition Increase	P22	S01	0.005
Phase I Sand Mulling/Handling Increase	P23	S01	0.005
Phase II Return Sand Handling and Screening	P80	S15/S16	0.005
Phase II Sand Mulling and Handling	P81	S15	0.005
Phase II Sand Blending and Cooling	P82	S15	0.005
Phase II Spent Sand and Dust Handling	P83	S15	0.005

These particulate matter emission limitations satisfy the requirements of 326 IAC 6-3-2 (Particulate Emission Limitations for Process Operations).

D.1.2 Lead Emission Limitations

Pursuant to 326 IAC 2-2-3(a)(3), the lead (Pb) emissions from the sand handling operations shall be limited to the following:

Process	Process ID	Stack ID	Emission Limitation (lb/hr)
Phase I Return Sand Handling/Screening Increase	P21	S01	0*
Phase I Sand Cooling/Water Addition Increase	P22	S01	0*
Phase I Sand Mulling/Handling Increase	P23	S01	0*
Phase II Return Sand Handling and Screening	P80	S15/S16	0.00009/0.00001
Phase II Sand Mulling and Handling	P81	S15	0.0001
Phase II Sand Blending and Cooling	P82	S15	0.0001
Phase II Spent Sand and Dust Handling	P83	S15	0.00004

* The Pb limit established in CP-123-4593 for this process will remain the same.

D.1.3 Beryllium Emission Limitations

Pursuant to 326 IAC 2-2-3(a)(3), the beryllium (Be) emissions from the sand handling operations shall be limited to the following:

Process	Process ID	Stack ID	Emission Limitation (lb/hr)
Phase I Return Sand Handling/Screening Increase	P21	S01	0*
Phase I Sand Cooling/Water Addition Increase	P22	S01	0*
Phase I Sand Mulling/Handling Increase	P23	S01	0*
Phase II Return Sand Handling and Screening	P80	S15/S16	0.000035/0.000014
Phase II Sand Mulling and Handling	P81	S15	0.000029
Phase II Sand Blending and Cooling	P82	S15	0.000017
Phase II Spent Sand and Dust Handling	P83	S15	0.000009

* The Be limit established in CP-123-4593 for this process will remain the same.

D.1.4 Operation Standards

Pursuant to 326 IAC 2-2-3(a)(3), the sand handling operations shall comply with the following limitations:

(a) the existing return sand handling/screening process, identified as P21, shall be limited to a maximum throughput capacity of 480 tons of sand per hour;

(b) the existing sand cooling/water addition process, identified as P22, shall be limited to a maximum throughput capacity of 480 tons of sand per hour;

(c) the existing sand mulling/handling process, identified as P23, shall be limited to a maximum throughput of 480 tons of sand per hour;

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

(e) the sand mulling and handling system, identified as P81, shall be limited to a maximum capacity of 600 tons of sand per hour;

(f) the sand blending and cooling system, identified as P82, with a maximum capacity of 600 tons of sand per hour; and

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

Compliance Determination and Monitoring:

D.1.5 Baghouse Operating Condition

Each baghouse system shall be operated at all times when its associated sand handling

facility is in operation to show compliance with the PM, lead, and beryllium limitations required by Operation Conditions D.1.1, D.1.2, and D.1.3.

(a) The Permittee shall take readings of the total static pressure drop across each baghouse system, at least once per day. The pressure drop across each baghouse system shall be maintained within a pressure drop range of 3.0 and 10.0 inches of water as determined from the manufacturer specifications. The pressure drop range may be adjusted to incorporate the pressure drop determined by a compliant stack test. If the water pressure falls outside of the determined range, corrective action shall be taken in accordance with the Permittee's Preventive Maintenance Plan. The company shall document the cause of the out-of-range reading and take immediate action to correct any problem. Failure or partial failure of the control device shall be reported to IDEM, OAM according to the procedure specified for malfunctions in 326 IAC 1-6-2, in which case the provisions of 326 IAC 1-6-5 may apply at the discretion of IDEM, OAM.

(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 baghouse system 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 percent 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 for each baghouse system. 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:

(1) The affected compartments will be shut down immediately until the failed units have been replaced.

(2) 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.

D.1.6 Visible Emission Notations

Visible emission notations of the particulate matter exhausted to the atmosphere from Stacks S01, S15, and S16 shall be performed once per working shift (during daylight hours). A trained employee will record whether emissions are normal or abnormal.

(a) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, 80% of the time the process is in operation, not counting start up or shut down time.

(b) In the case of batch or discontinuous operation, readings shall be taken during that part of the operation specified in the facility's specific condition prescribing visible emissions.

(c) 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 and abnormal visible emissions for that specific process.

(d) The Preventive Maintenance Plan for this facility shall contain troubleshooting contingency and corrective actions for when an abnormal emission is observed.

Recordkeeping and Reporting Requirements:

D.1.7 Recordkeeping Requirement

The Permittee shall maintain a log of information necessary to document compliance with Operation Conditions D.1.1 through D.1.3 as follows:

(a) The Permittee shall meet the following time lines for recordkeeping requirements:

(1) daily logs of the parameters established in Operation Condition D.1.5(a), semi-annual logs of the parameters established in Operation Condition D.1.5(b) and quarterly logs of the parameters established in Operation Condition D.1.5(d) shall be maintained for a minimum of 36 months to demonstrate compliance with the PM, lead, and beryllium limitations required by Operation Condition D.1.1, D.1.2, and D.1.3.

These records shall be kept at the source location and available within one (1) hour upon verbal request of an IDEM, OAM representative.

(b) Records of required monitoring information shall include, where applicable:

(1) the date, place, and time of sampling or measurements;

(2) the dates analyses were performed;

(3) the company or entity performing the analyses;

(4) the analytic techniques or methods used;

(5) the results of such analyses; and

(6) the operating conditions existing at the time of sampling or measurement.

(c) Support information shall include, where applicable:

(1) copies of all reports required by this permit;

(2) all original strip chart recordings for continuous monitoring instrumentation;

(3) all calibration and maintenance records; and

(4) records of any required preventive maintenance and corrective actions that were implemented. Such records shall briefly describe what was done and indicate who did it. Such records may include, but are not limited to work orders, quality assurance procedures, quality control procedures, operator's standard operating

procedures, manufacturer's specifications or their equivalent, and equipment "troubleshooting" guidance.

SECTION D.2 FACILITY OPERATION CONDITIONS CORE PREPARATION

Plant 5 Phase II Operations:

(1) One (1) phenolic-urethane core sand handling system, identified as P42, with a maximum production capacity of 20 tons of cores per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C08, that exhausts to Stack S08; and

(2) One (1) phenolic-urethane core making process, identified as P43, with a maximum production capacity of 20 tons of cores per hour. Volatile organic compound emissions are controlled by one (1) packed bed scrubber (or equivalent), identified as C14. The gases are then exhausted to Stack S14.

Emission Limitations and Standards:

D.2.1 Particulate Matter Emission Limitations

Pursuant to 326 IAC 2-2-3(a)(3), the particulate matter emissions from the phenolic-urethane core sand handling system, identified as P42, shall not exceed 0.005 grains per dry standard cubic feet (gr/dscf). Compliance with this particulate matter emission limitation satisfies the requirements of 326 IAC 6-3-2 (Particulate Emission Limitations for Process Operations).

D.2.2 Volatile Organic Compound Emission Limitations

Pursuant to 326 IAC 2-2-3(a)(3), the volatile organic compound (VOC) emissions from the phenolic-urethane coremaking process, identified as P43, shall not exceed 0.63 pounds per ton of cores.

D.2.3 Hazardous Air Pollutant Emission Limitations

Pursuant to 326 IAC 2-1-3.4 (New Source Toxics Control), the triethylamine (TEA) emissions from the core making process shall be limited to 0.18 pounds TEA per ton of cores.

D.2.4 Operation Standards

Pursuant to 326 IAC 2-2-3(a)(3), the core preparation facilities shall comply with the following limitations:

(a) the phenolic-urethane core sand handling system, identified as P42, shall be limited to a maximum production capacity of 20 tons of cores per hour; and

(b) the phenolic-urethane core making process, identified as P43, shall be limited to a maximum production capacity of 20 tons of cores per hour.

Compliance Determination and Monitoring:

D.2.5 Visible Emission Notations

Visible emission notations of the particulate matter exhausted to the atmosphere from Stacks S08 and S14 shall be performed once per working shift (during daylight hours). A trained employee will

record whether emissions are normal or abnormal.

(a) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, 80% of the time the process is in operation, not counting start up or shut down time.

(b) In the case of batch or discontinuous operation, readings shall be taken during that part of the operation specified in the facility's specific condition prescribing visible emissions.

(c) 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 and abnormal visible emissions for that specific process.

(d) The Preventive Maintenance Plan for this facility shall contain troubleshooting contingency and corrective actions for when an abnormal emission is observed.

D.2.6 Baghouse Operating Condition

Each baghouse system shall be operated at all times when its associated core preparation facility is in operation to show compliance with the PM limitations required by Operation Conditions D.2.1.

(a) The Permittee shall take readings of the total static pressure drop across each baghouse system, at least once per day. The pressure drop across each baghouse system shall be maintained within a pressure drop range of 3.0 and 10.0 inches of water as determined from the manufacturer specifications. The pressure drop range may be adjusted to incorporate the pressure drop determined by a compliant stack test. If the water pressure falls outside of the determined range, corrective action shall be taken in accordance with the Permittee's Preventive Maintenance Plan. The company shall document the cause of the out-of-range reading and take immediate action to correct any problem. Failure or partial failure of the control device shall be reported to IDEM, OAM according to the procedure specified for malfunctions in 326 IAC 1-6-2, in which case the provisions of 326 IAC 1-6-5 may apply at the discretion of IDEM, OAM.

(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 baghouse system 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 percent 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 for each baghouse system. 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:

(1) The affected compartments will be shut down immediately until the failed units have been replaced.

(2) 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.

D.2.7 Packed Bed Scrubber Operating Condition

The packed bed scrubber shall be operated at all times when the coremaking process is in operation to demonstrate compliance with Operation Condition D.2.3.

(a) The Permittee shall monitor and record the pH and pressure drop of the scrubber unit at least once per day. The pH of the scrubbing liquid shall not exceed 4.8 and the pressure drop shall be maintained within a range of 3.0 and 10.0 inches of water as determined from the manufacturer specifications. The pH and pressure drop may be adjusted to incorporate a higher pH limit or broader pressure drop range determined by a compliant stack test.

(b) The Permittee shall continuously monitor the flow rate of the scrubbing liquid. The compliant stack test shall establish a minimum flow rate.

(c) The Preventive Maintenance Plan for the scrubber shall contain troubleshooting contingency and corrective actions for when the pH, pressure drop or flow rate is outside of the normal range for any one reading. Failure or partial failure of the control device shall be reported to IDEM, OAM according to the procedure specified for malfunctions in 326 IAC 1-6-2, in which case the provisions of 326 IAC 1-6-5 may apply at the discretion of IDEM, OAM.

(d) The instruments used for determining the pH, pressure drop and flow rate shall be subject to approval by IDEM, OAM, and shall be calibrated at least once every six (6) months.

(e) The gauge employed to take the pressure drop across the scrubber 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.

(f) An inspection shall be performed each calendar quarter of the scrubber. Defective scrubber part(s) shall be replaced. A record shall be kept of the results of the inspection and the number of scrubber part(s) replaced.

(g) In the event that a scrubber's failure has been observed:

(1) The affected process will be shut down immediately until the failed unit has been replaced.

(2) 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.

(h) These records shall be kept for at least the past 36 month period and made available upon request to the IDEM, OAM.

Recordkeeping and Reporting Requirements:

D.2.8 Recordkeeping Requirement

The Permittee shall maintain a log of information necessary to document compliance with Operation

Conditions D.2.1, D.2.2, and D.2.3 as follows:

(a) The Permittee shall meet the following time lines for recordkeeping requirements:

(1) daily logs of the parameters established in Operation Condition D.2.6(a), semi-annual logs of the parameters established in Operation Condition D.2.6(b) and quarterly logs of the parameters established in Operation Condition D.2.6(d) shall be maintained for a minimum of 36 months to demonstrate compliance with the PM limitation required by Operation Condition D.2.1; and

(2) daily logs of the parameters established in Operation Condition D.2.7(a), continuous logs of the parameter established in Operation Condition D.2.7(b), semi-annual logs of the parameters established in Operation Condition D.2.7(c) and quarterly logs of the parameters established in Operation Condition D.2.7(d) shall be maintained for a minimum of 36 months to demonstrate compliance with the VOC and HAP limitations required by Operation Conditions D.2.2 and D.2.3.

These records shall be kept at the source location and available within one (1) hour upon verbal request of an IDEM, OAM representative.

(b) Records of required monitoring information shall include, where applicable:

(1) the date, place, and time of sampling or measurements;

(2) the dates analyses were performed;

(3) the company or entity performing the analyses;

(4) the analytic techniques or methods used;

(5) the results of such analyses; and

(6) the operating conditions existing at the time of sampling or measurement.

(c) Support information shall include, where applicable:

(1) copies of all reports required by this permit;

(2) all original strip chart recordings for continuous monitoring instrumentation;

(3) all calibration and maintenance records; and

(4) records of any required preventive maintenance and corrective actions that were implemented. Such records shall briefly describe what was done and indicate who did it. Such records may include, but are not limited to work orders, quality assurance procedures, quality control procedures, operator's standard operating procedures, manufacturer's specifications or their equivalent, and equipment "troubleshooting" guidance.

SECTION D.3 FACILITY OPERATION CONDITIONS FURNACE CHARGE PREPARATION

Plant 5 Phase II Operations:

(1) Raw material handling including iron handling at a maximum rate of 150 tons per hour, alloys handling at a maximum rate of 1.5 tons per hour, coke handling at a maximum rate of 15 tons per hour, and limestone handling at a maximum rate of 4.5 tons per hour;

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

(3) One (1) enclosed cupola charge make-up and handling unit with a maximum charge of 91.2 tons per hour.

Emission Limitations and Standards:

D.3.1 Particulate Matter Emissions Limitations

Pursuant to 326 IAC 2-2-3(a)(3) (Prevention of Significant Deterioration (PSD) Rules), the particulate matter emissions from the metal returns handling system, P84, shall be limited to 0.005 grains per dry standard cubic feet. Compliance with these particulate matter emission limitations satisfy the requirements of 326 IAC 6-3-2 (Particulate Emission Limitations for Process Operations).

D.3.2 Lead Emission Limitations

Pursuant to 326 IAC 2-2-3(a)(3), the lead (Pb) emissions from the metal returns handling system shall not exceed 0.00003 pounds per hour from Stack S15 and 0.00002 pounds per hour from Stack S16.

D.3.3 Beryllium Emission Limitations

Pursuant to 326 IAC 2-2-3(a)(3), the beryllium (Be) emissions from the metal returns handling system shall not exceed 0.000002 pounds per hour from Stack S15 and 0.000001 pounds per hour from Stack S16.

D.3.4 Operation Standards

Pursuant to 326 IAC 2-2-3(a)(3), the furnace charge preparation facilities shall comply with the following limitations:

(a) the raw material handling operations shall be limited to a maximum rate of 150 tons per hour for the iron handling, a maximum rate of 1.5 tons per hour for the alloys handling, a maximum rate of 15 tons per hour for the coke handling, and a maximum rate of 4.5 tons per hour for the limestone handling;

(b) the metal returns handling system, identified as P84, shall be limited to a maximum capacity of 40 tons per hour; and

(c) the enclosed cupola charge make-up and handling unit with a maximum charge of 91.2 tons per hour.

Compliance Determination and Monitoring:

D.3.5 Baghouse Operating Condition

The baghouse system for the metal returns handling system, identified as P84, shall be operated at all times when its associated process is in operation to demonstrate compliance with the PM, lead, and beryllium limitations required by Operation Conditions D.3.1, D.3.2, and D.3.3.

(a) The Permittee shall take readings of the total static pressure drop across the baghouse system, at least once per day. The pressure drop across the baghouse system shall be maintained within a pressure drop range of 3.0 and 10.0 inches of water as determined from the manufacturer specifications. The pressure drop range may be adjusted to incorporate the pressure drop determined by a compliant stack test. If the water pressure falls outside of the determined range, corrective action shall be taken in accordance with the Permittee's Preventive Maintenance Plan. The company shall document the cause of the out-of-range reading and take immediate action to correct any problem. Failure or partial failure of the control device shall be reported to IDEM, OAM according to the procedure specified for malfunctions in 326 IAC 1-6-2, in which case the provisions of 326 IAC 1-6-5 may apply at the discretion of IDEM, OAM.

(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 baghouse system 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 percent 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 for each baghouse system. 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:

(1) The affected compartments will be shut down immediately until the failed units have been replaced.

(2) 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.

D.3.6 Visible Emission Notations

Visible emission notations of the particulate matter exhausted to the atmosphere from Stacks S15 and S16 shall be performed once per working shift (during daylight hours). A trained employee will record whether emissions are normal or abnormal.

(a) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, 80% of the time the process is in operation, not counting start up or shut down time.

(b) In the case of batch or discontinuous operation, readings shall be taken during that part of the operation specified in the facility's specific condition prescribing visible emissions.

(c) 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 and abnormal visible emissions for that specific process.

(d) The Preventive Maintenance Plan for this facility shall contain troubleshooting contingency and corrective actions for when an abnormal emission is observed.

Recordkeeping and Reporting Requirements:

D.3.7 Recordkeeping Requirement

(a) The Permittee shall maintain daily logs of the parameters established in Operation Condition D.3.5(a), semi-annual logs of the parameters established in Operation Condition D.3.5(b) and quarterly logs of the parameters established in Operation Condition D.3.5(d) to document compliance with Operation Conditions D.3.1, D.3.2 and D.3.3. These records shall be maintained for a minimum of 36 months at the source location and shall be available within one (1) hour upon verbal request of an IDEM representative.

(b) Records of required monitoring information shall include, where applicable:

(1) the date, place, and time of sampling or measurements;

(2) the dates analyses were performed;

(3) the company or entity performing the analyses;

(4) the analytic techniques or methods used;

(5) the results of such analyses; and

(6) the operating conditions existing at the time of sampling or measurement.

(c) Support information shall include, where applicable:

(1) copies of all reports required by this permit;

(2) all original strip chart recordings for continuous monitoring instrumentation;

(3) all calibration and maintenance records; and

(4) records of any required preventive maintenance and corrective actions that were implemented. Such records shall briefly describe what was done and indicate who did it. Such records may include, but are not limited to work orders, quality

assurance procedures, quality control procedures, operator's standard operating procedures, manufacturer's specifications or their equivalent, and equipment "troubleshooting" guidance.

SECTION D.4 FACILITY OPERATION CONDITIONS
MELTING AND CASTING OPERATION

Plant 5 Phase 1 Modifications:

(1) Increase production capacity of the existing cupola iron melting system, identified as P30, from 60 tons per hour to 80 tons per hour. Volatile organic compound emissions are controlled by one (1) recuperative incinerator, identified as C11A. Sulfur dioxide emissions are controlled by one (1) lime injection system, identified as C12A. Particulate matter emissions are controlled by one (1) baghouse system, identified as C09A. The gases are then exhausted to Stack S09A;

(2) Increase capacity of the existing Line 1 pouring/mold cooling process, identified as P01, from 18 tons of iron per hour to 25 tons of iron per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C02A-L, that exhausts to Stack S01, or by one (1) baghouse system, identified as C04, that exhausts to Stack S04;

Plant 5 Phase II Operations:

(1) One (1) cupola iron melting system, identified as P33, with a maximum melt rate of 80 tons of iron per hour. Volatile organic compound emissions are controlled by one (1) recuperative incinerator, identified as C11B. Sulfur dioxide emissions are controlled by one (1) lime injection system (or equivalent), identified as C12B Particulate matter emissions are controlled by one (1) baghouse system, identified as C09B. The gases are then exhausted to Stack S09B;

(2) One (1) ladle filling and iron transport station with a maximum capacity of 150 tons of iron per hour, and a ladle cleaning station with a maximum usage of 13.2 burn bars per hour;

(3) One (1) ductile iron treatment station, identified as P35, with a maximum production capacity of 80 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15;

(4) Line 5 pouring/mold cooling process, identified as P60, with a maximum production capacity of 25 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15;

(5) Line 6 pouring/mold cooling process, identified as P65, with a maximum production capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15;

(6) Line 7 pouring/mold cooling process, identified as P70, with a maximum production capacity of 30 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15; and

(7) Line 8 pouring/mold cooling process, identified as P75, with a maximum production capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15.

Emission Limitations and Standards:

D.4.1 Particulate Matter Emissions Limitations

Pursuant to 326 IAC 2-2-3(a)(3) (Prevention of Significant Deterioration (PSD) Rules), the particulate matter emissions from the following melting and casting processes shall be limited as follows:

Process	Process ID	Stack ID	Emission Limitation
Phase I Cupola	P30	S09A	0.078 lb/ton iron
Line 1 Pouring/Cooling	P01	S01/S04	0.005 gr/dscf
Phase II Cupola	P33	S09B	0.078 lb/ton iron
Ductile Iron Treatment Station	P35	S15	0.005 gr/dscf
Line 5 Pouring/Mold Cooling	P60	S15	0.005 gr/dscf
Line 6 Pouring/Mold Cooling	P65	S15	0.005 gr/dscf
Line 7 Pouring/Mold Cooling	P70	S15	0.005 gr/dscf
Line 8 Pouring/Mold Cooling	P75	S15	0.005 gr/dscf

Compliance with these particulate matter emission limitations shall satisfy the requirements of 326 IAC 6-3-2 (Particulate Emission Limitations for Process Operations) and 326 IAC 11-1 (Particulate Emission Limitations for Foundries).

D.4.2 Lead Emission Limitations

Pursuant to 326 IAC 2-2-3(a)(3), the lead (Pb) emissions from the following melting and casting processes shall be limited as follows:

Process	Process ID	Stack ID	Emission Limitation (lb/hr)
Phase I Cupola	P30	S09A	0.27
Phase II Cupola	P33	S09B	0.27
Line 5 Pouring/Mold Cooling	P60	S15	0.0014
Line 6 Pouring/Mold Cooling	P65	S15	0.0005
Line 7 Pouring/Mold Cooling	P70	S15	0.0014
Line 8 Pouring/Mold Cooling	P75	S15	0.0005

D.4.3 Beryllium Emission Limitations

Pursuant to 326 IAC 2-2-3(a)(3), the beryllium (Be) emissions from the following melting and casting processes shall be limited as follows:

Process	Process ID	Stack ID	Emission Limitation (lb/hr)
Phase I Cupola	P30	S09A	0.0008
Phase II Cupola	P33	S09B	0.0008
Line 5 Pouring/Mold Cooling	P60	S15	0.000056
Line 6 Pouring/Mold Cooling	P65	S15	0.000022
Line 7 Pouring/Mold Cooling	P70	S15	0.000056
Line 8 Pouring/Mold Cooling	P75	S15	0.000022

D.4.4 Sulfur Dioxide Emissions Limitations

Pursuant to 326 IAC 2-2-3(a)(3), the sulfur dioxide (SO_2) emissions from the following melting and casting processes shall be limited as follows:

Process	Process ID	Stack ID	Emission Limitation
Phase I Cupola	P30	S09A	0.22 lb/ton iron
Line 1 Pouring/Mold Cooling	P01	S01/S04	0.04 lb/ton iron
Phase II Cupola	P33	S09B	0.22 lb/ton iron
Line 5 Pouring/Mold Cooling	P60	S15	1.00 lb/hr
Line 6 Pouring/Mold Cooling	P65	S15	0.72 lb/hr
Line 7 Pouring/Mold Cooling	P70	S15	1.2 lb/hr
Line 8 Pouring/Mold Cooling	P75	S15	0.72 lb/hr

Compliance with these emission rates shall satisfy the requirements of 326 IAC 7-1.1-2 (Sulfur Dioxide Emission Limitations).

D.4.5 Volatile Organic Compound Emission Limitations

Pursuant to 326 IAC 2-2-3(a)(3), the volatile organic compound (VOC) emissions from the following melting and casting processes shall be limited as follows:

Process	Process ID	Stack ID	Emission Limitation
Phase I Cupola	P30	S09A	0.02 lb/ton iron
Line 1 Pouring/Mold Cooling Increase	P01	S01	7.95 lb/hr
Phase II Cupola	P33	S09B	0.02 lb/ton iron
Line 5 Pouring/Mold Cooling	P60	S15	12.5 lb/hr
Line 6 Pouring/Mold Cooling	P65	S15	9.00 lb/hr
Line 7 Pouring/Mold Cooling	P70	S15	15.0 lb/hr

Line 8 Pouring/Mold Cooling	P75	S15	9.00 lb/hr

D.4.6 Carbon Monoxide Emission Limitations

Pursuant to 326 IAC 2-2-3(a)(3), the carbon monoxide (CO) emissions from the following melting and casting processes shall be limited as follows:

Process	Process ID	Stack ID	Emission Limitation
Phase I Cupola	P30	S09A	0.4 lb/ton iron
Line 1 Pouring/Mold Cooling	P01	S01	5.0 lb/ton iron
Phase II Cupola	P33	S09B	0.4 lb/ton iron
Line 5 Pouring/Mold Cooling	P60	S15	5.0 lb/ton iron
Line 6 Pouring/Mold Cooling	P65	S15	5.0 lb/ton iron
Line 7 Pouring/Mold Cooling	P70	S15	5.0 lb/ton iron
Line 8 Pouring/Mold Cooling	P75	S15	5.0 lb/ton iron

The waste gas stream of each cupola shall be equipped with recuperative incinerators to satisfy the requirements of 326 IAC 9-1-2 (Carbon Monoxide Emission Limits).

D.4.7 Nitrogen Oxide Emission Limitations

Pursuant to 326 IAC 2-2-3(a)(3), the nitrogen oxide (NO_X) emissions from the following melting and casting processes shall be limited as follows:

Process	Process ID	Stack ID	Emission Limitation
Phase I Cupola	P30	S09A	0.44 lb/ton iron
Line 1 Pouring/Mold Cooling Increase	P01	S01/S04	0.01 lb/ton iron
Phase II Cupola	P33	S09B	0.44 lb/ton iron
Line 5 Pouring/Mold Cooling	P60	S15	0.01 lb/ton iron
Line 6 Pouring/Mold Cooling	P65	S15	0.01 lb/ton iron
Line 7 Pouring/Mold Cooling	P70	S15	0.01 lb/ton iron
Line 8 Pouring/Mold Cooling	P75	S15	0.01 lb/ton iron

D.4.8 Operation Standards

Pursuant to 326 IAC 2-2-3(a)(3), the melting and casting operations shall comply with the following limitations:

(a) each cupola shall not exceed a maximum melt rate of 80 tons of iron per hour;

(b) each cupola shall not exceed a maximum coke input of 192 tons per day;

(c) the existing Line 1 pouring/mold cooling process, identified as P01, shall not exceed a maximum throughput of 25 tons of iron per hour;

(d) the ladle filling and iron transport station shall be limited to a maximum capacity of 150 tons of iron per hour, and a ladle cleaning station shall be limited to a maximum usage of 13.2 burn bars per hour;

(e) the ductile iron treatment station, identified as P35, shall be limited to a maximum production capacity of 60 tons per hour;

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

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

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

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

Compliance Determination and Monitoring:

D.4.9 Continuous Emissions Monitoring

Pursuant to 326 IAC 2, the Permittee shall continuously monitor and record the following parameters from Stack S09B of the Phase II cupola, identified as P33, to demonstrate compliance with the limitations and operation standards required by Operation Conditions D.4.1 and D.4.4:

(a) opacity; and

(b) SO2.

The continuous monitoring systems shall be equipped with a flow monitor to provide data in pounds SO2 per ton iron. The systems shall be installed and operational prior to conducting the performance tests and may be used in lieu of the compliance stack test for SO2. A monitoring protocol shall be performed in accordance with the applicable procedures under 40 CFR 60, Appendix B, Performance Specification 1 and 326 IAC 3-1.1 and shall be submitted to:

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

within 60 days after achieving the maximum production rate at which the affected facility will be operated, but no later than 180 days after initial startup. Verification of operational status shall, as a minimum, include completion of the manufacturer written requirements or recommendations for installation, operation, and calibration of the device.

D.4.10 Baghouse Operating Condition

Each baghouse system shall be operated at all times when its associated melting and casting process is in operation to demonstrate compliance with the PM, lead, and beryllium emission limitations required by Operation Conditions D.4.1, D.4.2, and D.4.3.

(a) The Permittee shall take readings of the total static pressure drop across each baghouse system, at least once per day. The pressure drop across each baghouse system shall be maintained within a pressure drop range of 3.0 and 10.0 inches of water as determined from the manufacturer specifications. The pressure drop range may be adjusted to incorporate the pressure drop determined by a compliant stack test. If the water pressure falls outside of the determined range, corrective action shall be taken in accordance with the Permittee's Preventive Maintenance Plan. The company shall document the cause of the out-of-range reading and take immediate action to correct any problem. Failure or partial failure of the control device shall be reported to IDEM, OAM according to the procedure specified for malfunctions in 326 IAC 1-6-2, in which case the provisions of 326 IAC 1-6-5 may apply at the discretion of IDEM, OAM.

(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 baghouse system 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 percent 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 for each baghouse system. 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:

(1) The affected compartments will be shut down immediately until the failed units have been replaced.

(2) 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.

D.4.11 Dry Alkaline Injection Operation

Pursuant to 326 IAC 2-2-3(a)(3), each dry alkaline injection system shall be operating at all times when its associated cupola is in operation.

(a) The Permittee shall implement the following monitoring protocol for Stack S09A of the Phase I Cupola, P30, to demonstrate compliance with the the SO_2 emission limitation required by Operation Condition D.4.4.

(1) The Permittee shall record the alkaline dust injection rate (in pounds or cubic feet) of each dry lime injection system on an hourly basis. The system shall maintain a minimum alkaline dust injection rate determined from a compliant stack test.

(2) The Preventive Maintenance Plan for each dry alkaline injection system shall contain

a troubleshooting contingency and corrective actions for when the alkaline dust injection rate falls below the normal range for any one reading. Failure or partial failure of the control device shall be reported to IDEM, OAM according to the procedure specified for malfunctions in 326 IAC 1-6-2, in which case the provisions of 326 IAC 1-6-5 may apply at the discretion of IDEM, OAM.

(3) The instruments used for determining the alkaline dust injection rate shall be subject to approval by IDEM, OAM, and shall be calibrated at least once every six (6) months.

(b) The Permittee shall operate the SO2 CEM and flow meter in accordance with Operation D.4.9 for Stack S09A of the Phase II Cupola, P33, to demonstrate compliance with the the SO_2 emission limitation required by Operation Condition D.4.4.

D.4.12 Recuperative Incinerator Operation

Pursuant to 326 IAC 2-2-3(a)(3), each recuperative incinerator shall be operating at all times when its associated cupola is in operation to demonstrate compliance with the CO and VOC emission limitations required by Operation Conditions D.4.5 and D.4.6.

(a) The Permittee shall continuously monitor the temperature of each recuperative incinerator. The recuperative incinerator shall maintain a minimum operating temperature of 1,400° F or a temperature, fan amperage and duct velocity determined from a compliant stack test.

(b) The Preventive Maintenance Plan for each recuperative incinerator shall contain a troubleshooting contingency and corrective actions for when the temperature, fan amperage or duct velocity falls below the normal range for any one reading. Failure or partial failure of the control device shall be reported to IDEM, OAM according to the procedure specified for malfunctions in 326 IAC 1-6-2, in which case the provisions of 326 IAC 1-6-5 may apply at the discretion of IDEM, OAM.

(c) The instruments used for determining the temperature shall be subject to approval by IDEM, OAM, and shall be calibrated at least once every six (6) months.

(d) The recuperative incinerator shall only use natural gas fuel for start-up operations.

D.4.13 Visible Emission Notations

Visible emission notations of the particulate matter exhausted to the atmosphere from Stacks S01, S04, and S15 shall be performed once per working shift (during daylight hours). A trained employee will record whether emissions are normal or abnormal.

(a) For processes operated continuously, “normal” means those conditions prevailing, or expected to prevail, 80% of the time the process is in operation, not counting start up or shut down time.

(b) In the case of batch or discontinuous operation, readings shall be taken during that part of the operation specified in the facility’s specific condition prescribing visible emissions.

(c) 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 and abnormal visible emissions for that specific process.

(d) The Preventive Maintenance Plan for this facility shall contain troubleshooting contingency and corrective actions for when an abnormal emission is observed.

Recordkeeping and Reporting Requirements:

D.4.14 Recordkeeping Requirement

The Permittee shall maintain a log of information necessary to document compliance with Operation Conditions D.4.1 through D.4.7 as follows:

(a) The Permittee shall meet the following time lines for recordkeeping requirements:

(1) continuous monitoring records of opacity and SO2 required by Operation Condition D.4.9 shall be maintained for a minimum of 24 months to demonstrate compliance with the emission limitations for the Phase II cupola required by Operation Conditions D.4.1 and D.4.4;

(2) daily logs of the parameters established in Operation Condition D.4.10(a), semi-annual logs of the parameters established in Operation Condition D.4.10(b) and quarterly logs of the parameters established in Operation Condition D.4.10(d) shall be maintained for a minimum of 36 months to demonstrate compliance with the PM, lead, and beryllium limitations required by Operation Condition D.4.1, D.4.2, and D.4.3;

(3) hourly logs of the parameters established in Operation Condition D.4.11(a) shall be maintained for a minimum of 36 months to demonstrate compliance with the SO2 limitation for the Phase I cupola required by Operation Condition D.4.4;

(4) continuous monitoring records of the temperature as established in Operation Condition D.4.12 shall be maintained for a minimum of 36 months to demonstrate compliance with the CO and VOC emission limitations required by Operation Conditions D.4.5 and D.4.6.

These records shall be kept at the source location and available within one (1) hour upon verbal request of an IDEM, OAM representative.

(b) Records of required monitoring information shall include, where applicable:

(1) the date, place, and time of sampling or measurements;

(2) the dates analyses were performed;

(3) the company or entity performing the analyses;

(4) the analytic techniques or methods used;

(5) the results of such analyses; and

(6) the operating conditions existing at the time of sampling or measurement.

(c) Support information shall include, where applicable:

(1) copies of all reports required by this permit;

(2) all original strip chart recordings for continuous monitoring instrumentation;

(3) all calibration and maintenance records; and

(4) records of any required preventive maintenance and corrective actions that were implemented. Such records shall briefly describe what was done and indicate who did it. Such records may include, but are not limited to work orders, quality assurance procedures, quality control procedures, operator's standard operating procedures, manufacturer's specifications or their equivalent, and equipment "troubleshooting" guidance.

SECTION D.5 FACILITY OPERATION CONDITIONS
CLEANING AND FINISHING OPERATIONS

Plant 5 Phase I Modifications:

(1) Increase throughput capacity of the existing Line 1 shakeout process, identified as P02, from 18 tons of iron per hour to 25 tons of iron per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C02A-L, that exhausts to Stack S01;

(2) Increase capacity of the existing Line 1 cast cooling process, identified as P03, from 18 tons of iron per hour to 25 tons of iron per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C03A-L, that exhausts to Stack S01, or by one (1) baghouse system, identified as C04, that exhausts to Stack S04;

(3) Increase throughput capacity of the existing Line 1 pick & sort process, identified as P04, from 18 tons of iron per hour to 25 tons of iron per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C03A-L, that exhausts to Stack S01;

(4) Increase throughput capacity of the existing Line 1 cleaning & grinding process, identified as P05, from 18 tons of iron per hour to 25 tons of iron per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C07A-I, that exhausts to Stack S07; and

(5) One (1) additional baghouse system to handle the increased production capacity from processes P01 to P04.

Plant 5 Phase II Operations:

(1) Line 5 shakeout process, identified as P61, with a maximum throughout capacity of 25 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15, that exhausts S15 or by one (1) baghouse system, identified as C16, that exhausts to Stack S16;

(2) Line 5 cast cooling process, identified as P62, with a maximum capacity of 25 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15;

(3) Line 5 pick and sort process, identified as P63, with a maximum throughput capacity of 25 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(4) Line 5 cleaning and grinding system, identified as P64, with a maximum throughput capacity of 25 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(5) Line 6 shakeout process, identified as P66, with a maximum throughput capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15, that exhausts S15 or by one (1) baghouse system, identified as C16, that exhausts to Stack S16;

Plant 5 Phase II Operations (Con't):

(6) Line 6 cast cooling process, identified as P67, with a maximum capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15, that exhausts S15 or by one (1) baghouse system, identified as C16, that exhausts to Stack S16;

(7) Line 6 pick and sort process, identified as P68, with a maximum throughput capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(8) Line 6 cleaning and grinding system, identified as P69, with a maximum throughput capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15. The gases are then exhausted to Stack S15;

(9) Line 7 shakeout process, identified as P71, with a maximum production capacity of 30 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15, that exhausts S15 or by one (1) baghouse system, identified as C16, that exhausts to Stack S16;

(10) Line 7 cast cooling process, identified as P72, with a maximum production capacity of 30 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C15, that exhausts S15 or by one (1) baghouse system, identified as C16, that exhausts to Stack S16;

(11) Line 7 pick and sort process, identified as P73, with a maximum throughput capacity of 30 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(12) Line 7 cleaning and grinding system, identified as P74, with a maximum throughput capacity of 30 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(13) Line 8 shakeout process, identified as P76, with a maximum throughput capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(14) Line 8 cast cooling process, identified as P77, with a maximum capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16;

(15) Line 8 pick and sort process, identified as P78, with a maximum throughput capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16; and

(16) Line 8 cleaning and grinding system, identified as P79, with a maximum throughput capacity of 18 tons per hour. Particulate matter emissions are controlled by one (1) baghouse system, identified as C16. The gases are then exhausted to Stack S16.

Emission Limitations and Standards:

D.5.1 Particulate Matter Emissions Limitations

(a) Pursuant to 326 IAC 2-2-3(a)(3) (Prevention of Significant Deterioration (PSD) Rules), the particulate matter emissions from the following cleaning and finishing processes shall be limited as follows:

Process	Process ID	Stack ID	Emission Limitation
Phase I Line 1 Shakeout Increase	P02	S01	0.005 gr/dscf
Line 1 Cast Cooling Increase	P03	S01/S04	0.005 gr/dscf
Line 1 Pick and Sort Increase	P04	S01	0.005 gr/dscf
Line 1 Cleaning/Grinding Increase	P05	S07	0.005 gr/dscf
Line 5 Shakeout	P61	S15/S16	0.005 gr/dscf
Line 5 Cast Cooling	P62	S15	0.005 gr/dscf
Line 5 Pick and Sort	P63	S16	0.005 gr/dscf
Line 5 Cleaning/ Grinding	P64	S16	0.005 gr/dscf
Line 6 Shakeout	P66	S15/S16	0.005 gr/dscf
Line 6 Cast Cooling	P67	S15/S16	0.005 gr/dscf
Line 6 Pick and Sort	P68	S16	0.005 gr/dscf
Line 6 Cleaning/ Grinding	P69	S16	0.005 gr/dscf
Line 7 Shakeout	P71	S15/S16	0.005 gr/dscf
Line 7 Cast Cooling	P72	S15/S16	0.005 gr/dscf
Line 7 Pick and Sort	P73	S16	0.005 gr/dscf
Line 7 Cleaning/ Grinding	P74	S16	0.005 gr/dscf
Line 8 Shakeout	P76	S16	0.005 gr/dscf
Line 8 Cast Cooling	P77	S16	0.005 gr/dscf
Line 8 Pick and Sort	P78	S16	0.005 gr/dscf
Line 8 Cleaning/ Grinding	P79	S16	0.005 gr/dscf

These particulate matter emission limitations satisfy the requirements of 326 IAC 6-3-2 (Particulate Emission Limitations for Process Operations).

D.5.2 Lead Emissions Limitations

Pursuant to 326 IAC 2-2-3(a)(3) (Prevention of Significant Deterioration (PSD) Rules), the lead (Pb) emissions from the following cleaning and finishing processes shall be limited as follows:

Process	Process ID	Stack ID	Emission Limitation lb/hr
Line 1 Cleaning/Grinding	P05	S07	0.0019
Line 5 Shakeout	P61	S15 S16	0.00035 0.00035
Line 5 Cast Cooling	P62	S15	0.0009
Line 5 Pick and Sort	P63	S16	0.0001
Line 5 Cleaning/Grinding	P64	S16	0.0003
Line 6 Shakeout	P66	S15 S16	0.00031 0.00019
Line 6 Cast Cooling	P67	S15 S16	0.00026 0.00064
Line 6 Pick and Sort	P68	S16	0.0001
Line 6 Cleaning/Grinding	P69	S16	0.0002
Line 7 Shakeout	P71	S15 S16	0.00035 0.00035
Line 7 Cast Cooling	P72	S15 S16	0.00058 0.00032
Line 7 Pick and Sort	P73	S16	0.0001
Line 7 Cleaning/Grinding	P74	S16	0.0002
Line 8 Shakeout	P76	S16	0.0005
Line 8 Cast Cooling	P77	S16	0.0007
Line 8 Pick and Sort	P78	S16	0.0003
Line 8 Cleaning/Grinding	P79	S16	0.0004

D.5.3 Beryllium Emissions Limitations

Pursuant to 326 IAC 2-2-3(a)(3) (Prevention of Significant Deterioration (PSD) Rules), the beryllium (Be) emissions from the following cleaning and finishing processes shall be limited as follows:

Process	Process ID	Stack ID	Emission Limitation lb/hr
Line 5 Shakeout	P61	S15 S16	0.000014 0.000014
Line 5 Cast Cooling	P62	S15	0.000003
Line 5 Pick and Sort	P63	S16	0.0000005
Line 5 Cleaning/ Grinding	P64	S16	0.000001
Line 6 Shakeout	P66	S15 S16	0.000014 0.000008
Line 6 Cast Cooling	P67	S15 S16	0.0000008 0.0000022
Line 6 Pick and Sort	P68	S16	0.0000005
Line 6 Cleaning/ Grinding	P69	S16	0.000001
Line 7 Shakeout	P71	S15 S16	0.000014 0.000014
Line 7 Cast Cooling	P72	S15 S16	0.0000019 0.0000011
Line 7 Pick and Sort	P73	S16	0.0000005
Line 7 Cleaning/ Grinding	P74	S16	0.000001
Line 8 Shakeout	P76	S16	0.000001
Line 8 Cast Cooling	P77	S16	0.000022
Line 8 Pick and Sort	P78	S16	0.000003
Line 8 Cleaning/ Grinding	P79	S16	0.000002

D.5.4 Volatile Organic Compound Emissions Limitations

Pursuant to 326 IAC 2-2-3(a)(3) (Prevention of Significant Deterioration (PSD) Rules), the volatile organic compound (VOC) emissions from the following processes shall be limited as follows:

Process	Process ID	Stack ID	Emission Limitation
Line 1 Shakeout	P02	S01	0.90 lb/hr
Line 5 Shakeout	P61	S15 S16	1.25 lb/hr 1.25 lb/hr
Line 6 Shakeout	P66	S15 S16	1.13 lb/hr 0.675 lb/hr
Line 7 Shakeout	P71	S15 S16	1.5 lb/hr 1.5 lb/hr
Line 8 Shakeout	P76	S16	1.8 lb/hr

D.5.5 Carbon Monoxide Emission Limitations

Pursuant to 326 IAC 2-2-3(a)(3), the carbon monoxide (CO) emissions from the following processes shall be limited as follows:

Process	Process ID	Stack ID	Emission Limitation
Phase I Line 1 Shakeout Increase	P02	S01	1.0 lb/ton iron
Line 5 Shakeout	P61	S15/S16	1.0 lb/ton iron
Line 6 Shakeout	P66	S15/S16	1.0 lb/ton iron
Line 7 Shakeout	P71	S15/S16	1.0 lb/ton iron
Line 8 Shakeout	P76	S16	1.0 lb/ton iron

Compliance Determination and Monitoring:

D.5.6 Baghouse Operating Condition

Each baghouse system shall be operated at all times when its associated process is in operation.

(a) The Permittee shall take readings of the total static pressure drop across each baghouse system, at least once per day. The pressure drop across each baghouse system shall be maintained within a pressure drop range of 3.0 and 10.0 inches of water as determined from the manufacturer specifications. The pressure drop range may be adjusted to incorporate the pressure drop determined by a compliant stack test. If the water pressure falls outside of the determined range, corrective action shall be taken in accordance with the Permittee's Preventive Maintenance Plan. The company shall document the cause of the out-of-range

reading and take immediate action to correct any problem. Failure or partial failure of the control device shall be reported to IDEM, OAM according to the procedure specified for malfunctions in 326 IAC 1-6-2, in which case the provisions of 326 IAC 1-6-5 may apply at the discretion of IDEM, OAM.

(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 baghouse system 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 percent of full scale reading. The instrument shall be quality assured and maintained as specified by the vendor.

(d) An inspection of the baghouse system shall be performed during each major plant outage or at a minimum of two (2) times per year. 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:

(1) The affected compartments will be shut down immediately until the failed units have been replaced.

(2) 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.

D.5.7 Visible Emission Notations

Visible emission notations of the particulate matter exhausted to the atmosphere from Stacks S01, S04, S07, S08, S15, and S16 shall be performed once per working shift (during daylight hours). A trained employee will record whether emissions are normal or abnormal.

(a) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, 80% of the time the process is in operation, not counting start up or shut down time.

(b) In the case of batch or discontinuous operation, readings shall be taken during that part of the operation specified in the facility's specific condition prescribing visible emissions.

(c) 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 and abnormal visible emissions for that specific process.

(d) The Preventive Maintenance Plan for this facility shall contain troubleshooting contingency and corrective actions for when an abnormal emission is observed.

Recordkeeping and Reporting Requirements:

D.5.8 Recordkeeping Requirement

(a) The Permittee shall maintain daily logs of the parameters established in Operation Condition D.5.6(a), semi-annual logs of the parameters established in Operation Condition D.5.6(b) and quarterly logs of the parameters established in Operation Condition D.5.6(d) to

document compliance with Operation Conditions D.5.1, D.5.2, and D.5.3. These records shall be shall be maintained for a minimum of 36 months at the source location and shall be available within one (1) hour upon verbal request of an IDEM representative.

(b) Records of required monitoring information shall include, where applicable:

(1) the date, place, and time of sampling or measurements;

(2) the dates analyses were performed;

(3) the company or entity performing the analyses;

(4) the analytic techniques or methods used;

(5) the results of such analyses; and

(6) the operating conditions existing at the time of sampling or measurement.

(c) Support information shall include, where applicable:

(1) copies of all reports required by this permit;

(2) all original strip chart recordings for continuous monitoring instrumentation;

(3) all calibration and maintenance records; and

(4) records of any required preventive maintenance and corrective actions that were implemented. Such records shall briefly describe what was done and indicate who did it. Such records may include, but are not limited to work orders, quality assurance procedures, quality control procedures, operator's standard operating procedures, manufacturer's specifications or their equivalent, and equipment "troubleshooting" guidance.

SECTION D.6 FACILITY OPERATION CONDITIONS COMBUSTION FACILITIES

Plant 5 Phase II Operations:

(1) One (1) natural gas fired boiler, identified as P53B, with a maximum heat input rate of 11.5 MMBtu per hour exhausting to Stack S13; and

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

Emission Limitations and Standards:

D.6.1 Particulate Matter Emissions Limitations

(a) Pursuant to 326 IAC 2-2-3(a)(3) (Prevention of Significant Deterioration (PSD) Rules), the particulate matter emissions from the 11.5 MMBtu per hour boiler, identified as P53B, shall be limited by the use of natural gas. This satisfies the requirements of 326 IAC 12 (New Source Performance Standards).

(b) Pursuant to 326 IAC 6-2-4 (Particulate Emission Limitations for Sources of Indirect Heating) and shall be limited to 0.41 pounds of particulate matter per MMBTU heat input. to 0.58 pounds PM per million BTU heat input.

D.6.2 Operation Standards

Pursuant to 326 IAC 2-2-3(a)(3), the combustion facilities shall comply with the following limitations to demonstrate compliance with Operation Condition D.6.1:

(b) all combustion sources shall utilize natural gas as the only source of fuel;

(1) the natural gas fired boiler, identified as P53B, shall be limited to a maximum heat input rate of 11.5 MMBtu per hour;

(2) the natural gas fired air make-up units, identified as P54, shall be equipped with low-NOx burners; and

(3) the natural gas fired air make-up units, identified as P54, shall be limited to a maximum heat input rate of 80 MMBtu per hour.

Recordkeeping and Reporting Requirements:

D.6.3 Recordkeeping Requirement

(a) The Permittee shall maintain records of the equipment installed and the type of fuel used to document compliance with Operation Conditions D.6.1 and D.6.2.

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 REVERSE SIDE ? Y N

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

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

DATE/TIME MALFUNCTION STARTED: _____/_____/ 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:_____

REV 3/96 FAX NUMBER - 317 233-5967 *SEE REVERSE

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

Source Background and Description

Source Name:	Waupaca Foundry, Inc. - Plant 5
Source Location:	9856 State Highway 66, Tell City, Indiana 47586
County:	Perry
Construction Permit No.:	CP-123-8451-00019
SIC Code:	3321
Permit Reviewer:	Michele M. Williams

The Office of Air Management (OAM) has reviewed an application from Waupaca Foundry, Inc. - Plant 5, that relates to the expansion of the existing Phase I operations and to the proposed Phase II project involving the construction and operation of a ductile iron cupola, a coremaking facility, four production lines, sand handling lines and ancillary operations. The particulate matter emissions from all of the operations shall be controlled by the use of high efficiency fabric filters. The sulfur dioxide emissions from the cupola operations shall be controlled by a lime injection system. The VOC and CO emissions from the cupola shall be controlled by a recuperative incinerator. Nitrogen oxide emissions from the combustion facilities shall be controlled by the use of low-NOx burners. The triethylamine (TEA) emissions, a hazardous air pollutant (HAP), and the VOC emissions from the coremaking operation shall be controlled by a packed bed scrubber. A detailed description of the equipment is stated in Section A.2 of the proposed Construction Permit, CP-123-8451.

Stack Summary

The stack summaries associated with the foundry operations are provided in Appendix A. The information included in the summary table includes stack height, stack diameter, flow rate and outlet temperature. These details are used in the air quality modeling analysis.

Recommendation

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

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

An application for the purposes of this review was received on June 10, 1997, with additional information received on numerous dates between August 18, 1997 and December 12, 1997.

Emissions Calculations

The emissions calculations are provided in Appendix B.

Total Potential and Allowable Emissions

The following table represents the Indiana Permit Allowable Emissions Definition. These emissions are determined after compliance with applicable rules (326 IAC 2-2 and 326 IAC 6-3), based on 8,760 hours of operation per year at rated capacity.

Pollutant	Allowable Emissions (tons/year)	Potential Emissions (tons/year)
Particulate Matter (PM)	262	25,835
Particulate Matter (PM10)	262	25,835
Sulfur Dioxide (SO_2)	114	333
Volatile Organic Compounds (VOC)	352	659
Carbon Monoxide (CO)	2824	66,159
Nitrogen Oxides (NO_x)	219	220
Lead (Pb)	1.38	106
Beryllium (Be)	0.0057	0.137
Single Hazardous Air Pollutant (HAP)	38.2	302
Combination of HAPs	55.6	382

(a) Allowable emissions are determined from the applicability of rule 326 IAC 2-2, which are calculated in the Emissions Calculations included in Appendix B.

(b) The allowable emissions based on the rules cited are less than the potential emissions, therefore, the allowable emissions are used for the permitting determination.

(c) Allowable emissions (as defined in the Indiana Rule) of at least one criteria pollutant 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

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

(b) Perry County has been classified as attainment or unclassifiable for all 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

The following emissions summary table represents the existing source PSD definition. These emissions are based on emissions after controls, based on 8,760 hours of operation per year at rated

capacity.

Pollutant	Emissions (ton/yr)
PM	221
PM10	221
SO_2	94
VOC	235
CO	2045
NO_x	74
Pb	0.64
Be	0.0024
HAPs	265

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

Proposed Modification

PTE from the proposed modification (based on 8,760 hours of operation per year at rated capacity including enforceable emission control and production limit, where applicable):

Pollutant	PM/PM10 (ton/yr)	SO_2 (ton/yr)	VOC (ton/yr)	CO (ton/yr)	NO_x (ton/yr)	Pb (ton/yr)	Be (ton/yr)
Proposed Modification	262	114	352	2824	219	1.38	0.0057
PSD Significant Level	25/15	40	40	100	40	0.6	0.0004

This existing major source is subject to the requirements of 326 IAC 2-2 and 40 CFR 52.21 for PM, PM_{10}, SO_2, VOC, CO, NO_x, Pb, and Be because these pollutants exceed the PSD significant level.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This existing source submitted its Part 70 permit application (T-123-9234-00019) on November 20, 1997. The equipment being reviewed under this proposed permit shall be incorporated in the submitted Part 70 permit application.

Federal Rule Applicability

40 CFR 63 (National Emissions Standards for Hazardous Air Pollutants)

There are presently no National Emissions Standards for Hazardous Air Pollutant (NESHAP) regulations for Grey/Ductile Iron Foundries. However, pursuant to State rule 326 IAC 2-1-3.4, any new or reconstructed major source of hazardous air pollutants (HAPs) for which there is no applicable NESHAP shall be required to make the maximum achievable control technology (MACT) determination on a case-by-case basis.

40 CFR 60 (New Source Performance Standards)

There are presently no New Source Performance Standard (NSPS) regulations for Grey/Ductile Iron Foundries.

State Rule Applicability

326 IAC 2-1-3.4 (New Source Toxics Control)

This proposed project is potentially subject to the New Source Toxics Control rule which requires a constructed or reconstructed major source of HAPs to control emissions consistent with MACT. Because there is no established NESHAP for grey/ductile iron foundries, this source shall be required to make the MACT determination on a case-by-case basis. The requirements of this rule are consistent with the final federal rule implementing Section 112(g)(2)(B) of the Clean Air Act.

The proposed project encompasses two types of construction including Phase I Modifications and Phase II Construction. The Phase I modifications involve the increased capacity of the existing sand handling system, the increased production capacity of the existing melting and casting operations, and the increased throughput capacity of the existing cleaning and finishing operations. These modifications are not significant enough to be considered a reconstruction project, which is defined in 40 CFR 63.41 as a change to the existing process or production unit that in and of itself emits or has the potential to emit 10 tons per year of any HAP or 25 tons per year of any combination of HAP. Therefore, the New Source Toxics Control rule does not apply to the Phase I modifications.

The Phase II operations involve the construction of new processes and production units at a developed site. Some of these new processes and production units in and of itself emits or has the potential to emit 10 tons per year of any HAP or 25 tons per year of any combination of HAP. Therefore, the New Source Toxics Control rule does apply to the Phase II operations. The MACT determinations for the Phase II operations have been incorporated into the *BACT Analysis Report* which is included in Appendix D.

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

This proposed modification is subject to the Prevention of Deterioration (PSD) rules for PM, PM_{10}, SO_2, VOC, CO, NO_x, Pb, and Be because the emissions from these pollutants are above the PSD significant threshold levels reported in 326 IAC 2-2-1. Therefore, the PSD provisions require that this major modification be reviewed to ensure compliance with the National Ambient Air Quality Standards, the applicable PSD air quality increments, and the requirements to apply the best available control technology on the project's emissions.

The *Air Quality Analysis* report included in Appendix C was conducted to show that this major modification does not violate the National Ambient Air Quality Standards (NAAQS) and does not exceed the incremental consumption above 80 percent of the PSD increment for any pollutant. The pre-construction monitoring analysis showed that the SO2 concentration exceeded the pre-construction monitoring de-minimis levels specified in 326 IAC 2-2-4(b)(3) and the PM10 concentration was close to exceeding the pre-construction monitoring de-minimis levels. Therefore, pursuant to 326 IAC 2-2-4(c)(6), the IDEM shall require Waupaca to conduct post-ambient monitoring for PM10 and SO2 for a minimum period of three (3) years to determine the effect of said emissions which the source modification may have on air quality in the area.

The best available control technologies (BACT) for the facilities covered in this major modification are determined on a case-by-case basis by reviewing similar process controls and new available technologies. In addition, the cost per ton of pollutant removed, energy requirements, and

environmental impacts are weighed in IDEM's final decision. Control technology summaries of the facilities covered in this major modification are discussed in the *BACT Analysis Report* included in Appendix D.

326 IAC 3-1.1 (Monitoring Requirements)

Pursuant to 326 IAC 3-1.1-1(a)(5), the commissioner may determine that a continuous monitoring system is necessary to determine continuous compliance for any facility required to obtain a construction permit pursuant to 326 IAC 2-2 (PSD Rules). Based on the IDEM review of the *Air Quality Analysis* report, it has been determined that a continuous opacity monitor (COM) and a continuous emissions monitor (CEM) for SO2 shall be required for the new cupola, identified as P33.

326 IAC 5-1 (Opacity Limitations)

The source is subject to the visible emissions limitations required by 326 IAC 5-1-2(1). According to this rule, visible emissions shall not exceed an average of 40 percent opacity in any 24 consecutive reading and 60 percent opacity for more than a cumulative total of 15 minutes in any 6 hour period.

326 IAC 6-3-2 (Particulate Matter Emissions Limitations from Process Operations)

This rule establishes emission limitations for particulate emissions from process operations. The process operations from this modification are subject to the requirements of 326 IAC 6-3-2. The process operations are in compliance with this rule because the potential controlled PM emissions are less than the calculated allowable PM emissions. The emission calculations for these process operations are shown in Appendix B.

326 IAC 7-1.1-2 (Sulfur Dioxide Limitations)

All facilities with a potential to emit 25 tons per year or 10 pounds per hour of SO2 shall comply with the limitations required by 326 IAC 7-1.1-2 and the compliance test methods in 326 IAC 7-2. The SO2 emissions limitations required by 326 IAC 7-1.1-2 and compliance methods required by 326 IAC 7-2 are for specific fuel combustion facilities that use coal, residual oil, or distillate oil, which are not applicable to the facilities associated with this modification. The SO2 emissions from the facilities associated with this modification shall therefore be limited pursuant to 326 IAC 2-2.

326 IAC 8-1-6 (VOC Rules)

The facilities associated with the proposed modification which have potential emissions of 25 tons per year or more shall reduce emissions using BACT. The VOC emissions are also limited by the BACT requirements of 326 IAC 2-2. Control technology summaries of the facilities generating VOC emissions from this major modification are discussed in the *BACT Analysis Report* included in Appendix D.

326 IAC 9-1-2 (CO Emission Limits)

According to this rule, no person shall cause or allow the discharge of CO from any grey iron cupola having the capacity of ten (10) tons per hour or more process weigh, unless the waste gas stream is burned in a direct-flame after burner or boiler or is controlled by other means approved by the commissioner. The new cupola, identified as P33, shall burn the waste gas stream in a recuperative incinerator that will control both CO and VOC emissions.

326 IAC 11-1 (Emission Limitations for Foundries)

Pursuant to this rule, particulate emissions from all foundries beginning operation after December 6, 1968, shall comply with 326 IAC 6-3. This rule, 326 IAC 6-3, establishes emission limitations for

particulate emissions from process operations. The compliance determination calculations are included in Appendix B.

Air Toxic Emissions

Indiana presently requests applicants to provide information on emissions of the 187 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 OAM Construction Permit Application Form Y.

(a) This proposed modification will emit levels of air toxics greater than those that constitute major source applicability according to Section 112 of the Clean Air Act. The concentrations of these air toxics were compared to the Permissible Exposure Limits (PEL) developed by the Occupational Safety and Health Administration (OSHA). The OAM has authority to control air toxic information under 326 IAC 2-1-3.4 as addressed under the *State Rule Applicability* section.

(b) The detailed air toxic calculations are included in Appendix B.

Conclusion

The modification to the existing Phase I foundry operations and the construction and operation of the proposed Phase II project involving a ductile iron cupola, a coremaking facility, four production lines, sand handling lines and associated equipment will be subject to the conditions of the attached proposed **Construction Permit No. CP-123-8451-00019.**

Date: Revised December 9, 1997

References:

A - USEPA, Compilation of Air Pollutant Emission Factors, Volume 1, 5th Edition, Jan 1995 a
B - USEPA, AIRS Facility Subsystem Source Classification..., March 1990.
C - Emission factor developed from Waupaca Foundry stack tests or material mass balance.
D - Speciation developed from analysis of dust collected by control device or analysis of stac

Assumptions:

Actual/Allowable PM emissions are based on air flow rate from each process and assumed o
As footnoted, some processes exhaust to two stacks. The stack summary of emissions split
based on air flow rate to each stack.
As footnoted, some processes recirculate their air flow through another process, not directly t
Trace inorganic emissions including lead and beryllium are based on contaminant concentrat
Total emissions for Stacks S15 or S16 do not include P54 air make-up units; stack limitations
Pouring/mold cooling emission factors for SO2, NOx, CO and VOC have been revised based

Stack	S08	Thruput (TPH)	Flow (acfm)
Baghouse	C08	20	5000
Process	P42		Temp. (F)
Descrip.	Phenolic-Urethane	Core Sand Handling	80

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	B (#/ton sand)	0.65	0.21	0.94
SO2				
VOC				
CO				
NOx				
Lead				
Arsenic				
Beryllium				
Cadmium				
Nickel				
Antimony				
Cobalt				
Cr+3				
Copper				
Manganese				
Selenium				
Benzene				
Formald.				
Acrolein				
Phenol				

Note: Stack is shared with existing P40 - Phase I warmbox core room sand handling.

Stack	S09	Iron (TPH)	Flow (acfm)	Stack
Baghouse	C09,C11,C12	80	110000	MTE
Process	P33	Coke (TPH)	Temp. (F)	Outlet
Descrip.	Cupola	8	320	Eff. (%)

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/ton Fe)	13.8	6.24	27.33
SO2	A (#/ton Fe)	0.72	17.60	77.09
VOC	C (#/ton Fe)	0.18	1.60	7.01
CO	C (#/ton Fe)	145	32.00	140.16
NOx	D (#/ton Fe)	0.44	35.20	154.18
Lead	D (ppm PM)	16990	0.1060	0.4644
Arsenic	D (ppm PM)	13.5	0.0001	0.0004
Beryllium	D (ppm PM)	2.3	0.00001	0.00006
Cadmium	D (ppm PM)	56	0.0003	0.0015
Nickel	D (ppm PM)	1400	0.0087	0.0383
Antimony	D (ppm PM)	115	0.0007	0.0031
Cobalt	D (ppm PM)	30	0.0002	0.0008
Cr+3	D (ppm PM)	320	0.0020	0.0087
Copper	D (ppm PM)	90	0.0006	0.0025
Manganese	D (ppm PM)	40340	0.2517	1.1025
Selenium	D (ppm PM)	10	0.0001	0.0003
Benzene	C (#/ton Fe)	0.0006	0.0480	0.2102
Formald.	C (#/ton Fe)	0.0012	0.0960	0.4205
Acrolein				
Phenol				

Allowable emissions based on Phase I cupola permit limitations increased to account for cap
Note: Stack is shared with existing P30 - Phase I cupola.

Stack	S13	Thruput (cf6/hr)	Flow (acfm)
Baghouse	None	0.0115	Fugitive
Process	P53B		Temp. (F)
Descrip.	Ladle Preheating		Ambient

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/cf6)	14	0.16	0.71
SO2	A (#/cf6)	0.6	0.01	0.03
VOC	A (#/cf6)	5.8	0.07	0.29
CO	A (#/cf6)	35	0.40	1.76
NOx	A (#/cf6)	140	1.61	7.05
Lead				
Arsenic				
Beryllium				
Cadmium				
Nickel				
Antimony				
Cobalt				
Cr+3				
Copper				
Manganese				
Selenium				
Benzene				
Formald.				
Acrolein				
Phenol				

Stack	S14	Thruput	20	Flow (acfm)
Scrubber	C14			26000
Process	P43			Temp. (F)
Descrip.	New Phenolic Urethane Core Making			68

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
VOC (Total)	See Below	3.45	12.63	55.30
VOC (Stack)	(#/ton core)	2.85	0.57	2.50
VOC (Fugitive)	(#/ton core)	0.60	12.06	52.81
TEA	(#/ton core)	3.0	3.57	15.64
Phenol	(#/ton core)	0.0272	0.54	2.38
Xylene	(#/ton core)	0.0763	1.53	6.68
Cumene	(#/ton core)	0.0272	0.54	2.38
Trimethylbenzn.	(#/ton core)	0.2949	5.90	25.83
Napthalene	(#/ton core)	0.0272	0.54	2.38
Federal HAP			6.73	29.47

Stack	S15	Thruput (TPH)	Flow (acfm)
Baghouse	C15	60	50000
Process	P35		Temp. (F)
Descrip.	Ductile Iron Treatment		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY	
PM	A (#/ton Fe)	1.6	2.14	9.39	
SO2					
VOC					
CO					
NOx					
Lead					P35 HAPs includ
Arsenic					These are not re
Beryllium					
Cadmium					
Nickel					
Antimony					
Cobalt					
Cr+3					
Copper					
Manganese					
Selenium					
Benzene					
Formald.					
Acrolein					
Phenol					

Stack	S15	Thruput (cf6/hr)	Flow (acfm)
Baghouse	C15	0.08	Fugitive
Process	P54		Temp. (F)
Descrip.	Air Make-Up Units		Ambient

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/cf6)	14	1.12	4.91
SO2	A (#/cf6)	0.6	0.05	0.21
VOC	A (#/cf6)	5.8	0.46	2.03
CO	C (#/cf6)	55	4.40	19.27
NOx	C (#/cf6)	45.5	3.64	15.94
Lead				
Arsenic	CO and NOx emission factors based on compliance with ANSI standarc			
Beryllium	Assumed air flow from make-up unit is 52,000 scfm using 4.1 MMBTU/			
Cadmium				
Nickel				
Antimony	Derivation of CO and NOx emission factors (EF) based on America			
Cobalt		Flow Rate		Pollutant
Cr+3		scfm	x min/hr	x ppm
Copper	CO	52000	60	1
Manganese	NOx	52000	60	0.5
Selenium				
Benzene	CO based on anticipated emissions of 1 ppm rather than 5 ppm ANSI s			
Formald.				
Acrolein				
Phenol				

Stack	S15	Thruput (TPH)	Flow (acfm)
Baghouse	C15	25	101000
Process	P60		Temp. (F)
Descrip.	Line 5 Pouring/Mold Cooling		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/ton Fe)	4.2	4.33	18.96
SO2	C (#/ton Fe)	0.04	1.00	4.38
VOC	C (#/ton Fe)	0.5	12.50	54.75
CO	C (#/ton Fe)	5	125.00	547.50
NOx	B (#/ton Fe)	0.01	0.25	1.09
Lead	D (ppm PM)	313	0.0014	0.0059
Arsenic	D (ppm PM)	14	0.0001	0.0003
Beryllium	D (ppm PM)	13	0.0001	0.0002
Cadmium	D (ppm PM)	7	0.0000	0.0001
Nickel	D (ppm PM)	145	0.0006	0.0027
Antimony	D (ppm PM)	665	0.0029	0.0126
Cobalt	D (ppm PM)	30	0.0001	0.0006
Cr+3	D (ppm PM)	190	0.0008	0.0036
Copper	D (ppm PM)	204	0.0009	0.0039
Manganese	D (ppm PM)	344	0.0015	0.0065
Selenium	D (ppm PM)	10	0.0000	0.0002
Benzene	C (#/ton Fe)	0.08	2.0000	8.7600
Formald.	C (#/ton Fe)	0.0011	0.0275	0.1205
Acrolein	C (#/ton Fe)	0.0017	0.0425	0.1861
Phenol	C (#/ton Fe)	0.0008	0.0200	0.0876

Stack	S15	Thruput (TPH)	Flow (acfm)
Baghouse	C15	25	50000
Process	P61		Temp. (F)
Descrip.	Line 5 Shakeout		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/ton Fe)	3.2	2.14	9.39
SO2				
VOC	C (#/ton Fe)	0.1	2.50	10.95
CO	C (#/ton Fe)	1	25.00	109.50
NOx				
Lead	D (ppm PM)	313	0.0007	0.0029
Arsenic	D (ppm PM)	14	0.0000	0.0001
Beryllium	D (ppm PM)	13	0.0000	0.0001
Cadmium	D (ppm PM)	7	0.0000	0.0001
Nickel	D (ppm PM)	145	0.0003	0.0014
Antimony	D (ppm PM)	665	0.0014	0.0062
Cobalt	D (ppm PM)	30	0.0001	0.0003
Cr+3	D (ppm PM)	190	0.0004	0.0018
Copper	D (ppm PM)	204	0.0004	0.0019
Manganese	D (ppm PM)	344	0.0007	0.0032
Selenium	D (ppm PM)	10	0.0000	0.0001
Benzene	C (#/ton Fe)	0.0067	0.1675	0.7337
Formald.	C (#/ton Fe)	0.0037	0.0925	0.4052
Acrolein	C (#/ton Fe)	0.0057	0.1425	0.6242
Phenol	C (#/ton Fe)	0.0145	0.3625	1.5878

Note: 25,000 acfm of flow to S16. Flow rate used to split process be

Stack	S15	Thruput (TPH)	Flow (acfm)
Baghouse	C15	25	70000
Process	P62		Temp. (F)
Descrip.	Line 5 Cast Cooling		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/ton Fe)	1.4	3.00	13.14
SO2				
VOC				
CO				
NOx				
Lead	D (ppm PM)	313	0.0009	0.0041
Arsenic	D (ppm PM)	14	0.0000	0.0002
Beryllium	D (ppm PM)	1.1	0.0000	0.0000
Cadmium	D (ppm PM)	1.8	0.0000	0.0000
Nickel	D (ppm PM)	145	0.0004	0.0019
Antimony	D (ppm PM)	70	0.0002	0.0009
Cobalt	D (ppm PM)	30	0.0001	0.0004
Cr+3	D (ppm PM)	190	0.0006	0.0025
Copper	D (ppm PM)	204	0.0006	0.0027
Manganese	D (ppm PM)	4613	0.0138	0.0606
Selenium	D (ppm PM)	10	0.0000	0.0001
Benzene				
Formald.				
Acrolein				
Phenol				

Note: The exhaust flow rate is directed through P82-Sand blending and cooling and S15, but

Stack	S15	Thruput (TPH)	Flow (acfm)
Baghouse	C15	18	40000
Process	P65		Temp. (F)
Descrip.	Line 6 Pouring/Mold Cooling		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/ton Fe)	4.2	1.71	7.51
SO2	C (#/ton Fe)	0.04	0.72	3.15
VOC	C (#/ton Fe)	0.5	9.00	39.42
CO	C (#/ton Fe)	5	90.00	394.20
NOx	B (#/ton Fe)	0.01	0.18	0.79
Lead	D (ppm PM)	313	0.0005	0.0024
Arsenic	D (ppm PM)	14	0.0000	0.0001
Beryllium	D (ppm PM)	13	0.0000	0.0001
Cadmium	D (ppm PM)	7	0.0000	0.0001
Nickel	D (ppm PM)	145	0.0002	0.0011
Antimony	D (ppm PM)	665	0.0011	0.0050
Cobalt	D (ppm PM)	30	0.0001	0.0002
Cr+3	D (ppm PM)	190	0.0003	0.0014
Copper	D (ppm PM)	204	0.0003	0.0015
Manganese	D (ppm PM)	344	0.0006	0.0026
Selenium	D (ppm PM)	10	0.0000	0.0001
Benzene	C (#/ton Fe)	0.08	1.4400	6.3072
Formald.	C (#/ton Fe)	0.0011	0.0198	0.0867
Acrolein	C (#/ton Fe)	0.0017	0.0306	0.1340
Phenol	C (#/ton Fe)	0.0008	0.0144	0.0631

Stack	S15	Thruput (TPH)	Flow (acfm)
Baghouse	C15	18	40000
Process	P66		Temp. (F)
Descrip.	Line 6 Shakeout		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/ton Fe)	3.2	1.71	7.51
SO2				
VOC	C (#/ton Fe)	0.1	1.80	7.88
CO	C (#/ton Fe)	1	18.00	78.84
NOx				
Lead	D (ppm PM)	313	0.0005	0.0024
Arsenic	D (ppm PM)	14	0.0000	0.0001
Beryllium	D (ppm PM)	13	0.0000	0.0001
Cadmium	D (ppm PM)	7	0.0000	0.0001
Nickel	D (ppm PM)	145	0.0002	0.0011
Antimony	D (ppm PM)	665	0.0011	0.0050
Cobalt	D (ppm PM)	30	0.0001	0.0002
Cr+3	D (ppm PM)	190	0.0003	0.0014
Copper	D (ppm PM)	204	0.0003	0.0015
Manganese	D (ppm PM)	344	0.0006	0.0026
Selenium	D (ppm PM)	10	0.0000	0.0001
Benzene	C (#/ton Fe)	0.0067	0.1206	0.5282
Formald.	C (#/ton Fe)	0.0037	0.0666	0.2917
Acrolein	C (#/ton Fe)	0.0057	0.1026	0.4494
Phenol	C (#/ton Fe)	0.0145	0.2610	1.1432

Note: 15,000 acfm from this process exhausts through S16. Flow rate used to

Stack	S15	Thruput (TPH)	Flow (acfm)
Baghouse	C15	18	70000
Process	P67		Temp. (F)
Descrip.	Line 6 Cast Cooling		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/ton Fe)	1.4	3.00	13.14
SO2				
VOC				
CO				
NOx				
Lead	D (ppm PM)	313	0.0009	0.0041
Arsenic	D (ppm PM)	14	0.0000	0.0002
Beryllium	D (ppm PM)	1.1	0.0000	0.0000
Cadmium	D (ppm PM)	1.8	0.0000	0.0000
Nickel	D (ppm PM)	145	0.0004	0.0019
Antimony	D (ppm PM)	70	0.0002	0.0009
Cobalt	D (ppm PM)	30	0.0001	0.0004
Cr+3	D (ppm PM)	190	0.0006	0.0025
Copper	D (ppm PM)	204	0.0006	0.0027
Manganese	D (ppm PM)	4613	0.0138	0.0606
Selenium	D (ppm PM)	10	0.0000	0.0001
Benzene				
Formald.				
Acrolein				
Phenol				

Note: 50,000 acfm from this process exhausts through S16. Flow rate used to

Stack	S15	Thruput (TPH)	Flow (acfm)
Baghouse	C15	30	101000
Process	P70		Temp. (F)
Descrip.	Line 7 Pouring/Mold Cooling		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/ton Fe)	4.2	4.33	18.96
SO2	C (#/ton Fe)	0.04	1.20	5.26
VOC	C (#/ton Fe)	0.5	15.00	65.70
CO	C (#/ton Fe)	5	150.00	657.00
NOx	B (#/ton Fe)	0.01	0.30	1.31
Lead	D (ppm PM)	313	0.0014	0.0059
Arsenic	D (ppm PM)	14	0.0001	0.0003
Beryllium	D (ppm PM)	13	0.0001	0.0002
Cadmium	D (ppm PM)	7	0.0000	0.0001
Nickel	D (ppm PM)	145	0.0006	0.0027
Antimony	D (ppm PM)	665	0.0029	0.0126
Cobalt	D (ppm PM)	30	0.0001	0.0006
Cr+3	D (ppm PM)	190	0.0008	0.0036
Copper	D (ppm PM)	204	0.0009	0.0039
Manganese	D (ppm PM)	344	0.0015	0.0065
Selenium	D (ppm PM)	10	0.0000	0.0002
Benzene	C (#/ton Fe)	0.08	2.4000	10.5120
Formald.	C (#/ton Fe)	0.0011	0.0330	0.1445
Acrolein	C (#/ton Fe)	0.0017	0.0510	0.2234
Phenol	C (#/ton Fe)	0.0008	0.0240	0.1051

Stack	S15	Thruput (TPH)	Flow (acfm)
Baghouse	C15	30	50000
Process	P71		Temp. (F)
Descrip.	Line 7 Shakeout		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/ton Fe)	3.2	2.14	9.39
SO2				
VOC	C (#/ton Fe)	0.1	3.00	13.14
CO	C (#/ton Fe)	1	30.00	131.40
NOx				
Lead	D (ppm PM)	313	0.0007	0.0029
Arsenic	D (ppm PM)	14	0.0000	0.0001
Beryllium	D (ppm PM)	13	0.0000	0.0001
Cadmium	D (ppm PM)	7	0.0000	0.0001
Nickel	D (ppm PM)	145	0.0003	0.0014
Antimony	D (ppm PM)	665	0.0014	0.0062
Cobalt	D (ppm PM)	30	0.0001	0.0003
Cr+3	D (ppm PM)	190	0.0004	0.0018
Copper	D (ppm PM)	204	0.0004	0.0019
Manganese	D (ppm PM)	344	0.0007	0.0032
Selenium	D (ppm PM)	10	0.0000	0.0001
Benzene	C (#/ton Fe)	0.0067	0.2010	0.8804
Formald.	C (#/ton Fe)	0.0037	0.1110	0.4862
Acrolein	C (#/ton Fe)	0.0057	0.1710	0.7490
Phenol	C (#/ton Fe)	0.0145	0.4350	1.9053

Note: 25,000 acfm from this process exhausts through S16. Flow rate used to

Stack	S15	Thruput (TPH)	Flow (acfm)
Baghouse	C15	30	70000
Process	P72		Temp. (F)
Descrip.	Line 7 Cast Cooling		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/ton Fe)	1.4	3.00	13.14
SO2				
VOC				
CO				
NOx				
Lead	D (ppm PM)	313	0.0009	0.0041
Arsenic	D (ppm PM)	14	0.0000	0.0002
Beryllium	D (ppm PM)	1.1	0.0000	0.0000
Cadmium	D (ppm PM)	1.8	0.0000	0.0000
Nickel	D (ppm PM)	145	0.0004	0.0019
Antimony	D (ppm PM)	70	0.0002	0.0009
Cobalt	D (ppm PM)	30	0.0001	0.0004
Cr+3	D (ppm PM)	190	0.0006	0.0025
Copper	D (ppm PM)	204	0.0006	0.0027
Manganese	D (ppm PM)	4613	0.0138	0.0606
Selenium	D (ppm PM)	10	0.0000	0.0001
Benzene				
Formald.				
Acrolein				
Phenol				

Note: 25,000 acfm from this process exhausts through S16. Flow rate used to

Stack	S15	Thruput (TPH)	Flow (acfm)
Baghouse	C15	18	40000
Process	P75		Temp. (F)
Descrip.	Line 8 Pouring/Mold Cooling		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/ton Fe)	4.2	1.71	7.51
SO2	C (#/ton Fe)	0.04	0.72	3.15
VOC	C (#/ton Fe)	0.5	9.00	39.42
CO	C (#/ton Fe)	5	90.00	394.20
NOx	B (#/ton Fe)	0.01	0.18	0.79
Lead	D (ppm PM)	313	0.0005	0.0024
Arsenic	D (ppm PM)	14	0.0000	0.0001
Beryllium	D (ppm PM)	13	0.0000	0.0001
Cadmium	D (ppm PM)	7	0.0000	0.0001
Nickel	D (ppm PM)	145	0.0002	0.0011
Antimony	D (ppm PM)	665	0.0011	0.0050
Cobalt	D (ppm PM)	30	0.0001	0.0002
Cr+3	D (ppm PM)	190	0.0003	0.0014
Copper	D (ppm PM)	204	0.0003	0.0015
Manganese	D (ppm PM)	344	0.0006	0.0026
Selenium	D (ppm PM)	10	0.0000	0.0001
Benzene	C (#/ton Fe)	0.08	1.4400	6.3072
Formald.	C (#/ton Fe)	0.0011	0.0198	0.0867
Acrolein	C (#/ton Fe)	0.0017	0.0306	0.1340
Phenol	C (#/ton Fe)	0.0008	0.0144	0.0631

Stack	S15	Thruput (TPH)	Flow (acfm)
Baghouse	C15	600	68000
Process	P80		Temp. (F)
Descrip.	Return Sand Handling & Screening		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	B (#/ton sand)	0.65	2.91	12.76
SO2				
VOC				
CO				
NOx				
Lead	D (ppm PM)	51.4	0.0001	0.0007
Arsenic	D (ppm PM)	14	0.0000	0.0002
Beryllium	D (ppm PM)	13.3	0.0000	0.0002
Cadmium	D (ppm PM)	7	0.0000	0.0001
Nickel	D (ppm PM)	40	0.0001	0.0005
Antimony	D (ppm PM)	665	0.0019	0.0085
Cobalt	D (ppm PM)	30	0.0001	0.0004
Cr+3	D (ppm PM)	55	0.0002	0.0007
Copper	D (ppm PM)	545	0.0016	0.0070
Manganese	D (ppm PM)	1320	0.0038	0.0168
Selenium	D (ppm PM)	10	0.0000	0.0001
Benzene				
Formald.				
Acrolein				
Phenol				
				0.027498716

Note: 7,000 acfm from this process exhausts through S16. Flow rate used to

Note: An additional 5,000 acfm flows from this process through P82-Sand cooling and blendi

Stack	S15	Thruput (TPH)	Flow (acfm)
Baghouse	C15	600	51000
Process	P81		Temp. (F)
Descrip.	Sand Mulling & Handling		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	B (#/ton sand)	0.65	2.19	9.57
SO2				
VOC				
CO				
NOx				
Lead	D (ppm PM)	51.4	0.0001	0.0005
Arsenic	D (ppm PM)	14	0.0000	0.0001
Beryllium	D (ppm PM)	13.3	0.0000	0.0001
Cadmium	D (ppm PM)	7	0.0000	0.0001
Nickel	D (ppm PM)	40	0.0001	0.0004
Antimony	D (ppm PM)	665	0.0015	0.0064
Cobalt	D (ppm PM)	30	0.0001	0.0003
Cr+3	D (ppm PM)	55	0.0001	0.0005
Copper	D (ppm PM)	545	0.0012	0.0052
Manganese	D (ppm PM)	1320	0.0029	0.0126
Selenium	D (ppm PM)	10	0.0000	0.0001
Benzene				
Formald.				
Acrolein				
Phenol				

Stack	S15	Thruput (TPH)	Flow (acfm)
Baghouse	C15	600	30000
Process	P82		Temp. (F)
Descrip.	Sand Blending & Cooling		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	B (#/ton sand)	0.65	1.29	5.63
SO2				
VOC	C (#/ton sand)	0.0041	2.46	10.77
CO				
NOx				
Lead	D (ppm PM)	51.4	0.0001	0.0003
Arsenic	D (ppm PM)	14	0.0000	0.0001
Beryllium	D (ppm PM)	13.3	0.0000	0.0001
Cadmium	D (ppm PM)	7	0.0000	0.0000
Nickel	D (ppm PM)	40	0.0001	0.0002
Antimony	D (ppm PM)	665	0.0009	0.0037
Cobalt	D (ppm PM)	30	0.0000	0.0002
Cr+3	D (ppm PM)	55	0.0001	0.0003
Copper	D (ppm PM)	545	0.0007	0.0031
Manganese	D (ppm PM)	1320	0.0017	0.0074
Selenium	D (ppm PM)	10	0.0000	0.0001
Benzene				
Formald.				
Acrolein				
Phenol				

Stack	S15	Thruput (TPH)	Flow (acfm)
Baghouse	C15	50	16000
Process	P83		Temp. (F)
Descrip.	Spent Sand Handling & Processing		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	B (#/ton sand)	0.65	0.69	3.00
SO2				
VOC				
CO				
NOx				
Lead	D (ppm PM)	51.4	0.0000	0.0002
Arsenic	D (ppm PM)	14	0.0000	0.0000
Beryllium	D (ppm PM)	13.3	0.0000	0.000040
Cadmium	D (ppm PM)	7	0.0000	0.0000
Nickel	D (ppm PM)	40	0.0000	0.0001
Antimony	D (ppm PM)	665	0.0005	0.0020
Cobalt	D (ppm PM)	30	0.0000	0.0001
Cr+3	D (ppm PM)	55	0.0000	0.0002
Copper	D (ppm PM)	545	0.0004	0.0016
Manganese	D (ppm PM)	1320	0.0009	0.0040
Selenium	D (ppm PM)	10	0.0000	0.0000
Benzene				
Formald.				
Acrolein				
Phenol				

Stack	S15	Thruput (TPH)	Flow (acfm)
Baghouse	C15	40	63000
Process	P84		Temp. (F)
Descrip.	Metallic Returns Handling		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/ton Fe)	17	2.70	11.83
SO2				
VOC				
CO				
NOx				
Lead	D (ppm PM)	18.5	0.0000	0.0002
Arsenic	D (ppm PM)	9.8	0.0000	0.0001
Beryllium	D (ppm PM)	1.1	0.0000	0.000013
Cadmium	D (ppm PM)	0.8	0.0000	0.000009
Nickel	D (ppm PM)	124	0.0003	0.0015
Antimony	D (ppm PM)	47	0.0001	0.0006
Cobalt	D (ppm PM)	30	0.0001	0.0004
Cr+3	D (ppm PM)	193	0.0005	0.0023
Copper	D (ppm PM)	810	0.0022	0.0096
Manganese	D (ppm PM)	4573	0.0123	0.0541
Selenium	D (ppm PM)	10	0.0000	0.0001
Benzene				
Formald.				
Acrolein				
Phenol				
				0.058996366

Note: 43,000 acfm from this process exhausts through S16. Flow rate used to

Stack	S15		Flow (acfm)
Baghouse	C15		720000
Process	All Processes		Temp. (F)
Descrip.	Total for Stack S15		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM			31.98	140.06
SO2			3.69	16.15
VOC			52.30	229.07
CO			498.15	2181.90
NOx			4.55	19.93
Lead			0.01	0.03
Arsenic			0.0004	0.0017
Beryllium			0.0003	0.0013
Cadmium			0.0002	0.0007
Nickel			0.0034	0.0150
Antimony			0.0151	0.0662
Cobalt			0.0009	0.0038
Cr+3			0.0045	0.0199
Copper			0.0087	0.0380
Manganese			0.0448	0.1963
Selenium			0.0003	0.0013
Benzene			7.5396	33.0236
Formald.			0.2435	1.0664
Acrolein			0.3756	1.6450
Phenol			0.6347	2.7799

Includes a percentage of emissions generated by processes using both S15 and S16.

Stack	S16	Thruput (TPH)	Flow (acfm)
Baghouse	C16	25	22000
Process	P64		Temp. (F)
Descrip.	Line 5 Cleaning & Grinding		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/ton Fe)	17	0.94	4.13
SO2				
VOC				
CO				
NOx				
Lead	D (ppm PM)	296	0.0003	0.0012
Arsenic	D (ppm PM)	7.9	0.0000	0.0000
Beryllium	D (ppm PM)	1.1	0.0000	0.0000
Cadmium	D (ppm PM)	1.7	0.0000	0.0000
Nickel	D (ppm PM)	160	0.0002	0.0007
Antimony	D (ppm PM)	85	0.0001	0.0004
Cobalt	D (ppm PM)	30	0.0000	0.0001
Cr+3	D (ppm PM)	445	0.0004	0.0018
Copper	D (ppm PM)	930	0.0009	0.0038
Manganese	D (ppm PM)	4613	0.0043	0.0191
Selenium	D (ppm PM)	10	0.0000	0.0000
Benzene				
Formald.				
Acrolein				
Phenol				

Stack	S16	Thruput (TPH)	Flow (acfm)
Baghouse	C16	18	16000
Process	P69		Temp. (F)
Descrip.	Line 6 Cleaning & Grinding		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/ton Fe)	17	0.69	3.00
SO2				
VOC				
CO				
NOx				
Lead	D (ppm PM)	296	0.0002	0.0009
Arsenic	D (ppm PM)	7.9	0.0000	0.0000
Beryllium	D (ppm PM)	1.1	0.0000	0.0000
Cadmium	D (ppm PM)	1.7	0.0000	0.0000
Nickel	D (ppm PM)	160	0.0001	0.0005
Antimony	D (ppm PM)	85	0.0001	0.0003
Cobalt	D (ppm PM)	30	0.0000	0.0001
Cr+3	D (ppm PM)	445	0.0003	0.0013
Copper	D (ppm PM)	930	0.0006	0.0028
Manganese	D (ppm PM)	4613	0.0032	0.0139
Selenium	D (ppm PM)	10	0.0000	0.0000
Benzene				
Formald.				
Acrolein				
Phenol				

Stack	S16	Thruput (TPH)	Flow (acfm)
Baghouse	C16	30	16000
Process	P74		Temp. (F)
Descrip.	Line 7 Cleaning & Grinding		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/ton Fe)	17	0.69	3.00
SO2				
VOC				
CO				
NOx				
Lead	D (ppm PM)	296	0.0002	0.0009
Arsenic	D (ppm PM)	7.9	0.0000	0.0000
Beryllium	D (ppm PM)	1.1	0.0000	0.0000
Cadmium	D (ppm PM)	1.7	0.0000	0.0000
Nickel	D (ppm PM)	160	0.0001	0.0005
Antimony	D (ppm PM)	85	0.0001	0.0003
Cobalt	D (ppm PM)	30	0.0000	0.0001
Cr+3	D (ppm PM)	445	0.0003	0.0013
Copper	D (ppm PM)	930	0.0006	0.0028
Manganese	D (ppm PM)	4613	0.0032	0.0139
Selenium	D (ppm PM)	10	0.0000	0.0000
Benzene				
Formald.				
Acrolein				
Phenol				

Stack	S16	Thruput (TPH)	Flow (acfm)
Baghouse	C16	18	32000
Process	P79		Temp. (F)
Descrip.	Line 8 Cleaning & Grinding		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/ton Fe)	17	1.37	6.01
SO2				
VOC				
CO				
NOx				
Lead	D (ppm PM)	296	0.0004	0.0018
Arsenic	D (ppm PM)	7.9	0.0000	0.0000
Beryllium	D (ppm PM)	1.1	0.0000	0.0000
Cadmium	D (ppm PM)	1.7	0.0000	0.0000
Nickel	D (ppm PM)	160	0.0002	0.0010
Antimony	D (ppm PM)	85	0.0001	0.0005
Cobalt	D (ppm PM)	30	0.0000	0.0002
Cr+3	D (ppm PM)	445	0.0006	0.0027
Copper	D (ppm PM)	930	0.0013	0.0056
Manganese	D (ppm PM)	4613	0.0063	0.0277
Selenium	D (ppm PM)	10	0.0000	0.0001
Benzene				
Formald.				
Acrolein				
Phenol				

Stack	S16	Thruput (TPH)	Flow (acfm)
Baghouse	C16	25	10000
Process	P63		Temp. (F)
Descrip.	Line 5 Pick & Sort		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/ton Fe)	1.4	0.43	1.88
SO2				
VOC				
CO				
NOx				
Lead	D (ppm PM)	313	0.0001	0.0006
Arsenic	D (ppm PM)	14	0.0000	0.0000
Beryllium	D (ppm PM)	1.1	0.0000	0.0000
Cadmium	D (ppm PM)	1.8	0.0000	0.0000
Nickel	D (ppm PM)	145	0.0001	0.0003
Antimony	D (ppm PM)	70	0.0000	0.0001
Cobalt	D (ppm PM)	30	0.0000	0.0001
Cr+3	D (ppm PM)	190	0.0001	0.0004
Copper	D (ppm PM)	204	0.0001	0.0004
Manganese	D (ppm PM)	4613	0.0020	0.0087
Selenium	D (ppm PM)	10	0.0000	0.0000
Benzene				
Formald.				
Acrolein				
Phenol				

Stack	S16	Thruput (TPH)	Flow (acfm)
Baghouse	C16	18	10000
Process	P68		Temp. (F)
Descrip.	Line 6 Pick & Sort		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/ton Fe)	1.4	0.43	1.88
SO2				
VOC				
CO				
NOx				
Lead	D (ppm PM)	313	0.0001	0.0006
Arsenic	D (ppm PM)	14	0.0000	0.0000
Beryllium	D (ppm PM)	1.1	0.0000	0.0000
Cadmium	D (ppm PM)	1.8	0.0000	0.0000
Nickel	D (ppm PM)	145	0.0001	0.0003
Antimony	D (ppm PM)	70	0.0000	0.0001
Cobalt	D (ppm PM)	30	0.0000	0.0001
Cr+3	D (ppm PM)	190	0.0001	0.0004
Copper	D (ppm PM)	204	0.0001	0.0004
Manganese	D (ppm PM)	4613	0.0020	0.0087
Selenium	D (ppm PM)	10	0.0000	0.0000
Benzene				
Formald.				
Acrolein				
Phenol				

Stack	S16	Thruput (TPH)	Flow (acfm)
Baghouse	C16	30	10000
Process	P73		Temp. (F)
Descrip.	Line 7 Pick & Sort		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/ton Fe)	1.4	0.43	1.88
SO2				
VOC				
CO				
NOx				
Lead	D (ppm PM)	313	0.0001	0.0006
Arsenic	D (ppm PM)	14	0.0000	0.0000
Beryllium	D (ppm PM)	1.1	0.0000	0.0000
Cadmium	D (ppm PM)	1.8	0.0000	0.0000
Nickel	D (ppm PM)	145	0.0001	0.0003
Antimony	D (ppm PM)	70	0.0000	0.0001
Cobalt	D (ppm PM)	30	0.0000	0.0001
Cr+3	D (ppm PM)	190	0.0001	0.0004
Copper	D (ppm PM)	204	0.0001	0.0004
Manganese	D (ppm PM)	4613	0.0020	0.0087
Selenium	D (ppm PM)	10	0.0000	0.0000
Benzene				
Formald.				
Acrolein				
Phenol				

Stack	S16	Thruput (TPH)	Flow (acfm)
Baghouse	C16	18	20000
Process	P78		Temp. (F)
Descrip.	Line 8 Pick & Sort		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/ton Fe)	1.4	0.86	3.75
SO2				
VOC				
CO				
NOx				
Lead	D (ppm PM)	313	0.0003	0.0012
Arsenic	D (ppm PM)	14	0.0000	0.0001
Beryllium	D (ppm PM)	1.1	0.0000	0.0000
Cadmium	D (ppm PM)	1.8	0.0000	0.0000
Nickel	D (ppm PM)	145	0.0001	0.0005
Antimony	D (ppm PM)	70	0.0001	0.0003
Cobalt	D (ppm PM)	30	0.0000	0.0001
Cr+3	D (ppm PM)	190	0.0002	0.0007
Copper	D (ppm PM)	204	0.0002	0.0008
Manganese	D (ppm PM)	4613	0.0040	0.0173
Selenium	D (ppm PM)	10	0.0000	0.0000
Benzene				
Formald.				
Acrolein				
Phenol				

Note: An additional 30,000 acfm from this process flows through P78-Line 8 pick & sort, but

Stack	S16	Thruput (TPH)	Flow (acfm)
Baghouse	C16	18	40000
Process	P76		Temp. (F)
Descrip.	Line 8 Shakeout		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/ton Fe)	3.2	1.71	7.51
SO2				
VOC	C (#/ton Fe)	0.1	1.80	7.88
CO	C (#/ton Fe)	1	18.00	78.84
NOx				
Lead	D (ppm PM)	313	0.0005	0.0024
Arsenic	D (ppm PM)	14	0.0000	0.0001
Beryllium	D (ppm PM)	13	0.0000	0.0001
Cadmium	D (ppm PM)	7	0.0000	0.0001
Nickel	D (ppm PM)	145	0.0002	0.0011
Antimony	D (ppm PM)	665	0.0011	0.0050
Cobalt	D (ppm PM)	30	0.0001	0.0002
Cr+3	D (ppm PM)	190	0.0003	0.0014
Copper	D (ppm PM)	204	0.0003	0.0015
Manganese	D (ppm PM)	344	0.0006	0.0026
Selenium	D (ppm PM)	10	0.0000	0.0001
Benzene	C (#/ton Fe)	0.0067	0.1206	0.5282
Formald.	C (#/ton Fe)	0.0037	0.0666	0.2917
Acrolein	C (#/ton Fe)	0.0057	0.1026	0.4494
Phenol	C (#/ton Fe)	0.0145	0.2610	1.1432

Stack	S16	Thruput (TPH)	Flow (acfm)
Baghouse	C16	18	54000
Process	P77		Temp. (F)
Descrip.	Line 8 Cast Cooling		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/ton Fe)	1.4	2.31	10.14
SO2				
VOC				
CO				
NOx				
Lead	D (ppm PM)	313	0.0007	0.0032
Arsenic	D (ppm PM)	14	0.0000	0.0001
Beryllium	D (ppm PM)	1.1	0.0000	0.0000
Cadmium	D (ppm PM)	1.8	0.0000	0.0000
Nickel	D (ppm PM)	145	0.0003	0.0015
Antimony	D (ppm PM)	70	0.0002	0.0007
Cobalt	D (ppm PM)	30	0.0001	0.0003
Cr+3	D (ppm PM)	190	0.0004	0.0019
Copper	D (ppm PM)	204	0.0005	0.0021
Manganese	D (ppm PM)	4613	0.0107	0.0468
Selenium	D (ppm PM)	10	0.0000	0.0001
Benzene				
Formald.				
Acrolein				
Phenol				

Stack	S16		Flow (acfm)
Baghouse	C16		420000
Process	All Processes		Temp. (F)
Descrip.	Total for Stack S16		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM			18.00	78.84
SO2			0.00	0.00
VOC			5.22	22.89
CO			52.25	228.86
NOx			0.00	0.00
Lead			0.0050	0.0217
Arsenic			0.0002	0.0010
Beryllium			0.0001	0.0003
Cadmium			0.0001	0.0002
Nickel			0.0026	0.0114
Antimony			0.0041	0.0181
Cobalt			0.0005	0.0024
Cr+3			0.0043	0.0189
Copper			0.0076	0.0331
Manganese			0.0628	0.2749
Selenium			0.0002	0.0008
Benzene			0.3501	1.5333
Formald.			0.1933	0.8468
Acrolein			0.2978	1.3045
Phenol			0.7576	3.3184

Includes a percentage of emissions generated by processes using both S15 and S16.

Stack
Baghouse
Process
Descrip. Plant 5 Phase II Total Stack Emissions

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM			56.59	247.87
SO2			21.29	93.27
VOC			71.82	314.56
CO			582.80	2552.67
NOx			41.36	181.16
Lead			0.1179	0.5165
Arsenic			0.0007	0.0031
Beryllium			0.0004	0.0017
Cadmium			0.0006	0.0025
Nickel			0.0148	0.0647
Antimony			0.0200	0.0875
Cobalt			0.0016	0.0070
Cr+3			0.0109	0.0476
Copper			0.0168	0.0736
Manganese			0.3593	1.5737
Selenium			0.0005	0.0023
Benzene			7.9377	34.7671
Formald.			0.5328	2.3337
Acrolein			0.6734	2.9495
Phenol			1.9363	8.4810

Refer to P43-phenolic urethane core making for emissions of air toxics emitted only from this

Stack	S09A	Iron (TPH)	Flow (acfm)	Stack
Baghouse	C9A,11A,12A	80	110000	MTE
Process	P30-Fnl Total	Coke (TPH)	Temp. (F)	Outlet
Descrip.	Phase I Cupola	8	320	Eff. (%)

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/ton Fe)	13.8	6.24	27.33
SO2	A (#/ton Fe)	0.72	17.60	77.09
VOC	C (#/ton Fe)	0.18	1.60	7.01
CO	C (#/ton Fe)	145	32.00	140.16
NOx	D (#/ton Fe)	0.44	35.20	154.18
Lead	D (ppm PM)	16990	0.1060	0.4644
Arsenic	D (ppm PM)	13.5	0.0001	0.0004
Beryllium	D (ppm PM)	2.3	0.00001	0.00006
Cadmium	D (ppm PM)	56	0.0003	0.0015
Nickel	D (ppm PM)	1400	0.0087	0.0383
Antimony	D (ppm PM)	115	0.0007	0.0031
Cobalt	D (ppm PM)	30	0.0002	0.0008
Cr+3	D (ppm PM)	320	0.0020	0.0087
Copper	D (ppm PM)	90	0.0006	0.0025
Manganese	D (ppm PM)	40340	0.2517	1.1025
Selenium	D (ppm PM)	10	0.0001	0.0003
Benzene	C (#/ton Fe)	0.0006	0.0480	0.2102
Formald.	C (#/ton Fe)	0.0012	0.0960	0.4205
Acrolein				
Phenol				

Allowable emissions based current Phase I cupola permit limitations increased to account for
Note: Stack is shared with existing P33 - Phase II cupola.

Stack	S09A	Iron (TPH)	Flow (acfm)	Stack
Baghouse	C9A,11A,12A	20	110000	MTE
Process	P30-Increase	Coke (TPH)	Temp. (F)	Outlet
Descrip.	Phase I Cupola	2	320	Eff. (%)

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/ton Fe)	13.8	1.56	6.83
SO2	A (#/ton Fe)	0.72	4.40	19.27
VOC	C (#/ton Fe)	0.18	0.40	1.75
CO	C (#/ton Fe)	145	8.00	35.04
NOx	D (#/ton Fe)	0.44	8.80	38.54
Lead	D (ppm PM)	16990	0.0265	0.1161
Arsenic	D (ppm PM)	13.5	0.0000	0.0001
Beryllium	D (ppm PM)	2.3	0.00000	0.00002
Cadmium	D (ppm PM)	56	0.0001	0.0004
Nickel	D (ppm PM)	1400	0.0022	0.0096
Antimony	D (ppm PM)	115	0.0002	0.0008
Cobalt	D (ppm PM)	30	0.0000	0.0002
Cr+3	D (ppm PM)	320	0.0005	0.0022
Copper	D (ppm PM)	90	0.0001	0.0006
Manganese	D (ppm PM)	40340	0.0629	0.2756
Selenium	D (ppm PM)	10	0.0000	0.0001
Benzene	C (#/ton Fe)	0.0006	0.0120	0.0526
Formald.	C (#/ton Fe)	0.0012	0.0240	0.1051
Acrolein				
Phenol				

Allowable emissions from 20 TPH increase in capacity from 60 to 80 TPH.
Note: Stack is shared with existing P33 - Phase II cupola.

Stack	S01 & S04	Thruput (TPH)	Flow (acfm)
Baghouse	C02A-L&C04	25	55000
Process	P01 - Total		Temp. (F)
Descrip.	Line 1 Pouring/Mold Cooling		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/ton Fe)	4.2	2.36	10.32
SO2	C (#/ton Fe)	0.04	1.00	4.38
VOC	C (#/ton Fe)	0.5	12.50	54.75
CO	C (#/ton Fe)	5	125.00	547.50
NOx	B (#/ton Fe)	0.01	0.25	1.09
Lead	D (ppm PM)	313	0.0007	0.0032
Arsenic	D (ppm PM)	14	0.0000	0.0001
Beryllium	D (ppm PM)	13	0.0000	0.0001
Cadmium	D (ppm PM)	7	0.0000	0.0001
Nickel	D (ppm PM)	145	0.0003	0.0015
Antimony	D (ppm PM)	665	0.0016	0.0069
Cobalt	D (ppm PM)	30	0.0001	0.0003
Cr+3	D (ppm PM)	190	0.0004	0.0020
Copper	D (ppm PM)	204	0.0005	0.0021
Manganese	D (ppm PM)	344	0.0008	0.0036
Selenium	D (ppm PM)	10	0.0000	0.0001
Benzene	C (#/ton Fe)	0.08	2.0000	8.7600
Formald.	C (#/ton Fe)	0.0011	0.0275	0.1205
Acrolein	C (#/ton Fe)	0.0017	0.0425	0.1861
Phenol	C (#/ton Fe)	0.0008	0.0200	0.0876

Notes: Production capacity increased from 16 to 25 TPH and air flow increased
20,000 acfm of air flow exhausted through new Stack S04.
There are TSP & inorganic potential emission increases due to the incre
There are gaseous pollutant potential emission increases resulting from

Stack	S01 & S04	Thruput (TPH)	Flow (acfm)
Baghouse	C02A-L&C04	9	20000
Process	P01 - Increase		Temp. (F)
Descrip.	Line 1 Pouring/Mold Cooling		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/ton Fe)	4.2	0.86	3.75
SO2	C (#/ton Fe)	0.04	0.36	1.58
VOC	C (#/ton Fe)	0.5	4.50	19.71
CO	C (#/ton Fe)	5	45.00	197.10
NOx	B (#/ton Fe)	0.01	0.09	0.39
Lead	D (ppm PM)	313	0.0003	0.0012
Arsenic	D (ppm PM)	14	0.0000	0.0001
Beryllium	D (ppm PM)	13	0.0000	0.0000
Cadmium	D (ppm PM)	7	0.0000	0.0000
Nickel	D (ppm PM)	145	0.0001	0.0005
Antimony	D (ppm PM)	665	0.0006	0.0025
Cobalt	D (ppm PM)	30	0.0000	0.0001
Cr+3	D (ppm PM)	190	0.0002	0.0007
Copper	D (ppm PM)	204	0.0002	0.0008
Manganese	D (ppm PM)	344	0.0003	0.0013
Selenium	D (ppm PM)	10	0.0000	0.0000
Benzene	C (#/ton Fe)	0.08	0.7200	3.1536
Formald.	C (#/ton Fe)	0.0011	0.0099	0.0434
Acrolein	C (#/ton Fe)	0.0017	0.0153	0.0670
Phenol	C (#/ton Fe)	0.0008	0.0072	0.0315

Notes: Actual and uncontrolled gaseous emissions increase based on producti
Allowable emissions increase based on new limitation less old limitation
P01 old limitations for TSP, SO2, VOC, CO and NOx are 1.5, 0.64, 80,

Stack	S01	Thruput (TPH)	Flow (acfm)
Baghouse	C02A-L	25	40000
Process	P02 - Total		Temp. (F)
Descrip.	Line 1 Shakeout		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/ton Fe)	3.2	1.71	7.51
SO2				
VOC	C (#/ton Fe)	0.1	2.50	10.95
CO	C (#/ton Fe)	1	25.00	109.50
NOx				
Lead	D (ppm PM)	313	0.0005	0.0024
Arsenic	D (ppm PM)	14	0.0000	0.0001
Beryllium	D (ppm PM)	13	0.0000	0.0001
Cadmium	D (ppm PM)	7	0.0000	0.0001
Nickel	D (ppm PM)	145	0.0002	0.0011
Antimony	D (ppm PM)	665	0.0011	0.0050
Cobalt	D (ppm PM)	30	0.0001	0.0002
Cr+3	D (ppm PM)	190	0.0003	0.0014
Copper	D (ppm PM)	204	0.0003	0.0015
Manganese	D (ppm PM)	344	0.0006	0.0026
Selenium	D (ppm PM)	10	0.0000	0.0001
Benzene	C (#/ton Fe)	0.0067	0.1675	0.7337
Formald.	C (#/ton Fe)	0.0037	0.0925	0.4052
Acrolein	C (#/ton Fe)	0.0057	0.1425	0.6242
Phenol	C (#/ton Fe)	0.0145	0.3625	1.5878

Notes: Production capacity increased from 16 to 25 TPH with no change in air
There are no TSP & inorganic potential emission increases because the
There are gaseous pollutant potential emission increases resulting from

Stack	S01	Thruput (TPH)	Flow (acfm)
Baghouse	C02A-L	9	0
Process	P02 - Increase		Temp. (F)
Descrip.	Line 1 Shakeout		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/ton Fe)	3.2	0.00	0.00
SO2				
VOC	C (#/ton Fe)	0.1	0.90	3.94
CO	C (#/ton Fe)	1	9.00	39.42
NOx				
Lead	D (ppm PM)	313	0.0000	0.0000
Arsenic	D (ppm PM)	14	0.0000	0.0000
Beryllium	D (ppm PM)	13	0.0000	0.0000
Cadmium	D (ppm PM)	7	0.0000	0.0000
Nickel	D (ppm PM)	145	0.0000	0.0000
Antimony	D (ppm PM)	665	0.0000	0.0000
Cobalt	D (ppm PM)	30	0.0000	0.0000
Cr+3	D (ppm PM)	190	0.0000	0.0000
Copper	D (ppm PM)	204	0.0000	0.0000
Manganese	D (ppm PM)	344	0.0000	0.0000
Selenium	D (ppm PM)	10	0.0000	0.0000
Benzene	C (#/ton Fe)	0.0067	0.0603	0.2641
Formald.	C (#/ton Fe)	0.0037	0.0333	0.1459
Acrolein	C (#/ton Fe)	0.0057	0.0513	0.2247
Phenol	C (#/ton Fe)	0.0145	0.1305	0.5716

Notes: Actual and uncontrolled gaseous emissions increase based on producti
Allowable emissions increase based on new limitation less old limitation
P02 old limitations for TSP and VOC are 1.5 and 1.6 lbs/hr, respectively

Stack	S01 & S04	Thruput (TPH)	Flow (acfm)
Baghouse	C02A-L&C04	25	65000
Process	P03 - Total		Temp. (F)
Descrip.	Line 1 Cast Cooling		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/ton Fe)	1.4	2.79	12.20
SO2				
VOC				
CO				
NOx				
Lead	D (ppm PM)	313	0.0009	0.0038
Arsenic	D (ppm PM)	14	0.0000	0.0002
Beryllium	D (ppm PM)	1.1	0.0000	0.0000
Cadmium	D (ppm PM)	1.8	0.0000	0.0000
Nickel	D (ppm PM)	145	0.0004	0.0018
Antimony	D (ppm PM)	70	0.0002	0.0009
Cobalt	D (ppm PM)	30	0.0001	0.0004
Cr+3	D (ppm PM)	190	0.0005	0.0023
Copper	D (ppm PM)	204	0.0006	0.0025
Manganese	D (ppm PM)	4613	0.0129	0.0563
Selenium	D (ppm PM)	10	0.0000	0.0001
Benzene				
Formald.				
Acrolein				
Phenol				

Notes: Production capacity increased from 15 to 25 TPH and air flow increased
20,000 acfm of air flow exhausted through new Stack S04.
There are TSP & inorganic potential emission increases due to the incre

Stack	S01 & S04	Thruput (TPH)	Flow (acfm)
Baghouse	C02A-L&C04	9	20000
Process	P03 - Increase		Temp. (F)
Descrip.	Line 1 Cast Cooling		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/ton Fe)	1.4	0.86	3.75
SO2				
VOC				
CO				
NOx				
Lead	D (ppm PM)	313	0.0003	0.0012
Arsenic	D (ppm PM)	14	0.0000	0.0001
Beryllium	D (ppm PM)	1.1	0.0000	0.0000
Cadmium	D (ppm PM)	1.8	0.0000	0.0000
Nickel	D (ppm PM)	145	0.0001	0.0005
Antimony	D (ppm PM)	70	0.0001	0.0003
Cobalt	D (ppm PM)	30	0.0000	0.0001
Cr+3	D (ppm PM)	190	0.0002	0.0007
Copper	D (ppm PM)	204	0.0002	0.0008
Manganese	D (ppm PM)	4613	0.0040	0.0173
Selenium	D (ppm PM)	10	0.0000	0.0000
Benzene				
Formald.				
Acrolein				
Phenol				

Notes: Actual and uncontrolled gaseous emissions increase based on producti
Allowable emissions increase based on new limitation less old limitation
P03 old limitation for TSP is 1.93 lbs/hr.

Stack	S01	Thruput (TPH)	Flow (acfm)
Baghouse	C03A-L	18	31000
Process	P04		Temp. (F)
Descrip.	Line 1 Pick & Sort		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/ton Fe)	1.4	1.33	5.82
SO2				
VOC				
CO				
NOx				
Lead	D (ppm PM)	313	0.0004	0.0018
Arsenic	D (ppm PM)	14	0.0000	0.0001
Beryllium	D (ppm PM)	1.1	0.0000	0.0000
Cadmium	D (ppm PM)	1.8	0.0000	0.0000
Nickel	D (ppm PM)	145	0.0002	0.0008
Antimony	D (ppm PM)	70	0.0001	0.0004
Cobalt	D (ppm PM)	30	0.0000	0.0002
Cr+3	D (ppm PM)	190	0.0003	0.0011
Copper	D (ppm PM)	204	0.0003	0.0012
Manganese	D (ppm PM)	4613	0.0061	0.0268
Selenium	D (ppm PM)	10	0.0000	0.0001
Benzene				
Formald.				
Acrolein				
Phenol				

Notes: Production capacity increased from 16 to 25 TPH with no change in air
There are no TSP & inorganic potential emission increases because the

Stack	S07	Thruput (TPH)	Flow (acfm)
Baghouse	C07A-I	25	16000
Process	P05		Temp. (F)
Descrip.	Line 1 Cleaning & Grinding		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/ton Fe)	17	0.69	3.00
SO2				
VOC				
CO				
NOx				
Lead	D (ppm PM)	296	0.0002	0.0009
Arsenic	D (ppm PM)	7.9	0.0000	0.0000
Beryllium	D (ppm PM)	1.1	0.0000	0.0000
Cadmium	D (ppm PM)	1.7	0.0000	0.0000
Nickel	D (ppm PM)	160	0.0001	0.0005
Antimony	D (ppm PM)	85	0.0001	0.0003
Cobalt	D (ppm PM)	30	0.0000	0.0001
Cr+3	D (ppm PM)	445	0.0003	0.0013
Copper	D (ppm PM)	930	0.0006	0.0028
Manganese	D (ppm PM)	4613	0.0032	0.0139
Selenium	D (ppm PM)	10	0.0000	0.0000
Benzene				
Formald.				
Acrolein				
Phenol				

Notes: Production capacity increased from 16 to 25 TPH with no change in air
There are no TSP & inorganic potential emission increases because the

Stack	S01	Thruput (TPH)	Flow (acfm)
Baghouse	C01A-L	480	22000
Process	P21		Temp. (F)
Descrip.	Return Sand Handling & Screening		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	B (#/ton sand)	0.65	0.94	4.13
SO2				
VOC				
CO				
NOx				
Lead	D (ppm PM)	51.4	0.0000	0.0002
Arsenic	D (ppm PM)	14	0.0000	0.0001
Beryllium	D (ppm PM)	13.3	0.0000	0.0001
Cadmium	D (ppm PM)	7	0.0000	0.0000
Nickel	D (ppm PM)	40	0.0000	0.0002
Antimony	D (ppm PM)	665	0.0006	0.0027
Cobalt	D (ppm PM)	30	0.0000	0.0001
Cr+3	D (ppm PM)	55	0.0001	0.0002
Copper	D (ppm PM)	545	0.0005	0.0023
Manganese	D (ppm PM)	1320	0.0012	0.0055
Selenium	D (ppm PM)	10	0.0000	0.0000
Benzene				
Formald.				
Acrolein				
Phenol				

Notes: Production capacity increased from 360 to 480 TPH with no change in a
There are no TSP & inorganic potential emission increases because the

Stack	S01	Thruput (TPH)	Flow (acfm)
Baghouse	C01A-L	480	99000
Process	P22 - Total		Temp. (F)
Descrip.	Sand Cooling & Water Addition		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	B (#/ton sand)	0.65	4.24	18.58
SO2				
VOC	C (#/ton sand)	0.0041	1.97	8.62
CO				
NOx				
Lead	D (ppm PM)	51.4	0.0002	0.0010
Arsenic	D (ppm PM)	14	0.0001	0.0003
Beryllium	D (ppm PM)	13.3	0.0001	0.0002
Cadmium	D (ppm PM)	7	0.0000	0.0001
Nickel	D (ppm PM)	40	0.0002	0.0007
Antimony	D (ppm PM)	665	0.0028	0.0124
Cobalt	D (ppm PM)	30	0.0001	0.0006
Cr+3	D (ppm PM)	55	0.0002	0.0010
Copper	D (ppm PM)	545	0.0023	0.0101
Manganese	D (ppm PM)	1320	0.0056	0.0245
Selenium	D (ppm PM)	10	0.0000	0.0002
Benzene				
Formald.				
Acrolein				
Phenol				

Notes: Production capacity increased from 360 to 480 TPH with no change in a
There are no TSP & inorganic potential emission increases because the
There are gaseous pollutant potential emission increases resulting from

Stack	S01	Thruput (TPH)	Flow (acfm)
Baghouse	C01A-L	80	0
Process	P22 - Increase		Temp. (F)
Descrip.	Sand Cooling & Water Addition		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	B (#/ton sand)	0.65	0.00	0.00
SO2				
VOC	C (#/ton sand)	0.0041	0.33	1.44
CO				
NOx				
Lead	D (ppm PM)	51.4	0.0000	0.0000
Arsenic	D (ppm PM)	14	0.0000	0.0000
Beryllium	D (ppm PM)	13.3	0.0000	0.0000
Cadmium	D (ppm PM)	7	0.0000	0.0000
Nickel	D (ppm PM)	40	0.0000	0.0000
Antimony	D (ppm PM)	665	0.0000	0.0000
Cobalt	D (ppm PM)	30	0.0000	0.0000
Cr+3	D (ppm PM)	55	0.0000	0.0000
Copper	D (ppm PM)	545	0.0000	0.0000
Manganese	D (ppm PM)	1320	0.0000	0.0000
Selenium	D (ppm PM)	10	0.0000	0.0000
Benzene				
Formald.				
Acrolein				
Phenol				

Notes: Actual and uncontrolled gaseous emissions increase based on producti
Allowable emissions increase based on new limitation less old limitation
P22 old limitations for TSP and VOC are 4.24 and 1.64 lbs/hr.

Stack	S01	Thruput (TPH)	Flow (acfm)
Baghouse	C01A-L	480	38000
Process	P23		Temp. (F)
Descrip.	Sand Mulling & Handling		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	B (#/ton sand)	0.65	1.63	7.13
SO2				
VOC				
CO				
NOx				
Lead	D (ppm PM)	51.4	0.0001	0.0004
Arsenic	D (ppm PM)	14	0.0000	0.0001
Beryllium	D (ppm PM)	13.3	0.0000	0.0001
Cadmium	D (ppm PM)	7	0.0000	0.0000
Nickel	D (ppm PM)	40	0.0001	0.0003
Antimony	D (ppm PM)	665	0.0011	0.0047
Cobalt	D (ppm PM)	30	0.0000	0.0002
Cr+3	D (ppm PM)	55	0.0001	0.0004
Copper	D (ppm PM)	545	0.0009	0.0039
Manganese	D (ppm PM)	1320	0.0021	0.0094
Selenium	D (ppm PM)	10	0.0000	0.0001
Benzene				
Formald.				
Acrolein				
Phenol				

Notes: Production capacity increased from 360 to 480 TPH with no change in a
There are no TSP & inorganic potential emission increases because the

Stack	S01		Flow (acfm)
Baghouse	C01A-L		26573
Process	All Modified Processes		Temp. (F)
Descrip.	Total Potential Emission Increases		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM			1.14	4.99
SO2			0.23	1.00
VOC			4.09	17.92
CO			37.64	164.85
NOx			0.06	0.25
Lead			0.0004	0.0016
Arsenic			0.0000	0.0001
Beryllium			0.0000	0.0000
Cadmium			0.0000	0.0000
Nickel			0.0002	0.0007
Antimony			0.0004	0.0018
Cobalt			0.0000	0.0001
Cr+3			0.0002	0.0009
Copper			0.0002	0.0010
Manganese			0.0029	0.0128
Selenium			0.0000	0.0000
Benzene			0.5185	2.2710
Formald.			0.0396	0.1734
Acrolein			0.0610	0.2673
Phenol			0.1351	0.5917

Stack	S04		Flow (acfm)
Baghouse	C04		7273
Process	All Modified Processes, P01 & P03		Temp. (F)
Descrip.	Total Potential Emission Increases		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM			0.31	1.37
SO2			0.13	0.57
VOC			1.64	7.17
CO			16.36	71.67
NOx			0.44	1.93
Lead			0.0001	0.0004
Arsenic			0.0000	0.0000
Beryllium			0.0000	0.0000
Cadmium			0.0000	0.0000
Nickel			0.0002	0.0008
Antimony			0.0002	0.0009
Cobalt			0.0000	0.0000
Cr+3			0.0001	0.0003
Copper			0.0001	0.0005
Manganese			0.0001	0.0006
Selenium			0.0000	0.0001
Benzene			0.2619	1.1471
Formald.			0.0037	0.0161
Acrolein			0.0074	0.0326
Phenol			0.0026	0.0115

Stack	S01 & S04		Flow (acfm)
Baghouse	C01 & C04		40000
Process	All Modified Processes		Temp. (F)
Descrip.	Total Potential Emissions Emissions		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM			1.71	7.51
SO2			0.36	1.58
VOC			5.73	25.09
CO			54.00	236.52
NOx			0.09	0.39
Lead			0.0005	0.0024
Arsenic			0.0000	0.0001
Beryllium			0.0000	0.0001
Cadmium			0.0000	0.0000
Nickel			0.0002	0.0011
Antimony			0.0006	0.0028
Cobalt			0.0001	0.0002
Cr+3			0.0003	0.0014
Copper			0.0003	0.0015
Manganese			0.0042	0.0186
Selenium			0.0000	0.0001
Benzene			0.7803	3.4177
Formald.			0.0432	0.1892
Acrolein			0.0666	0.2917
Phenol			0.1377	0.6031

Stack
Baghouse
Process
Descrip. Plant 5 Phase II Total Stack Emissions including Modified Phase I Cupo

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM			59.87	262.22
SO2			26.05	114.12
VOC			77.94	341.40
CO			644.80	2824.23
NOx			50.25	220.09
Lead			0.14	0.63
Arsenic			0.0007	0.0033
Beryllium			0.0004	0.0018
Cadmium			0.0007	0.0029
Nickel			0.0172	0.0753
Antimony			0.0208	0.0910
Cobalt			0.0017	0.0074
Cr+3			0.0117	0.0512
Copper			0.0173	0.0758
Manganese			0.4265	1.8680
Selenium			0.0006	0.0025
Benzene			8.7300	38.2374
Formald.			0.6000	2.6280
Acrolein			0.7400	3.2412
Phenol			2.6180	11.4668
				57.67675154

Refer to P43-phenolic urethane core making for emissions of air toxics emitted only from this

Stack	S04		Flow (acfm)
Baghouse	C04		40000
Process	All Processes, P01 and P03		Temp. (F)
Descrip.	Total Emissions		100

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM			1.71	7.51
SO2			0.36	1.59
VOC			4.55	19.91
CO			45.45	199.09
NOx			0.09	0.40
Lead			0.0005	0.0024
Arsenic			0.0000	0.0001
Beryllium			0.0000	0.0001
Cadmium			0.0000	0.0000
Nickel			0.0002	0.0011
Antimony			0.0006	0.0028
Cobalt			0.0001	0.0002
Cr+3			0.0003	0.0014
Copper			0.0003	0.0015
Manganese			0.0042	0.0186
Selenium			0.0000	0.0001
Benzene			0.7273	3.1855
Formald.			0.0100	0.0438
Acrolein			0.0155	0.0677
Phenol			0.0073	0.0319

Notes: Emissions based on percentage of air flow from P01 and P03 directed t

Stack	Fugitive	Thruput (TPH)	Flow (acfm)
Baghouse	None	150	n/a
Process	None		Temp. (F)
Descrip.	Ladle Filling & Iron Transport		n/a

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/ton Fe)	0.09	13.50	59.13
SO2				
VOC				
CO				
NOx				
Lead	D (ppm PM)	16990	0.2294	1.0046
Arsenic	D (ppm PM)	13.5	0.0002	0.0008
Beryllium	D (ppm PM)	2.3	0.0000	0.0001
Cadmium	D (ppm PM)	56	0.0008	0.0033
Nickel	D (ppm PM)	1400	0.0189	0.0828
Antimony	D (ppm PM)	115	0.0016	0.0068
Cobalt	D (ppm PM)	30	0.0004	0.0018
Cr+3	D (ppm PM)	320	0.0043	0.0189
Copper	D (ppm PM)	90	0.0012	0.0053
Manganese	D (ppm PM)	40340	0.5446	2.3853
Selenium	D (ppm PM)	10	0.0001	0.0006
Benzene				
Formald.				
Acrolein				
Phenol				

Stack	Fugitive	Thruput (#/hr)	Flow (acfm)
Baghouse	None	13.2	n/a
Process	None		Temp. (F)
Descrip.	Ladle Cleaning with Burn Bars		n/a

Pollutant	EF Basis	Emission Factor	Actual lbs/hr	Actual TPY
PM	A (#/ton Fe)	0.011	0.15	0.64
SO2				
VOC				
CO				
NOx				
Lead				
Arsenic				
Beryllium				
Cadmium				
Nickel				
Antimony				
Cobalt				
Cr+3				
Copper	D (ppm PM)	11300	0.0016	0.0072
Manganese	D (ppm PM)	12000	0.0017	0.0076
Benzene				
Formald.				
Acrolein				
Phenol				
Molybdenum	D (ppm PM)	7500	0.0011	0.0048

and Supplement B issued Oct 1996.

k test PM emissions.

utlet loading in gr/acf.
ts the process emissions

to a baghouse/stack.
tion in the PM emissions.
s account for P54 emissions.
l on Phase I compliance tests.

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	13	0.303	0.310
Outlet	0.21	0.005	0.005
Eff. (%)	98.35		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
98.35	13.00	56.94	0.21	0.92

SO2 #/ton	PM #/hr	PM #/ton	VOC #/ton	CO #/ton
0.72	1104	13.800	0.18	145
0.22	6.24	0.078	0.02	0.40
69.44	99.43	PM TPY	88.89	99.72
		4836		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
99.43	1104.00	4836	6.24	27.33
69.44	57.60	252	17.60	77.09
88.89	14.40	63	1.60	7.01
99.72	11600.00	50808	32.00	140.16
0.00	35.20	154	35.20	154.18
99.43	18.7570	82	0.27	1.17
99.43	0.0149	0.0653		
99.43	0.0025	0.0111	0.00080	0.00350
99.43	0.0618	0.2708		
99.43	1.5456	6.7697		
99.43	0.1270	0.5561		
99.43	0.0331	0.1451		
99.43	0.3533	1.5474		
99.43	0.0994	0.4352		
99.43	44.5354	195.0649		
99.43	0.0110	0.0484		
0.00	0.0480	0.2102		
0.00	0.0960	0.4205		

ıacity increase from 60 to 80 TPH.

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
0.00	0.16	0.71	0.16	0.71
0.00	0.01	0.03	0.01	0.03
0.00	0.07	0.29	0.07	0.29
0.00	0.40	1.76	0.40	1.76
0.00	1.61	7.05	1.61	7.05

Actual Scrubber Efficiency (%) =	99
Actual Capture Efficiency for TEA (%) =	95
Actual Overall Efficiency for TEA (%) =	94
Proposed Overall Efficiency for TEA (%) =	90
Stack Limitation for TEA (lbs/ton) =	0.15

Expected Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
81.72	69.06	302.47	15.06	65.95
99.00	57.00	249.7	3.00	13.14
0.00	12.06	52.81	12.06	52.81
94.05	60.00	262.8	6.00	26.28
0.00	0.54	2.4	0.54	2.38
0.00	1.53	6.7	1.53	6.68
0.00	0.54	2.4	0.54	2.38
0.00	5.90	25.8	5.90	25.83
0.00	0.54	2.4	0.54	2.38
	63.16	276.63	9.16	40.11

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	96	0.224	0.238
Outlet	2.14	0.005	0.005
Eff. (%)	97.77		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
97.77	96.00	420.48	2.14	9.39

le Ca, Al, S, Mg, Fe, Si and C.
gulated under the 1990 CAAA.

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
0.00	1.12	4.91	1.12	4.91
0.00	0.05	0.21	0.05	0.21
0.00	0.46	2.03	0.46	2.03
0.00	4.40	19.27	4.40	19.27
0.00	3.64	15.94	3.64	15.94

d of 5 & 0.5 ppm, respectively.
'hr of natural gas.

n National Standards Institute requirement Z83-18.

/scf/mole	x MW	Heat Input / MMBTU/hr	EF lbs/MMBTU	EF lbs/cf6
385	28	4.1	0.055	55
385	46	4.1	0.045	45.5

standard. 8/18/97

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	105	0.121	0.129
Outlet	4.33	0.005	0.005
Eff. (%)	95.88		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
95.88	105.00	459.90	4.33	18.96
0.00	1.00	4.38	1.00	4.38
0.00	12.50	54.75	12.50	54.75
0.00	125.00	547.50	125.00	547.50
0.00	0.25	1.09	0.25	1.09
95.88	0.0329	0.1439	0.00135	0.0059
95.88	0.0015	0.0064	0.00006	0.0003
95.88	0.0014	0.0060	0.00006	0.0002
95.88	0.0007	0.0032	0.00003	0.0001
95.88	0.0152	0.0667	0.00063	0.0027
95.88	0.0698	0.3058	0.00288	0.0126
95.88	0.0032	0.0138	0.00013	0.0006
95.88	0.0199	0.0874	0.00082	0.0036
95.88	0.0214	0.0938	0.00088	0.0039
95.88	0.0361	0.1582	0.00149	0.0065
95.88	0.0010	0.0046	0.00004	0.0002
0.00	2.0000	8.7600	2.00000	8.7600
0.00	0.0275	0.1205	0.02750	0.1205
0.00	0.0425	0.1861	0.04250	0.1861
0.00	0.0200	0.0876	0.02000	0.0876

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	80	0.187	0.198
Outlet	2.14	0.005	0.005
Eff. (%)	97.32		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
97.32	80.00	350.40	2.14	9.39
0.00	2.50	10.95	2.50	10.95
0.00	25.00	109.50	25.00	109.50
97.32	0.0250	0.1097	0.00067	0.0029
97.32	0.0011	0.0049	0.00003	0.0001
97.32	0.0010	0.0046	0.00003	0.00012
97.32	0.0006	0.0025	0.00002	0.0001
97.32	0.0116	0.0508	0.00031	0.0014
97.32	0.0532	0.2330	0.00143	0.0062
97.32	0.0024	0.0105	0.00006	0.0003
97.32	0.0152	0.0666	0.00041	0.0018
97.32	0.0163	0.0715	0.00044	0.0019
97.32	0.0275	0.1205	0.00074	0.0032
97.32	0.0008	0.0035	0.00002	0.0001
0.00	0.1675	0.7337	0.16750	0.7337
0.00	0.0925	0.4052	0.09250	0.4052
0.00	0.1425	0.6242	0.14250	0.6242
0.00	0.3625	1.5878	0.36250	1.5878

:tween S15 and S16 total emissions.

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	35	0.058	0.062
Outlet	3.00	0.005	0.005
Eff. (%)	91.43		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
91.43	35.00	153.30	3.00	13.14
91.43	0.0110	0.0480	0.00094	0.0041
91.43	0.0005	0.0021	0.00004	0.0002
91.43	0.0000	0.0002	0.00000	0.00001
91.43	0.0001	0.0003	0.00001	0.0000
91.43	0.0051	0.0222	0.00044	0.0019
91.43	0.0024	0.0107	0.00021	0.0009
91.43	0.0010	0.0046	0.00009	0.0004
91.43	0.0066	0.0291	0.00057	0.0025
91.43	0.0071	0.0313	0.00061	0.0027
91.43	0.1615	0.7072	0.01384	0.0606
91.43	0.0003	0.0015	0.00003	0.0001

t used for this process.

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	75.6	0.221	0.234
Outlet	1.71	0.005	0.005
Eff. (%)	97.73		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
97.73	75.60	331.13	1.71	7.51
0.00	0.72	3.15	0.72	3.15
0.00	9.00	39.42	9.00	39.42
0.00	90.00	394.20	90.00	394.20
0.00	0.18	0.79	0.18	0.79
97.73	0.0237	0.1036	0.00054	0.0024
97.73	0.0011	0.0046	0.00002	0.0001
97.73	0.0010	0.0043	0.00002	0.00010
97.73	0.0005	0.0023	0.00001	0.0001
97.73	0.0110	0.0480	0.00025	0.0011
97.73	0.0503	0.2202	0.00114	0.0050
97.73	0.0023	0.0099	0.00005	0.0002
97.73	0.0144	0.0629	0.00033	0.0014
97.73	0.0154	0.0676	0.00035	0.0015
97.73	0.0260	0.1139	0.00059	0.0026
97.73	0.0008	0.0033	0.00002	0.0001
0.00	1.4400	6.3072	1.44000	6.3072
0.00	0.0198	0.0867	0.01980	0.0867
0.00	0.0306	0.1340	0.03060	0.1340
0.00	0.0144	0.0631	0.01440	0.0631

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	57.6	0.168	0.178
Outlet	1.71	0.005	0.005
Eff. (%)	97.02		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
97.02	57.60	252.29	1.71	7.51
0.00	1.80	7.88	1.80	7.88
0.00	18.00	78.84	18.00	78.84
97.02	0.0180	0.0790	0.00054	0.0024
97.02	0.0008	0.0035	0.00002	0.0001
97.02	0.0007	0.0033	0.00002	0.00010
97.02	0.0004	0.0018	0.00001	0.0001
97.02	0.0084	0.0366	0.00025	0.0011
97.02	0.0383	0.1678	0.00114	0.0050
97.02	0.0017	0.0076	0.00005	0.0002
97.02	0.0109	0.0479	0.00033	0.0014
97.02	0.0118	0.0515	0.00035	0.0015
97.02	0.0198	0.0868	0.00059	0.0026
97.02	0.0006	0.0025	0.00002	0.0001
0.00	0.1206	0.5282	0.12060	0.5282
0.00	0.0666	0.2917	0.06660	0.2917
0.00	0.1026	0.4494	0.10260	0.4494
0.00	0.2610	1.1432	0.26100	1.1432

ɔ split process between S15 and S16 total emissions.

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	25.2	0.042	0.045
Outlet	3.00	0.005	0.005
Eff. (%)	88.10		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
88.10	25.20	110.38	3.00	13.14
88.10	0.0079	0.0345	0.00094	0.0041
88.10	0.0004	0.0015	0.00004	0.0002
88.10	0.0000	0.0001	0.00000	0.00001
88.10	0.0000	0.0002	0.00001	0.0000
88.10	0.0037	0.0160	0.00044	0.0019
88.10	0.0018	0.0077	0.00021	0.0009
88.10	0.0008	0.0033	0.00009	0.0004
88.10	0.0048	0.0210	0.00057	0.0025
88.10	0.0051	0.0225	0.00061	0.0027
88.10	0.1162	0.5092	0.01384	0.0606
88.10	0.0003	0.0011	0.00003	0.0001

ɔ split process between S15 and S16 total emissions.

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	126	0.146	0.154
Outlet	4.33	0.005	0.005
Eff. (%)	96.56		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
96.56	126.00	551.88	4.33	18.96
0.00	1.20	5.26	1.20	5.26
0.00	15.00	65.70	15.00	65.70
0.00	150.00	657.00	150.00	657.00
0.00	0.30	1.31	0.30	1.31
96.56	0.0394	0.1727	0.00135	0.0059
96.56	0.0018	0.0077	0.00006	0.0003
96.56	0.0016	0.0072	0.00006	0.00025
96.56	0.0009	0.0039	0.00003	0.0001
96.56	0.0183	0.0800	0.00063	0.0027
96.56	0.0838	0.3670	0.00288	0.0126
96.56	0.0038	0.0166	0.00013	0.0006
96.56	0.0239	0.1049	0.00082	0.0036
96.56	0.0257	0.1126	0.00088	0.0039
96.56	0.0433	0.1898	0.00149	0.0065
96.56	0.0013	0.0055	0.00004	0.0002
0.00	2.4000	10.5120	2.40000	10.5120
0.00	0.0330	0.1445	0.03300	0.1445
0.00	0.0510	0.2234	0.05100	0.2234
0.00	0.0240	0.1051	0.02400	0.1051

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	96	0.224	0.238
Outlet	2.14	0.005	0.005
Eff. (%)	97.77		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
97.77	96.00	420.48	2.14	9.39
0.00	3.00	13.14	3.00	13.14
0.00	30.00	131.40	30.00	131.40
97.77	0.0300	0.1316	0.00067	0.0029
97.77	0.0013	0.0059	0.00003	0.0001
97.77	0.0012	0.0055	0.00003	0.00012
97.77	0.0007	0.0029	0.00002	0.0001
97.77	0.0139	0.0610	0.00031	0.0014
97.77	0.0638	0.2796	0.00143	0.0062
97.77	0.0029	0.0126	0.00006	0.0003
97.77	0.0182	0.0799	0.00041	0.0018
97.77	0.0196	0.0858	0.00044	0.0019
97.77	0.0330	0.1446	0.00074	0.0032
97.77	0.0010	0.0042	0.00002	0.0001
0.00	0.2010	0.8804	0.20100	0.8804
0.00	0.1110	0.4862	0.11100	0.4862
0.00	0.1710	0.7490	0.17100	0.7490
0.00	0.4350	1.9053	0.43500	1.9053

ɔ split process between S15 and S16 total emissions.

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	42	0.070	0.074
Outlet	3.00	0.005	0.005
Eff. (%)	92.86		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
92.86	42.00	183.96	3.00	13.14
92.86	0.0131	0.0576	0.00094	0.0041
92.86	0.0006	0.0026	0.00004	0.0002
92.86	0.0000	0.0002	0.00000	0.00001
92.86	0.0001	0.0003	0.00001	0.0000
92.86	0.0061	0.0267	0.00044	0.0019
92.86	0.0029	0.0129	0.00021	0.0009
92.86	0.0013	0.0055	0.00009	0.0004
92.86	0.0080	0.0350	0.00057	0.0025
92.86	0.0086	0.0375	0.00061	0.0027
92.86	0.1937	0.8486	0.01384	0.0606
92.86	0.0004	0.0018	0.00003	0.0001

ɔ split process between S15 and S16 total emissions.

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	75.6	0.221	0.234
Outlet	1.71	0.005	0.005
Eff. (%)	97.73		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
97.73	75.60	331.13	1.71	7.51
0.00	0.72	3.15	0.72	3.15
0.00	9.00	39.42	9.00	39.42
0.00	90.00	394.20	90.00	394.20
0.00	0.18	0.79	0.18	0.79
97.73	0.0237	0.1036	0.00054	0.0024
97.73	0.0011	0.0046	0.00002	0.0001
97.73	0.0010	0.0043	0.00002	0.0001
97.73	0.0005	0.0023	0.00001	0.0001
97.73	0.0110	0.0480	0.00025	0.0011
97.73	0.0503	0.2202	0.00114	0.0050
97.73	0.0023	0.0099	0.00005	0.0002
97.73	0.0144	0.0629	0.00033	0.0014
97.73	0.0154	0.0676	0.00035	0.0015
97.73	0.0260	0.1139	0.00059	0.0026
97.73	0.0008	0.0033	0.00002	0.0001
0.00	1.4400	6.3072	1.44000	6.3072
0.00	0.0198	0.0867	0.01980	0.0867
0.00	0.0306	0.1340	0.03060	0.1340
0.00	0.0144	0.0631	0.01440	0.0631

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	390	0.669	0.710
Outlet	2.91	0.005	0.005
Eff. (%)	99.25		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
99.25	390.00	1708.20	2.91	12.76
99.25	0.0200	0.0878	0.00015	0.0007
99.25	0.0055	0.0239	0.00004	0.0002
99.25	0.0052	0.0227	0.00004	0.0002
99.25	0.0027	0.0120	0.00002	0.0001
99.25	0.0156	0.0683	0.00012	0.0005
99.25	0.2594	1.1360	0.00194	0.0085
99.25	0.0117	0.0512	0.00009	0.0004
99.25	0.0215	0.0940	0.00016	0.0007
99.25	0.2125	0.9310	0.00159	0.0070
99.25	0.5148	2.2548	0.00385	0.0168
99.25	0.0039	0.0171	0.00003	0.0001
0.03		3.67997526		

ɔ split process between S15 and S16 total emissions.
ing, but is not used here.

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	390	0.892	0.946
Outlet	2.19	0.005	0.005
Eff. (%)	99.44		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
99.44	390.00	1708.20	2.19	9.57
99.44	0.0200	0.0878	0.00011	0.0005
99.44	0.0055	0.0239	0.00003	0.0001
99.44	0.0052	0.0227	0.00003	0.0001
99.44	0.0027	0.0120	0.00002	0.0001
99.44	0.0156	0.0683	0.00009	0.0004
99.44	0.2594	1.1360	0.00145	0.0064
99.44	0.0117	0.0512	0.00007	0.0003
99.44	0.0215	0.0940	0.00012	0.0005
99.44	0.2125	0.9310	0.00119	0.0052
99.44	0.5148	2.2548	0.00289	0.0126
99.44	0.0039	0.0171	0.00002	0.0001

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	390	1.517	1.609
Outlet	1.29	0.005	0.005
Eff. (%)	99.67		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
99.67	390.00	1708.20	1.29	5.63
0.00	2.46	10.77	2.46	10.77
99.67	0.0200	0.0878	0.00007	0.0003
99.67	0.0055	0.0239	0.00002	0.0001
99.67	0.0052	0.0227	0.00002	0.0001
99.67	0.0027	0.0120	0.00001	0.0000
99.67	0.0156	0.0683	0.00005	0.0002
99.67	0.2594	1.1360	0.00086	0.0037
99.67	0.0117	0.0512	0.00004	0.0002
99.67	0.0215	0.0940	0.00007	0.0003
99.67	0.2125	0.9310	0.00070	0.0031
99.67	0.5148	2.2548	0.00170	0.0074
99.67	0.0039	0.0171	0.00001	0.0001

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	32.5	0.237	0.251
Outlet	0.69	0.005	0.005
Eff. (%)	97.89		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
97.89	32.50	142.35	0.69	3.00
97.89	0.0017	0.0073	0.00004	0.0002
97.89	0.0005	0.0020	0.00001	0.0000
97.89	0.0004	0.0019	0.00001	0.00004
97.89	0.0002	0.0010	0.000005	0.0000
97.89	0.0013	0.0057	0.00003	0.0001
97.89	0.0216	0.0947	0.00046	0.0020
97.89	0.0010	0.0043	0.00002	0.0001
97.89	0.0018	0.0078	0.00004	0.0002
97.89	0.0177	0.0776	0.00037	0.0016
97.89	0.0429	0.1879	0.00091	0.0040
97.89	0.0003	0.0014	0.00001	0.0000

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	680	1.259	1.336
Outlet	2.70	0.005	0.005
Eff. (%)	99.60		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
99.60	680.00	2978.40	2.70	11.83
99.60	0.0126	0.0551	0.000050	0.0002
99.60	0.0067	0.0292	0.000026	0.0001
99.60	0.0007	0.0033	0.000003	0.00001
99.60	0.0005	0.0024	0.000002	0.0000
99.60	0.0843	0.3693	0.000335	0.0015
99.60	0.0320	0.1400	0.000127	0.0006
99.60	0.0204	0.0894	0.000081	0.0004
99.60	0.1312	0.5748	0.000521	0.0023
99.60	0.5508	2.4125	0.002187	0.0096
99.60	3.1096	13.6202	0.012347	0.0541
99.60	0.0068	0.0298	0.000027	0.0001

ɔ split process between S15 and S16 total emissions.

Stack	PM lbs/hr	gr/acf	gr/scf	PM TPY
MTE	2051	0.332	0.352	8982
Outlet	30.86	0.005	0.005	
Eff. (%)	98.50			

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
	2050.75	8982.27	31.98	140.06
	3.69	16.15	3.69	16.15
	52.30	229.07	52.30	229.07
	498.15	2181.90	498.15	2181.90
	4.55	19.93	4.55	19.93
	0.2438	1.0680	0.0070	0.0305
	0.0264	0.1158	0.0004	0.0017
	0.0224	0.0979	0.0003	0.0013
	0.0120	0.0525	0.0002	0.0007
	0.1567	0.6863	0.0034	0.0150
	1.1246	4.9257	0.0151	0.0662
	0.0586	0.2567	0.0009	0.0038
	0.2149	0.9413	0.0045	0.0199
	0.9257	4.0547	0.0087	0.0380
	3.0148	13.2050	0.0448	0.1963
	0.0195	0.0856	0.0003	0.0013
	7.5396	33.0236	7.5396	33.0236
	0.2435	1.0664	0.2435	1.0664
	0.3756	1.6450	0.3756	1.6450
	0.6347	2.7799	0.6347	2.7799

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	425	2.254	2.390
Outlet	0.94	0.005	0.005
Eff. (%)	99.78		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
99.78	425.00	1861.50	0.94	4.13
99.78	0.1258	0.5510	0.000279	0.0012
99.78	0.0034	0.0147	0.000007	0.0000
99.78	0.0005	0.0020	0.000001	0.000005
99.78	0.0007	0.0032	0.000002	0.0000
99.78	0.0680	0.2978	0.000151	0.0007
99.78	0.0361	0.1582	0.000080	0.0004
99.78	0.0127	0.0558	0.000028	0.0001
99.78	0.1891	0.8284	0.000420	0.0018
99.78	0.3952	1.7312	0.000877	0.0038
99.78	1.9605	8.5871	0.004349	0.0191
99.78	0.0043	0.0186	0.000009	0.0000

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	306	2.231	2.366
Outlet	0.69	0.005	0.005
Eff. (%)	99.78		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
99.78	306.00	1340.28	0.69	3.00
99.78	0.0906	0.3967	0.000203	0.0009
99.78	0.0024	0.0106	0.000005	0.0000
99.78	0.0003	0.0015	0.000001	0.000003
99.78	0.0005	0.0023	0.000001	0.0000
99.78	0.0490	0.2144	0.000110	0.0005
99.78	0.0260	0.1139	0.000058	0.0003
99.78	0.0092	0.0402	0.000021	0.0001
99.78	0.1362	0.5964	0.000305	0.0013
99.78	0.2846	1.2465	0.000638	0.0028
99.78	1.4116	6.1827	0.003163	0.0139
99.78	0.0031	0.0134	0.000007	0.0000

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	510	3.719	3.944
Outlet	0.69	0.005	0.005
Eff. (%)	99.87		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
99.87	510.00	2233.80	0.69	3.00
99.87	0.1510	0.6612	0.000203	0.0009
99.87	0.0040	0.0176	0.000005	0.0000
99.87	0.0006	0.0025	0.000001	0.000003
99.87	0.0009	0.0038	0.000001	0.0000
99.87	0.0816	0.3574	0.000110	0.0005
99.87	0.0433	0.1899	0.000058	0.0003
99.87	0.0153	0.0670	0.000021	0.0001
99.87	0.2270	0.9940	0.000305	0.0013
99.87	0.4743	2.0774	0.000638	0.0028
99.87	2.3526	10.3045	0.003163	0.0139
99.87	0.0051	0.0223	0.000007	0.0000

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	306	1.116	1.183
Outlet	1.37	0.005	0.005
Eff. (%)	99.55		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
99.55	306.00	1340.28	1.37	6.01
99.55	0.0906	0.3967	0.000406	0.0018
99.55	0.0024	0.0106	0.000011	0.0000
99.55	0.0003	0.0015	0.000002	0.000007
99.55	0.0005	0.0023	0.000002	0.0000
99.55	0.0490	0.2144	0.000219	0.0010
99.55	0.0260	0.1139	0.000117	0.0005
99.55	0.0092	0.0402	0.000041	0.0002
99.55	0.1362	0.5964	0.000610	0.0027
99.55	0.2846	1.2465	0.001275	0.0056
99.55	1.4116	6.1827	0.006326	0.0277
99.55	0.0031	0.0134	0.000014	0.0001

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	35	0.408	0.433
Outlet	0.43	0.005	0.005
Eff. (%)	98.78		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
98.78	35.00	153.30	0.43	1.88
98.78	0.0110	0.0480	0.000134	0.0006
98.78	0.0005	0.0021	0.000006	0.0000
98.78	0.0000	0.0002	0.000000	0.000002
98.78	0.0001	0.0003	0.000001	0.0000
98.78	0.0051	0.0222	0.000062	0.0003
98.78	0.0024	0.0107	0.000030	0.0001
98.78	0.0010	0.0046	0.000013	0.0001
98.78	0.0066	0.0291	0.000081	0.0004
98.78	0.0071	0.0313	0.000087	0.0004
98.78	0.1615	0.7072	0.001977	0.0087
98.78	0.0003	0.0015	0.000004	0.0000

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	25.2	0.294	0.312
Outlet	0.43	0.005	0.005
Eff. (%)	98.30		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
98.30	25.20	110.38	0.43	1.88
98.30	0.0079	0.0345	0.000134	0.0006
98.30	0.0004	0.0015	0.000006	0.0000
98.30	0.0000	0.0001	0.0000005	0.000002
98.30	0.0000	0.0002	0.000001	0.0000
98.30	0.0037	0.0160	0.000062	0.0003
98.30	0.0018	0.0077	0.000030	0.0001
98.30	0.0008	0.0033	0.000013	0.0001
98.30	0.0048	0.0210	0.000081	0.0004
98.30	0.0051	0.0225	0.000087	0.0004
98.30	0.1162	0.5092	0.001977	0.0087
98.30	0.0003	0.0011	0.000004	0.0000

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	42	0.490	0.520
Outlet	0.43	0.005	0.005
Eff. (%)	98.98		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
98.98	42.00	183.96	0.43	1.88
98.98	0.0131	0.0576	0.000134	0.0006
98.98	0.0006	0.0026	0.000006	0.0000
98.98	0.0000	0.0002	0.0000005	0.000002
98.98	0.0001	0.0003	0.000001	0.0000
98.98	0.0061	0.0267	0.000062	0.0003
98.98	0.0029	0.0129	0.000030	0.0001
98.98	0.0013	0.0055	0.000013	0.0001
98.98	0.0080	0.0350	0.000081	0.0004
98.98	0.0086	0.0375	0.000087	0.0004
98.98	0.1937	0.8486	0.001977	0.0087
98.98	0.0004	0.0018	0.000004	0.0000

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	25.2	0.147	0.156
Outlet	0.86	0.005	0.005
Eff. (%)	96.60		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
96.60	25.20	110.38	0.86	3.75
96.60	0.0079	0.0345	0.000268	0.0012
96.60	0.0004	0.0015	0.000012	0.0001
96.60	0.0000	0.0001	0.000001	0.000004
96.60	0.0000	0.0002	0.000002	0.0000
96.60	0.0037	0.0160	0.000124	0.0005
96.60	0.0018	0.0077	0.000060	0.0003
96.60	0.0008	0.0033	0.000026	0.0001
96.60	0.0048	0.0210	0.000163	0.0007
96.60	0.0051	0.0225	0.000175	0.0008
96.60	0.1162	0.5092	0.003954	0.0173
96.60	0.0003	0.0011	0.000009	0.0000

is not used here.

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	57.6	0.168	0.178
Outlet	1.71	0.005	0.005
Eff. (%)	97.02		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
97.02	57.60	252.29	1.71	7.51
0.00	1.80	7.88	1.80	7.88
0.00	18.00	78.84	18.00	78.84
97.02	0.0180	0.0790	0.00054	0.0024
97.02	0.0008	0.0035	0.00002	0.0001
97.02	0.0007	0.0033	0.00002	0.0001
97.02	0.0004	0.0018	0.00001	0.0001
97.02	0.0084	0.0366	0.00025	0.0011
97.02	0.0383	0.1678	0.00114	0.0050
97.02	0.0017	0.0076	0.00005	0.0002
97.02	0.0109	0.0479	0.00033	0.0014
97.02	0.0118	0.0515	0.00035	0.0015
97.02	0.0198	0.0868	0.00059	0.0026
97.02	0.0006	0.0025	0.00002	0.0001
0.00	0.1206	0.5282	0.12060	0.5282
0.00	0.0666	0.2917	0.06660	0.2917
0.00	0.1026	0.4494	0.10260	0.4494
0.00	0.2610	1.1432	0.26100	1.1432

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	25.2	0.054	0.058
Outlet	2.31	0.005	0.005
Eff. (%)	90.82		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
90.82	25.20	110.38	2.31	10.14
90.82	0.0079	0.0345	0.000724	0.0032
90.82	0.0004	0.0015	0.000032	0.0001
90.82	0.0000	0.0001	0.000003	0.000011
90.82	0.0000	0.0002	0.000004	0.0000
90.82	0.0037	0.0160	0.000336	0.0015
90.82	0.0018	0.0077	0.000162	0.0007
90.82	0.0008	0.0033	0.000069	0.0003
90.82	0.0048	0.0210	0.000440	0.0019
90.82	0.0051	0.0225	0.000472	0.0021
90.82	0.1162	0.5092	0.010676	0.0468
90.82	0.0003	0.0011	0.000023	0.0001

Stack	PM lbs/hr	gr/acf	gr/scf	PM TPY
MTE	2404	0.668	0.708	10530
Outlet	18.0	0.005	0.005	
Eff. (%)	99.25			

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
	2404.07	10529.84	18.00	78.84
	0.00	0.00	0.00	0.00
	5.22	22.89	5.22	22.89
	52.25	228.86	52.25	228.86
	0.00	0.00	0.00	0.00
	0.5790	2.5360	0.0050	0.0217
	0.0223	0.0975	0.0002	0.0010
	0.0051	0.0224	0.00008	0.0003
	0.0048	0.0210	0.0001	0.0002
	0.3578	1.5673	0.0026	0.0114
	0.3042	1.3323	0.0041	0.0181
	0.0721	0.3159	0.0005	0.0024
	0.8472	3.7109	0.0043	0.0189
	1.9085	8.3592	0.0076	0.0331
	10.2254	44.7875	0.0628	0.2749
	0.0240	0.1053	0.0002	0.0008
	0.3501	1.5333	0.3501	1.5333
	0.1933	0.8468	0.1933	0.8468
	0.2978	1.3045	0.2978	1.3045
	0.7576	3.3184	0.7576	3.3184

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
	5572	24405	56.59	247.86
	61	268	21.29	93.27
	141	618	74.25	325.20
	12151	53221	582.80	2552.67
	41	181	41.36	181.16
	19.5798	85.7595	0.2786	1.2202
	0.0636	0.2787	0.0006	0.0027
	0.0300	0.1315	0.0012	0.0051
	0.0786	0.3442	0.0002	0.0010
	2.0601	9.0234	0.0060	0.0264
	1.5557	6.8141	0.0193	0.0843
	0.1639	0.7177	0.0014	0.0061
	1.4154	6.1996	0.0089	0.0388
	2.9336	12.8491	0.0163	0.0712
	57.7757	253.0574	0.1076	0.4712
	0.0546	0.2392	0.0005	0.0020
	7.9377	34.7671	7.8897	34.5569
	0.5328	2.3337	0.4368	1.9132
	0.6734	2.9495	0.6734	2.9495
	1.9363	8.4810	1.9363	8.4810

; process.

SO2 #/ton	PM #/hr	PM #/ton	VOC #/ton	CO #/ton
0.72	1104	13.800	0.18	145
0.22	6.24	0.078	0.02	0.40
69.44	99.43	PM TPY	88.89	99.72
		4836		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
99.43	1104.00	4836	6.24	27.33
69.44	57.60	252	17.60	77.09
88.89	14.40	63	1.60	7.01
99.72	11600.00	50808	32.00	140.16
0.00	35.20	154	35.20	154.18
99.43	18.7570	82.1555	0.27	1.17
99.43	0.0149	0.0653		
99.43	0.0025	0.0111	0.00080	0.00350
99.43	0.0618	0.2708		
99.43	1.5456	6.7697		
99.43	0.1270	0.5561		
99.43	0.0331	0.1451		
99.43	0.3533	1.5474		
99.43	0.0994	0.4352		
99.43	44.5354	195.0649		
99.43	0.0110	0.0484		
0.00	0.0480	0.2102		
0.00	0.0960	0.4205		

r capacity increase from 60 to 80 TPH.

SO2 #/ton	PM #/hr	PM #/ton	VOC #/ton	CO #/ton
0.72	276	13.800	0.18	145
0.22	1.56	0.078	0.020	0.40
69.44	99.43	PM TPY	88.89	99.72
		1209		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
99.43	276.00	1209	1.56	6.83
69.44	14.40	63	4.40	19.27
88.89	3.60	16	0.40	1.75
99.72	2900.00	12702	8.00	35.04
0.00	8.80	39	8.80	38.54
99.43	4.6892	20.5389	0.04	0.16
99.43	0.0037	0.0163		
99.43	0.0006	0.0028	0.00011	0.00048
99.43	0.0155	0.0677		
99.43	0.3864	1.6924		
99.43	0.0317	0.1390		
99.43	0.0083	0.0363		
99.43	0.0883	0.3868		
99.43	0.0248	0.1088		
99.43	11.1338	48.7662		
99.43	0.0028	0.0121		
0.00	0.0120	0.0526		
0.00	0.0240	0.1051		

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	105	0.223	0.236
Outlet	2.36	0.005	0.005
Eff. (%)	97.76		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
97.76	105.00	459.90	2.36	10.32
0.00	1.00	4.38	1.00	4.38
0.00	12.50	54.75	12.50	54.75
0.00	125.00	547.50	125.00	547.50
0.00	0.25	1.09	0.25	1.09
97.76	0.0329	0.1439	0.00074	0.0032
97.76	0.0015	0.0064	0.00003	0.0001
97.76	0.0014	0.0060	0.00003	0.0001
97.76	0.0007	0.0032	0.00002	0.0001
97.76	0.0152	0.0667	0.00034	0.0015
97.76	0.0698	0.3058	0.00157	0.0069
97.76	0.0032	0.0138	0.00007	0.0003
97.76	0.0199	0.0874	0.00045	0.0020
97.76	0.0214	0.0938	0.00048	0.0021
97.76	0.0361	0.1582	0.00081	0.0036
97.76	0.0010	0.0046	0.00002	0.0001
0.00	2.0000	8.7600	2.00000	8.7600
0.00	0.0275	0.1205	0.02750	0.1205
0.00	0.0425	0.1861	0.04250	0.1861
0.00	0.0200	0.0876	0.02000	0.0876

d from 35,000 to 55,000 acfm.

ease in flow rate.
the increase in production capacity.

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	37.8	0.221	0.234
Outlet	0.86	0.005	0.005
Eff. (%)	97.73		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
97.73	37.80	165.56	0.86	3.75
0.00	0.36	1.58	0.36	1.58
0.00	4.50	19.71	4.50	19.71
0.00	45.00	197.10	45.00	197.10
0.00	0.09	0.39	-0.07	-0.31
97.73	0.0118	0.0518	0.00027	0.0012
97.73	0.0005	0.0023	0.00001	0.0001
97.73	0.0005	0.0022	0.00001	0.0000
97.73	0.0003	0.0012	0.00001	0.0000
97.73	0.0055	0.0240	0.00012	0.0005
97.73	0.0251	0.1101	0.00057	0.0025
97.73	0.0011	0.0050	0.00003	0.0001
97.73	0.0072	0.0315	0.00016	0.0007
97.73	0.0077	0.0338	0.00017	0.0008
97.73	0.0130	0.0570	0.00029	0.0013
97.73	0.0004	0.0017	0.00001	0.0000
0.00	0.7200	3.1536	0.72000	3.1536
0.00	0.0099	0.0434	0.00990	0.0434
0.00	0.0153	0.0670	0.01530	0.0670
0.00	0.0072	0.0315	0.00720	0.0315

on capacity increase.
if available.
8 and 0.32, respectively.

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	80	0.233	0.247
Outlet	1.71	0.005	0.005
Eff. (%)	97.86		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
97.86	80.00	350.40	1.71	7.51
0.00	2.50	10.95	2.50	10.95
0.00	25.00	109.50	25.00	109.50
97.86	0.0250	0.1097	0.00054	0.0024
97.86	0.0011	0.0049	0.00002	0.0001
97.86	0.0010	0.0046	0.00002	0.00010
97.86	0.0006	0.0025	0.00001	0.0001
97.86	0.0116	0.0508	0.00025	0.0011
97.86	0.0532	0.2330	0.00114	0.0050
97.86	0.0024	0.0105	0.00005	0.0002
97.86	0.0152	0.0666	0.00033	0.0014
97.86	0.0163	0.0715	0.00035	0.0015
97.86	0.0275	0.1205	0.00059	0.0026
97.86	0.0008	0.0035	0.00002	0.0001
0.00	0.1675	0.7337	0.16750	0.7337
0.00	0.0925	0.4052	0.09250	0.4052
0.00	0.1425	0.6242	0.14250	0.6242
0.00	0.3625	1.5878	0.36250	1.5878

flow.
ere is no flow rate increase.
the increase in production capacity.

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
0.00	0.00	0.00	0.00	0.00
0.00	0.90	3.94	0.90	3.94
0.00	9.00	39.42	9.00	39.42
0.00	0.0000	0.0000	0.0000	0.0000
0.00	0.0000	0.0000	0.0000	0.0000
0.00	0.0000	0.0000	0.00000	0.00000
0.00	0.0000	0.0000	0.0000	0.0000
0.00	0.0000	0.0000	0.0000	0.0000
0.00	0.0000	0.0000	0.0000	0.0000
0.00	0.0000	0.0000	0.0000	0.0000
0.00	0.0000	0.0000	0.0000	0.0000
0.00	0.0000	0.0000	0.0000	0.0000
0.00	0.0000	0.0000	0.0000	0.0000
0.00	0.0000	0.0000	0.0000	0.0000
0.00	0.0603	0.2641	0.0603	0.2641
0.00	0.0333	0.1459	0.0333	0.1459
0.00	0.0513	0.2247	0.0513	0.2247
0.00	0.1305	0.5716	0.1305	0.5716

on capacity increase.
if available.
y.

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	35	0.063	0.067
Outlet	2.79	0.005	0.005
Eff. (%)	92.04		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
92.04	35.00	153.30	2.79	12.20
92.04	0.0110	0.0480	0.00087	0.0038
92.04	0.0005	0.0021	0.00004	0.0002
92.04	0.0000	0.0002	0.00000	0.00001
92.04	0.0001	0.0003	0.00001	0.0000
92.04	0.0051	0.0222	0.00040	0.0018
92.04	0.0024	0.0107	0.00019	0.0009
92.04	0.0010	0.0046	0.00008	0.0004
92.04	0.0066	0.0291	0.00053	0.0023
92.04	0.0071	0.0313	0.00057	0.0025
92.04	0.1615	0.7072	0.01285	0.0563
92.04	0.0003	0.0015	0.00003	0.0001

d from 45,000 to 70,000 acfm.

ease in flow rate.

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	12.6	0.073	0.078
Outlet	0.86	0.005	0.005
Eff. (%)	93.20		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
93.20	12.60	55.19	0.86	3.75
93.20	0.0039	0.0173	0.00027	0.0012
93.20	0.0002	0.0008	0.00001	0.0001
93.20	0.0000	0.0001	0.00000	0.00000
93.20	0.0000	0.0001	0.00000	0.0000
93.20	0.0018	0.0080	0.00012	0.0005
93.20	0.0009	0.0039	0.00006	0.0003
93.20	0.0004	0.0017	0.00003	0.0001
93.20	0.0024	0.0105	0.00016	0.0007
93.20	0.0026	0.0113	0.00017	0.0008
93.20	0.0581	0.2546	0.00395	0.0173
93.20	0.0001	0.0006	0.00001	0.0000

on capacity increase.
if available.

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	25.2	0.095	0.101
Outlet	1.33	0.005	0.005
Eff. (%)	94.73		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
94.73	25.20	110.38	1.33	5.82
94.73	0.0079	0.0345	0.000416	0.0018
94.73	0.0004	0.0015	0.000019	0.0001
94.73	0.0000	0.0001	0.000001	0.000006
94.73	0.0000	0.0002	0.000002	0.0000
94.73	0.0037	0.0160	0.000193	0.0008
94.73	0.0018	0.0077	0.000093	0.0004
94.73	0.0008	0.0033	0.000040	0.0002
94.73	0.0048	0.0210	0.000252	0.0011
94.73	0.0051	0.0225	0.000271	0.0012
94.73	0.1162	0.5092	0.006129	0.0268
94.73	0.0003	0.0011	0.000013	0.0001

flow.
ere is no flow rate increase.

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	425	3.099	3.287
Outlet	0.69	0.005	0.005
Eff. (%)	99.84		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
99.84	425.00	1861.50	0.69	3.00
99.84	0.1258	0.5510	0.000203	0.0009
99.84	0.0034	0.0147	0.000005	0.0000
99.84	0.0005	0.0020	0.000001	0.000003
99.84	0.0007	0.0032	0.000001	0.0000
99.84	0.0680	0.2978	0.000110	0.0005
99.84	0.0361	0.1582	0.000058	0.0003
99.84	0.0127	0.0558	0.000021	0.0001
99.84	0.1891	0.8284	0.000305	0.0013
99.84	0.3952	1.7312	0.000638	0.0028
99.84	1.9605	8.5871	0.003163	0.0139
99.84	0.0043	0.0186	0.000007	0.0000

flow.
ere is no flow rate increase.

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	312	1.655	1.755
Outlet	0.94	0.005	0.005
Eff. (%)	99.70		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
99.70	312.00	1366.56	0.94	4.13
99.70	0.0160	0.0702	0.000048	0.0002
99.70	0.0044	0.0191	0.000013	0.0001
99.70	0.0041	0.0182	0.000013	0.0001
99.70	0.0022	0.0096	0.000007	0.0000
99.70	0.0125	0.0547	0.000038	0.0002
99.70	0.2075	0.9088	0.000627	0.0027
99.70	0.0094	0.0410	0.000028	0.0001
99.70	0.0172	0.0752	0.000052	0.0002
99.70	0.1700	0.7448	0.000514	0.0023
99.70	0.4118	1.8039	0.001245	0.0055
99.70	0.0031	0.0137	0.000009	0.0000

air flow.
ere is no flow rate increase.

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	312	0.368	0.390
Outlet	4.24	0.005	0.005
Eff. (%)	98.64		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
98.64	312.00	1366.56	4.24	18.58
0.00	1.97	8.62	1.97	8.62
98.64	0.0160	0.0702	0.000218	0.0010
98.64	0.0044	0.0191	0.000059	0.0003
98.64	0.0041	0.0182	0.000056	0.0002
98.64	0.0022	0.0096	0.000030	0.0001
98.64	0.0125	0.0547	0.000170	0.0007
98.64	0.2075	0.9088	0.002822	0.0124
98.64	0.0094	0.0410	0.000127	0.0006
98.64	0.0172	0.0752	0.000233	0.0010
98.64	0.1700	0.7448	0.002312	0.0101
98.64	0.4118	1.8039	0.005601	0.0245
98.64	0.0031	0.0137	0.000042	0.0002

air flow.
ere is no flow rate increase.
the increase in production capacity.

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
0.00	0.00	0.00	0.00	0.01
0.00	0.33	1.44	0.33	1.44
0.00	0.0000	0.0000	0.0000	0.0000
0.00	0.0000	0.0000	0.0000	0.0000
0.00	0.0000	0.0000	0.00000	0.0000
0.00	0.0000	0.0000	0.0000	0.0000
0.00	0.0000	0.0000	0.0000	0.0000
0.00	0.0000	0.0000	0.0000	0.0000
0.00	0.0000	0.0000	0.0000	0.0000
0.00	0.0000	0.0000	0.0000	0.0000
0.00	0.0000	0.0000	0.0000	0.0000
0.00	0.0000	0.0000	0.0000	0.0000

on capacity increase.
if available.

Stack	PM lbs/hr	gr/acf	gr/scf
MTE	312	0.958	1.016
Outlet	1.63	0.005	0.005
Eff. (%)	99.48		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
99.48	312.00	1366.56	1.63	7.13
99.48	0.0160	0.0702	0.00008	0.0004
99.48	0.0044	0.0191	0.00002	0.0001
99.48	0.0041	0.0182	0.00002	0.0001
99.48	0.0022	0.0096	0.00001	0.0000
99.48	0.0125	0.0547	0.00007	0.0003
99.48	0.2075	0.9088	0.00108	0.0047
99.48	0.0094	0.0410	0.00005	0.0002
99.48	0.0172	0.0752	0.00009	0.0004
99.48	0.1700	0.7448	0.00089	0.0039
99.48	0.4118	1.8039	0.00215	0.0094
99.48	0.0031	0.0137	0.00002	0.0001

air flow.
ere is no flow rate increase.

Stack	PM lbs/hr	gr/acf	gr/scf	PM TPY
MTE	33	0.144	0.153	144
Outlet	1.1	0.005	0.005	
Eff. (%)	96.53			

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
	32.78	143.57	1.14	5.00
	0.23	1.00	0.23	1.00
	4.09	17.92	4.09	17.92
	37.64	164.85	37.64	164.85
	0.06	0.25	-0.04	-0.20
	0.0103	0.0449	0.00036	0.0016
	0.0005	0.0020	0.00002	0.0001
	0.0003	0.0014	0.00001	0.0000
	0.0002	0.0008	0.000005	0.0000
	0.0048	0.0208	0.00017	0.0007
	0.0166	0.0727	0.00041	0.0018
	0.0010	0.0043	0.00003	0.0001
	0.0062	0.0273	0.00022	0.0009
	0.0067	0.0293	0.00023	0.0010
	0.0485	0.2125	0.00292	0.0128
	0.0003	0.0014	0.00001	0.0000
	0.5185	2.2710	0.51848	2.2710
	0.0396	0.1734	0.03960	0.1734
	0.0610	0.2673	0.06104	0.2673
	0.1351	0.5917	0.13508	0.5917

Stack	PM lbs/hr	gr/acf	gr/scf	PM TPY
MTE	14	0.221	0.234	60
Outlet	0.3	0.005	0.005	
Eff. (%)	97.73			

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
	13.75	60.21	0.31	1.37
	0.13	0.57	0.13	0.57
	1.64	7.17	1.64	7.17
	16.36	71.67	16.36	71.67
	7.79	34.11	0.38	1.68
	0.0043	0.0188	0.000098	0.0004
	0.0002	0.0008	0.000004	0.0000
	0.0002	0.0008	0.000004	0.0000
	0.0001	0.0004	0.000002	0.0000
	0.0044	0.0194	0.000173	0.0008
	0.0092	0.0405	0.000213	0.0009
	0.0004	0.0018	0.000010	0.0000
	0.0026	0.0115	0.000060	0.0003
	0.0039	0.0172	0.000123	0.0005
	0.0053	0.0231	0.000136	0.0006
	0.0004	0.0016	0.000015	0.0001
	0.2633	1.1532	0.261896	1.1471
	0.0052	0.0227	0.003683	0.0161
	0.0413	0.1810	0.007449	0.0326
	0.0027	0.0118	0.002622	0.0115

Stack	PM lbs/hr	gr/acf	gr/scf	PM TPY
MTE	50	0.147	0.156	221
Outlet	1.71	0.005	0.005	
Eff. (%)	96.60			

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
	50.40	220.75	1.72	7.51
	0.36	1.58	0.36	1.58
	5.73	25.09	5.73	25.09
	54.00	236.52	54.00	236.52
	0.09	0.39	-0.07	-0.31
	0.0158	0.0691	0.00054	0.0023
	0.0007	0.0031	0.00002	0.0001
	0.0005	0.0022	0.00001	0.0001
	0.0003	0.0013	0.00001	0.0000
	0.0073	0.0320	0.00025	0.0011
	0.0260	0.1140	0.00063	0.0028
	0.0015	0.0066	0.00005	0.0002
	0.0096	0.0419	0.00033	0.0014
	0.0103	0.0450	0.00035	0.0015
	0.0711	0.3115	0.00425	0.0186
	0.0005	0.0022	0.00002	0.0001
	0.7803	3.4177	0.78030	3.4177
	0.0432	0.1892	0.04320	0.1892
	0.0666	0.2917	0.06660	0.2917
	0.1377	0.6031	0.13770	0.6031

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Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
	5898.38	25834.91	59.86	262.20
	76.05	333.12	26.05	114.12
	150.37	658.64	80.37	352.04
	15104.80	66159.03	644.80	2824.23
	50.25	220.09	50.09	219.39
	24.28	106.37	0.32	1.38
	0.0681	0.2981	0.0006	0.0028
	0.0312	0.1365	0.0013	0.0057
	0.0943	0.4132	0.0002	0.0010
	2.4538	10.7478	0.0063	0.0275
	1.6135	7.0671	0.0199	0.0871
	0.1736	0.7606	0.0015	0.0064
	1.5133	6.6284	0.0092	0.0403
	2.9687	13.0029	0.0166	0.0727
	68.9806	302.1351	0.1118	0.4898
	0.0579	0.2535	0.0005	0.0021
	8.7300	38.2374	8.6700	37.9746
	0.6000	2.6280	0.4800	2.1024
	0.7400	3.2412	0.7400	3.2412
	2.6180	11.4668	2.6180	11.4668
		384.0135633	12.65928032	55.44764782

ꜝ process.

Stack	PM lbs/hr	gr/acf	gr/scf	PM TPY
MTE	49	0.143	0.151	214
Outlet	1.7	0.005	0.005	
Eff. (%)	96.50			

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
	48.95	214.41	1.71	7.51
	0.36	1.59	0.36	1.59
	4.55	19.91	4.55	19.91
	45.45	199.09	45.45	199.09
	0.09	0.40	0.09	0.40
	0.0153	0.0671	0.0005	0.0024
	0.0007	0.0030	0.00002	0.0001
	0.0005	0.0022	0.00001	0.00005
	0.0003	0.0013	0.00001	0.0000
	0.0071	0.0311	0.00025	0.0011
	0.0261	0.1145	0.00063	0.0028
	0.0015	0.0064	0.00005	0.0002
	0.0093	0.0407	0.00033	0.0014
	0.0100	0.0437	0.00035	0.0015
	0.0628	0.2751	0.00425	0.0186
	0.0005	0.0021	0.00002	0.0001
	0.7273	3.1855	0.72727	3.1855
	0.0100	0.0438	0.01000	0.0438
	0.0155	0.0677	0.01545	0.0677
	0.0073	0.0319	0.00727	0.0319

to this stack.

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
0.00	13.50	59.13		
0.00	0.2294	1.0046		
0.00	0.0002	0.0008		
0.00	0.0000	0.0001		
0.00	0.0008	0.0033		
0.00	0.0189	0.0828		
0.00	0.0016	0.0068		
0.00	0.0004	0.0018		
0.00	0.0043	0.0189		
0.00	0.0012	0.0053		
0.00	0.5446	2.3853		
0.00	0.0001	0.0006		

Collection Eff. (%)	Uncontrolled lbs/hr	TPY	Allowable lbs/hr	Allowable TPY
0.00	0.15	0.64		
0.00	0.0016	0.0072		
0.00	0.0017	0.0076		
0.00	0.0011	0.0048		

Indiana Department of Environmental Management
Office of Air Management

Addendum to the
Technical Support Document for New Construction and Operation

Source Name:	Waupaca Foundry, Inc.
Source Location:	9856 State Highway 66, Tell City, Indiana
County:	Perry
Construction Permit No.:	CP-123-8451-00019
SIC Code:	3321
Permit Reviewer:	Michele M. Williams

On December 18, 1997, the Office of Air Management (OAM) had a notice published in the *Perry County News*, Tell City, Indiana stating that Waupaca Foundry, Inc. had applied for a construction permit relating to the expansion to the existing Phase I operations and to the proposed Phase II project involving the construction and operation of a ductile iron cupola, coremaking operation, four production lines, and sand handling operations and associated equipment. 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 following written comments to the proposed construction permit were prepared by Waupaca Foundry, Inc. The OAM reviewed these comments and has responded below:

Comment 1:

The following description corrections to Section A.2 should be made to the final construction permit:

(a) Item (d)(2) of the Phase II Operations should state ”13.2 burn bars per hour”, not “13.2 *tons of* burn bars per hour”.

(b) Item (f)(1) of the Phase II Operations should state “burner”, not “boiler”.

Response 1:

The OAM agrees. The corrections have been made to the final construction permit.

Comment 2:

Waupaca believes the effective date of the permit should be 30, not 33 days after its issuance, as stated in Construction Condition No. B.2 of the proposed construction permit.

Response 2:

The 30 day period was established to give the public adequate time to comment on the permit issuance. The additional 3 day allowance is an administrative period to ensure that any letter postmarked on the 30th day receives the appropriate consideration.

Comment 3:

Operation Condition No. C.14 of the proposed construction permit requires a minimum of 36 months or 3 years of ambient monitoring for meteorological data, PM10 and SO2 after the Phase II cupola begins operation. Waupaca is currently conducting an ambient monitoring program as required by the construction permit for the Phase I project. This program was required in lieu of preconstruction monitoring, because for Phase I, both PM10 and SO2 exceeded the preconstruction monitoring thresholds under the PSD regulations. For Phase II, however, only SO2 exceeds the preconstruction monitoring threshold. This is the only air pollutant for which ambient monitoring should be considered. This was confirmed by the IDEM technical support document for air quality impact analysis which suggests on Page 4 that the Phase II project "preconstruction monitoring requirements for SO2 will be waived if Waupaca agrees to conduct one year of post-construction monitoring."

Since PM10 emissions from Phase II were found to be less than the preconstruction monitoring threshold, we believe that no further ambient monitoring is necessary beyond that required in the Phase I permit. For SO2, the current monitoring program has successfully demonstrated compliance with ambient air quality standards. We believe the one year of additional monitoring suggested in the IDEM technical support document is sufficient to demonstrate compliance after Phase II is completed.

Response 3:

The purpose of the post construction monitoring requirement is to collect source-oriented air quality data. While this data may be used to satisfy the preconstruction monitoring requirement for subsequent PSD applications, one of its most important uses is to corroborate the air quality analysis. This analysis is by necessity performed using air dispersion modeling and, in this case, representative air quality monitoring data.

Waupaca Foundry is already required by their original permit to collect ambient PM and SO2 data. The permit also allows Waupaca to request that these monitoring sites be discontinued by making a showing that the NAAQS will continue to be complied with in the future.

The relevant condition in this PSD permit will not automatically extend the minimum time that the monitoring data must be collected. Rather, the OAM will consider the air quality data itself along with the actual and permitted operating practices at Waupaca when making a decision to allow the sites to be discontinued. The condition will retain the provision of the proposed permit that preserves the commissioner's authority to require that PM 2.5 monitoring be performed in the event that such information is necessary to demonstrate compliance with the NAAQS. Therefore, Operation Condition C.14 (c) and (f) have been revised to exclude a specific minimum collection period.

Comment 4:

Operation Condition Nos. C.15(a)(3) and C.15(a)(8) of the proposed construction permit states that the compliance limits for Stack 14 are 0.6 lbs VOC per ton of core and 0.15 lbs HAP per ton of core, respectively. The proposed permit also requires 94% overall control of TEA emissions. This level of

control was agreed upon during our discussions. Based on the 94% control, we believe the emissions from Stack 14 should be corrected to the following limits calculated below:

Resin Emissions = 9.06 lbs/hr / 20 tons/hr = 0.45 lbs/ton

TEA Emissions = 3 lbs/ton x (1 - 94% overall) = 0.18 lbs/ton for Stack

Total Emissions = 0.45 + 0.18 = 0.63 lbs/ton of core

These limits should also be changed in Operation Condition Nos. D.2.2 and D.2.3.

Response 4:

The OAM has reviewed the initial calculations included in the technical support package for the proposed construction permit and determined that the above calculations represent the appropriate emission limitations for Stack S14. The OAM also confirmed that the emissions calculated above were the values used in the modeling analysis. Therefore, the revised emission limitations were changed in Operation Condition Nos. C.15(a)(3), C.15(a)(8), D.2.2, and D.2.3.

Comment 5:

Operation Condition No. D.2.7(b) should refer to pH, not acid content.

Response 5:

The OAM agrees. The corrections have been made to the final construction permit.

Comment 6:

The minimum temperature requirements established in Operation condition No. D.4.8(b) should apply to the cupola combustor, not the cupola.

Response 6:

The temperature and startup requirements of the recuperative incinerator were removed from Operation Condition D.4.8 (Operation Standards) and Operation Condition D.4.9 (Continuous Emissions Monitoring) in the final permit. These parameters were added to Operation Condition D.4.12 (Recuperative Incinerator Operation) in the final permit for clarity. Operation Condition D.4.12 was also revised to include monitoring frequency, preventive maintenance, and calibration requirements in the final permit.

Comment 7:

Due to the process and iron chemistry variability, it is requested that the maximum coke usage not be specified in the permit.

Response 7:

The OAM does agree that there may be variability per heat; however, the maximum coke usage was one

of the parameters used to determine the worst case SO2 emissions from the source. Therefore, the OAM has revised Operation Condition D.4.2 to limit the maximum coke usage on a daily basis instead of an hourly basis to allow some flexibility due to the chemistry variability.

Comment 8:

Waupaca believes that the continuous emissions monitor (CEM) for SO2 required by Operation Condition No. D.4.9(c) is not necessary to demonstrate compliance with the Phase II cupola emission limitations. Emissions from cupola operation are relatively low compared to other sources of SO2 such as coal fired boilers where use of CEM systems is more common. Dispersion modeling and ambient monitoring has demonstrated that Plant 5 facility emissions easily comply with the national ambient air quality standards. The facility ambient monitoring program will be continued to demonstrate compliance with the air standards. Lastly, recent compliance tests confirmed the ability of the existing dry injection control system on the Phase I cupola to easily comply with its emission limitations. We believe that monitoring the alkaline dust injection rate will demonstrate continuous compliance with the proposed limitation. The necessary injection rate can be determined during compliance tests and maintained as a minimum operating requirement.

As an alternative to the CEM, Waupaca proposes to conduct semi-annual sulfur dioxide stack testing for two years after the initial compliance test. These tests will reaffirm compliance and the reliability of the dry injection control system.

Response 8:

The SO2 emissions may vary depending on the sulfur content of the coal and other raw materials. Therefore, the alkaline dust injection rate determined during a stack test may not indicate actual SO2 emissions at any other given point in time. However, the CEM gives actual emission data regardless of the sulfur content of the raw materials and therefore gives a more accurate measurement. For these reasons, the OAM believes a CEM is the necessary tool to demonstrate compliance on a continuous basis for the Phase II cupola.

Because the Phase I cupola has already been constructed and operated, the OAM does not believe that retrofitting the exhaust to accommodate a CEM is justified due to the small increase in SO2 emissions from this modification. However, the OAM does believe that hourly monitoring of the alkaline dust injection rate is justified to demonstrate compliance with the new SO2 emission limitation. The minimum alkaline dust injection rate shall be determined from a stack test that demonstrates compliance with the cupola SO2 emission limitation.

In addition to the above comments, the OAM has made the following clarifications, additions or changes to the proposed construction permit:

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1. The OAM reviewed the results of the compliance stack tests required for the Phase I project which

revealed an out-of-compliance result for lead from Stack S07. The stack test result for Stack S07 was 0.0007 pounds of lead per hour, while the lead emission limitation for Stack S07 required by CP-123-4593 was 0.0003 pounds of lead per hour. Waupaca, therefore, requested that the lead emission limitation for Stack S07 be increased from 0.0003 pounds per hour to 0.0019 pounds per hour. This new limitation reflects the most current speciation data for foundry operations. This same speciation data was used for similar Phase II operations.

The lead emission limit for Stack S07 consisting of the cleaning and grinding operations, pick and sort operations, and spent sand handling and metallic returns handling operations was derived from a series of material mass balances of lead in baghouse dust samples. This method was used because EPA has not developed lead emission factors for these facilities. In addition, there was limited stack test data for lead from these type of facilities.

The OAM researched the source of lead emissions to determine if additional parameters should be monitored. The source of lead can be attributed to the minute quantities which enter the process through purchased scrap. According to Waupaca's scrap purchasing specifications, any load of scrap containing lead shall be rejected. Waupaca visually inspects each load of scrap for lead because these compounds are considered tramp metals in the iron casting process that are considered undesirable. Lead affects how the carbon is crystallized and can permanently damage the product. This visual inspection is also a tool to ensure compliance with the lead emission limitations.

The OAM performed an air quality impact analysis of lead using the proposed higher emission limitation of 0.0019 pounds of lead per hour to ensure that public health would not be impacted. The results of the modeling analysis indicated negligible air quality impacts to the area.

Based on the above information, the OAM accepted the revised lead emission limitation of 0.0019 pounds of lead per hour for Stack S07. Therefore, this lead emission limitation for Stack S07 has been revised in Operation Condition No. C.15(a)(6) and added to Operation Condition No. D.5.2.

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2. The OAM removed Operation Condition C.18 (Reporting Requirements) from the final permit because the information is already stated in Operation Condition C.15(e).

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3. The removal efficiency and pH of the packed bed scrubber unit were removed from Operation Condition D.2.4 (Operation Standards) in the final permit. The removal efficiency is based on the TEA emission limitation established in Operation Condition D.2.3. The pH parameter was added to Operation Condition D.2.7 (Packed Bed Scrubber Operating Condition) in the final permit for clarity. Operation Condition D.2.7 was also revised to include monitoring frequency, preventive maintenance, and calibration requirements in the final permit.

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4. Operation Condition D.2.7 has been revised to clarify that the flow rate is referring to the flow rate of the *scrubbing liquid*.

5. Operation Condition C.15 has been revised to allow 270 days from start-up to complete all of the compliance testing.

6. Operation Condition C.15 has been revised to require annual NOx compliance stack tests from the cupola stacks S09A and S09B. Because of imited information on NOx emissions from cupolas, this requirement will allow the OAM to obtain representative emission data which may be used in future projects.

7. Visible emission notation requirements for Stacks S01, S04, S08, S15, and S16 have been added to the permit as Operation Conditions D.1.6, D.3.6, D.4.13, and D.5.7. The observation of visible emissions from a stack is an additional monitoring tool to ensure compliance with the particulate matter emission limits.