PUBLIC NOTICE

Magotteaux Inc. has applied to the Tennessee Department of Environment and Conservation, Division of Air Pollution Control for renewal of their major source (Title V) operating permit subject to the provisions of Tennessee Air Pollution Control Regulations 1200-03-09-.02(11) (Title V Regulations). A major source operating permit is required by both the Federal Clean Air Act and Tennessee's air pollution control regulations. However, it should be noted that this facility has a current major source operating permit.

The applicant is Magotteaux Inc. with a site address of 2360 Industrial Loop Road, Pulaski, TN 38478. They have applied for renewal of their existing major source (Title V) operating permit for their Secondary Iron and Steel Foundry

EPA has agreed to treat this draft Part 70 permit as a proposed Part 70 permit and to perform its 45-day review provided by the law concurrently with the public notice period. If any substantive comments are received, EPA's 45-day review period will cease to be performed concurrently with the public notice period. In this case, EPA's 45-day review period will start once the public notice period has been completed and EPA receives notification from the Tennessee Air Pollution Control Division that comments have been received and resolved. The status regarding EPA's 45-day review of these permits and the deadline for submitting a citizen's petition can be found at the following website address:

https://www.epa.gov/caa-permitting/tennessee-proposed-title-v-permits

Copies of the application materials and draft permits are available for public inspection during normal business hours at the following locations:

Columbia Environmental Field Office 1421 Hampshire Pike Columbia, TN 38401	and	Tennessee Department of Environment and Conservation Division of Air Pollution Control William R. Snodgrass Tennessee Tower 312 Rosa L. Parks Avenue, 15th Floor Nashville, TN 37243

Electronic copies of the draft permits are available by accessing the TDEC internet site located at:

http://www.tn.gov/environment/topic/ppo-air

Questions concerning the source(s) may be addressed to Greg Forte at (615) 532-0548 or by e-mail at greg.forte@tn.gov.

Interested parties are invited to review these materials and comment. In addition, a public hearing may be requested at which written or oral presentations may be made. To be considered, written comments or requests for a public hearing must be received no later than 4:30 PM on October 2, 2020. To assure that written comments are received and addressed in a timely manner, written comments must be submitted using one of the following methods:

1. **Mail, private carrier, or hand delivery:** Address written comments to Ms. Michelle W. Owenby, Director, Division of Air Pollution Control, William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue 15th Floor, Nashville, Tennessee 37243.

2. **E-mail**: Submit electronic comments to air.pollution.control@tn.gov.

A final determination will be made after weighing all relevant comments.

Individuals with disabilities who wish to review information maintained at the above-mentioned depositories should contact the Tennessee Department of Environment and Conservation to discuss any auxiliary aids or services needed to facilitate such review. Such contact may be in person, by writing, telephone, or other means, and should be made no less than ten days prior to the end of the public comment period to allow time to provide such aid or services. Contact the Tennessee Department of Environment and Conservation ADA Coordinator, William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue 22nd Floor, Nashville, TN 37243, 1-(866)-253-5827. Hearing impaired callers may use the Tennessee Relay Service, 1-(800)-848-0298.

For the Giles County "Pulaski Citizen" -- publish once on Sepember 2, 2020

Air Pollution Control DATE: AUGUST 21, 2020
Assigned to – Greg Forte

No alterations to the above are allowed:
Magotteaux Inc. must pay to place this advertisement in the newspaper
Air Pollution Control must be furnished with an affidavit from the newspaper stating that the ad was run and the date of the ad or one complete sheet from the newspaper showing this advertisement, the name of the newspaper and the date of publication. Mail to Greg Forte, Division of Air Pollution Control, William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue 15th Floor, Nashville, Tennessee 37243.

TITLE V PERMIT STATEMENT

Facility Name:	**Magotteaux, Inc.**
City:	**Pulaski**
County:	**Giles**

Date Application Received:	**May 6, 2019**
Date Application Deemed Complete:	**May 6, 2019**

Emission Source Reference No.:	**28-0025**
Permit No.:	**576847 (previous permit 567767)**

INTRODUCTION

This narrative is being provided to assist the reader in understanding the content of the attached Title V operating permit. This Title V Permit Statement is written pursuant to Tennessee Air Pollution Control Rule 1200-03-09-.02(11)(f)1.(v). The primary purpose of the Title V operating permit is to consolidate and identify existing state and federal air requirements applicable to **Magotteaux Inc.** and to provide practical methods for determining compliance with these requirements. The following narrative is designed to accompany the Title V Operating Permit. It initially describes the facility receiving the permit, then the applicable requirements and their significance, and finally the compliance status with those applicable requirements. This narrative is intended only as an adjunct for the reviewer and has no legal standing. Any revisions made to the permit in response to comments received during the public participation process will be described in an addendum to this narrative.

Acronyms:

PSD	Prevention of Significant Deterioration
NESHAP	National Emission Standards for Hazardous Air Pollutants
NSPS	New Source Performance Standards
MACT	Maximum Achievable Control Technology
NSR	New Source Review

I. Identification Information.

A. Source Description.

Magotteaux Inc. is secondary iron and steel foundry consisting of the following sources:

28-0025-01-Electric Arc Furnace #1 -removed from service	28-0025-33-No Bake Shakeout
28-0025-02-Green Sand Pouring, Cooling and Shakeout	28-0025-36-No Bake Mixer
28-0025-04-Heat Treat Furnace #1	28-0025-37-Wheelabrator
28-0025-06-Electric Arc Furnace #2	28-0025-40-Didion Ball Mill
28-0025-09-Sand Plant	28-0025-44-Pangborn Shot Blast Operation
28-0025-10-Heat Treat Furnace #2	28-0025-45-Core Room Pep-set Mixer
28-0025-20-Storage Silo	28-0025-59-Charge Weight Hoppers
28-0025-21-Storage Silo	28-0025-62-Sand and Bentonite Receiving
28-0025-22-Storage Silo	28-0025-66-Waste Sand Loadout
28-0025-23-Storage Silo	28-0025-67-Fugitive Emissions
28-0025-24-Storage Silo	28-0025-68-Emergency Generator
28-0025-28-Induction Furnace	28-0025-69-Screening Operation
28-0025-30-Finishing & Grinding	28-0025-70- Mold Release System
28-0025-31-Electric Arc Furnace #3- removed from service	28-0025-71-Rotating Drum
	28-0025-72- Induction Furnace #7 (new)
	28-0025-73- Induction Furnace #8 (new)

B. Facility Classification.

1. **Attainment or Non-Attainment Area Location.** Area ***is*** designated as an attainment area for all criteria pollutants.
2. Company ***is*** located in a ***Class II area*** (this means that the facility is not located within a national park or national wilderness area; see 40 CFR §52.21(e) for complete definition).

C. Regulatory Status.

1. **PSD/NSR.** This facility ***is*** a major source under PSD.
2. **Title V Major Source Status by Pollutant.**

Pollutant	Is the pollutant emitted?	If emitted, what is the facility's status?	
		Major Source Status	Non-Major Source Status
PM	YES	YES	NO
PM_{10}	YES	N/A	N/A
SO_2	YES	NO	YES
VOC	YES	NO	YES
NO_X	YES	NO	YES
CO	YES	YES	NO
Individual HAP	YES	NO	YES
Total HAPs	YES	NO	YES
GHG	YES	NO	YES

3. **NESHAP Standards.** This facility ***is not*** a major source for HAPs. This facility ***is*** subject to a final NESHAP. The facility is subject to 40 CFR 63, subpart ZZZZ (National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines) and 40 CFR 63, subpart ZZZZZ (National Emission Standards for Hazardous Air Pollutants for Area Sources: Iron and Steel Foundries).

4. **Program Applicability.** Are the following programs applicable to the facility?
   PSD **(no, facility has not undergone PSD review*)***
   NESHAP ***(yes)***

NSPS ***(no)*** As of March 30, 2020, the facility stated that they were not subject to Subpart UUU—Standards of Performance for Calciners and Dryers in Mineral Industries because the industrial sand that is processed on-site does not comprise of >50% of the mixture

II. Compliance Information.

A. Compliance Status. Is the facility currently in compliance with all applicable requirements? (***yes)***
Are there any applicable requirements that will become effective during the permit term? **(*no*)**

III. Other Requirements.

A. Emissions Trading. The facility is not involved in an emission trading program.

B. Acid Rain Requirements. This facility is not subject to any requirements in Title IV of the Clean Air Act.

C. Prevention of Accidental Releases. This facility is not subject to TAPCR 1200-03-32.

IV. Public Participation Procedures.

A. Notification of this draft permit was mailed to the following environmental agencies:

1. U.S. EPA Region 4

2. Alabama Department for Environmental Protection

V. Title V Permit History before Permit 576847

A. The initial Title V Permit #548583 was issued on August 13, 2002.

B. The first renewal Title V Permit #560118 was issued on March 25, 2009.

C. The following changes have been made to the permit since issuance of Title V Permit #560118:

1. In accordance with an administrative permit amendment request dated November 16, 2010, the Responsible Official changed.

2. In accordance with the significant modification request received on May 16, 2012, the new sand mold operation (28-0025-70) was added to the permit.

D. The second renewal Title V Permit #567767 was issued on November 7, 2014.

E. The following changes have been made to the permit since issuance of Title V Permit #567767:

1. Administrative Permit Amendment #1 (issued January 7, 2015). Applications dated December 3, 2014 and December 31, 2014. Name change to Magotteaux Inc.
2. Minor Permit Modification #1 (issued March 30, 2015). Application dated November 19, 2014. Addition of a Rotating Drum (28-0025-71). Conditions E31-1 and E31-2 were added. Conditions E1 and E2 were modified.
3. Administrative Permit Amendment #2. Applications dated March 3, 2015 and March 27, 2015. Minimum pressure drop limitations added to Condition E15-2.
4. Administrative Permit Amendment #3. Request dated July 6, 2015. Minimum pressure drop limitation added to Condition E31-1.
5. Minor Permit Modification #2 (issued August 8, 2017). Application dated May 5, 2017. Removal of Condition E2 (c)(2)MM1 which required MACT semiannual reporting for subpart ZZZZ (emergency RICE engines). E3 now becomes the NEW E2(c)(2)MM2.

VI. Permit Changes with Permit Renewal 576847

A8 (fees) condition was updated
B6 corrected name of EPA branch
A12. Slight wording change
A20 revised to require annual certification that they are complying with their risk management plan if they are required to have one
D7. Remove “oil” from condition
B6 Changed name of EPA Branch in due to restructuring at EPA
D9 Minor corrections

Conditions D1 through D14 were added:

D11 concerns standards for HAP emissions
D12 concerns New Stationary Sources
D13 concerns Gasoline Dispensing facilities
D14 concerns Internal Combustion Engines

E1 was updated to include new fee regulations
E2 is modified to include new reporting conditions
E3-1 was modified to add sources 71-73 to the HAP emissions calculation table
E3-2 is modified to include a compliance method
E3-3 through E3-17 (previous conditions)- these NESHAP conditions are now renumbered as F1 through F14
E3-3 is a new condition concerning Insignificant Activities
E3-4 is a new recordkeeping requirement and replaces the previous conditions E3-17 and E3-19
E3-5 concerning Routine Maintenance is new
E3-6 concerning State and Federal Regulations is new
E3-7 concerning Startup, Shutdown, and Malfunction Requirements is new
E3-8 concerning Excursions is new
E3-9 concerning Application and Agreement Letters is new
E3-10 for operational availability of monitoring devices was previously E3-20
E3-11. This opacity condition was previously E3-21 Twenty percent (20%) is changed to 20%, one (1) is changed to one, four (4) is changed to four, and twenty-four (24) is changed to 24
E3-12. This condition concerning the Accidental Release rule was previously E3-22
E3-13. This condition concerning identification of the responsible official was previously condition E3-3
F1 through F14- these new conditions represent the NESAHP requirements and were previously E3-3 through E3-16 and Compliance Methods have bee added for these conditions. Also the equations for compliance calculations at (previous) Condition S1-13 have been replaced by a reference to these methods at "paragraphs (d) through (g) of this section (40 CFR §63.10898)" at Condition F12 (c). Additional testing requirements from the rule have been added at this condition.

E3-17 and E3-19 (previous permit conditions for records) -These conditions are replaced by the new E3-4
E3-18 (previous permit conditions for Routine Maintenance)- this is replaced by the new condition E3-5
E3-20 (previous condition) this monitoring equipment availability condition is now condition E3-10
E3-21 (previous condition)- this opacity condition is now condition E3-11
E3-22 (previous condition) - this condition concerning Accidental Releases is now condition E3-12
E3-28 (previous condition)- this concerns identification of plant staffing- this is now condition E3-13
E4-1 through E4-9 (Previous conditions) are deleted as Electric Arc Furnace #1 has been removed
E5-1 Compliance Method is added
E5-2 The record-keeping period is clarified as "per any consecutive 12 month period"
E5-8 ten (10) is changed to ten, one (1) is changed to one, four (4) is changed to four and twenty four (24) is changed to 24

E6-1 Compliance Method is added
E7-1 Compliance Method is added
E7-2 The record-keeping period is clarified as "per any consecutive 12 month period"
E7-3 The record-keeping period is clarified as "per any consecutive 12 month period" and new agreement letter (A/L)
E7-4 New Agreement letter
E8-1 The record-keeping period is clarified as "per any consecutive 12 month period"
E9-1 Compliance Method is added
E15-1 The record-keeping period is clarified as "per any consecutive 12 month period" and new Agreement letter
E15-2 New Agreement Letter
E16-1 New Agreement letter
E16-2 Ten (10) is changed to ten, one (1) is changed to one, four (4) is changed to four and twenty four (24) is changed to 24 and new agreement letter

E17-1 through E17-8 (Previous conditions) are deleted as Electric Arc Furnace #3 has been removed
E18-1 The record-keeping period is clarified as "per any consecutive 12 month period"
E18-3 The record-keeping period is clarified as "per any consecutive 12 month period" and Reference to Attachment 7 is included

E18-5 Reference to Attachment 7 is included
E18-7 Ten (10) is changed to ten, one (1) is changed to one, four (4) is changed to four and twenty four (24) is changed to 24

E19-1 Compliance method is added
E19-2 The record-keeping period is clarified as “per any consecutive 12 month period”
E19-4 The record-keeping period is clarified as “per any consecutive 12 month period”
E19-5 ten (10) is changed to ten, one (1) is changed to one, four (4) is changed to four and twenty four (24) is changed to 24 and new Agreement letter
E20-1 The record-keeping period is clarified as “per any consecutive 12 month period”
E21-1 Compliance method is added
E21-2 The record-keeping period is clarified as “per any consecutive 12 month period” and new Agreement letter
E21-3 New Agreement letter
E21-4 Compliance Method is added
E21-5 Ten (10) is changed to ten, one (1) is changed to one, four (4) is changed to four and twenty four (24) is changed to 24 and new Agreement letter
E22-2 Ten (10) is changed to ten, one (1) is changed to one, four (4) is changed to four and twenty four (24) is changed to 24
E23-2 The record-keeping period is clarified as “per any consecutive 12 month period”
E23-4 The record-keeping period is clarified as “per any consecutive 12 month period”
E24-1 New Agreement letter
E24-2 Twenty pecent (20%) is changed to 20%, one (1) is changed to one, four (4) is changed to four, and twenty-four (24) is changed to 24

E25-1 The record-keeping period is clarified as “per any consecutive 12 month period” and new Agreement letter
E26-1 The record-keeping period is clarified as “per any consecutive 12 month period” and new Agreement letter
E26-3 Twenty percent (20%) is changed to 20%, one (1) is changed to one, five (5) is changed to five, and twenty-four (24) is changed to 24
E27-1 The record-keeping period is clarified as “per any consecutive 12 month period”
E28-1 The record-keeping period is clarified as “per any consecutive 12 month period”
E28-7 and E28-9 through E28-18: Compliance Methods are added
E29-2 Ten (10) is changed to ten, one (1) is changed to one, four (4) is changed to four and twenty four (24) is changed to 24

E30-1 Allowable VOC emissions increased to 52.6 tons per year and The record-keeping period is clarified as “per any consecutive 12 month period”
E30-2 Twenty percent (20%) is changed to 20%, one (1) is changed to one, five (5) is changed to five, and twenty-four (24) is changed to 24

E30-3 “Division representative” specified and rule citation was clarified
E31-2 ten (10) is changed to ten, one (1) is changed to one, four (4) is changed to four and twenty four (24) is changed to 24
E32-1 Process rates for new Induction Furnaces from Condition S1-1 of Permit 974767
E32-2 Lead emission limits for new induction furnaces with new table that incorporates existing instructions from condition S1-5 of Permit 974767 for emission calculations.
E32-3. Particulate emission limit from condition S1-3 of Permit 974767 and 63.10895(c)(1) (0.8 lb PM per ton of metal charged). Compliance is based on stack test results of June 20, 2019 and new 30 day pressure drop study required.
E32-4 Parameters established for dimensions of Exhaust Stacks for new induction furnaces from condition S1-6 of Permit 974767

Attachment 7 was modified to include Flammable Core Material Emissions
Attachment 9 Fee Selection table is added
Attachment 10 Agreement Letter Section is added

General statement concerning NESHAP Conditions for Subpart ZZZZZ Iron and Steel Foundries: This facility is subject to the requirements of 40 CFR Part 63, Subpart ZZZZZ National Emission Standards for Hazardous Air Pollutants (NESHAP) for Iron and Steel Foundries Area Sources. The provisions of this rule are found at conditions F1 through F14 of this permit (previously E3-3 through E3-16 of Minor Modification 2 to 567767). Permit 974767 for Induction Furnaces #7 and #8 (sources 72 and 73) included many provisions of Subpart ZZZZZ already found on Minor Modification #2 to Permit 567767 as well as provisions related to Induction Furnaces. Those new provisions have been added to the F1-F14 renewal permit so that applicable requirements for the existing and new (Induction furnaces) are specified in the permit. The Subpart ZZZZZ provisions found at Construction Permit 974767 (S1-7 through S1-15) are now included with the existing Subpart ZZZZZ requirements found at conditions F1 through F14.

Source **28-0025-70. Mold Release System.** Condition E30-1 of the Sept. 17, 2012 Significant Modification to 560118 set a VOC limit of 39.9 tons VOC/yr as PSD avoidance. This limit was carried forward to Permit **567767.** The 2019 renewal application for this source requested an increase of VOC from 39.9 to 52.6 tons per year (12.7 ton/year net increase). The uncontrolled VOC would increase to a level of 80.9 tons per year. The conservative burn-off factor of 35% would yield a maximum emission rate of 52.6 tons VOC/year. This limit is incorporated in the renewal permit. Background calculations are found at the application dated May 6, 2019. Also, the CO emission factor (0.061 lb/lb solvent) is found at Attachment 7 at "Measurement of Emissions associated with Application of Flammable Solvent-based of Core and Mold Coating." Based on calculations on page 245 of application, all emissions are very low except for VOC, and no other emission limits are set here. Also slight changes in E30-2 and 3.

Construction permit 974767 for sources 72 and 73, Induction Furnaces #7 and #8, was issued November 27, 2918 and amended April 15, 2019. These units are operational and are included in the renewal permit. Condition S1-16 of this permit required that Electric Arc Furnace #1 (Source 01) and Electric Arc Furnace #3 (Source 31) shall be removed from service prior to operation of Source 72 and 73. Electric Arc Furnaces #1 and #3 have ben removed from service and those sources are not included in this renewal permit.
Note that Electric Arc Furnace #2 (28-0025-06) remains operational.

The following permit conditions, E3-23 through E3-27 as specified at the previous permit, are not carried forward from Minor Modification #2 for 567767. The basis for removal of each condition is stated below the condition.

E3-23. The combined operating time for sources 01, 06, and 31 shall not exceed 22,500 hours during all intervals of twelve consecutive months. *The combined operating time was increased from 20,850 hours to 22,500 hours due to increased production demands in accordance with the permittee's minor modification request dated November 12, 2002 and signed by Phillip Haine. This limitation is established pursuant to Rule 1200-03-09-.02(11)(f)5.(ii) of the Tennessee Air Pollution Control Regulations.*

Compliance Method: Compliance shall be assured through recording monthly the information shown in Log 3-1.

LOG 3-1 FOR THE COMBINED SOURCES 28-0025-01, 06, and 31—EAF's 1, 2 and 3

Month/Year	Material Input (pounds per month)	Hours of Operation		CO		VOC		NO_x	
		hrs/ month	hrs/ 12 months	ton/ month	ton/ 12 months	ton/ month	ton/ 12 months	ton/ month	ton/ 12 months

To calculate emission in lbs/month use the equation: *EF x Material Input* where *EF* is the appropriate emission factor below.

Pollutant	Emission Factor (lbs/ton of metal processed)	Emission Factor (tons/ton of metal processed)	Source of Factor
CO	4.0	0.002	Informal Stack Test Results per Lacey Hardin's Notes
VOC	0.35	0.000175	FIRE/SCC Manual, March 1990

NO_x	0.2	0.00010	AP-42, 5th Ed., 01/95 see permit attachments

Basis for removal: The 22,500 hour per year limit was specified for sources 01, 06, and 31 combined. As sources 01 and 06 have been removed from service, this condition is no longer required. Also note that the emission factors specified above are also included with source 06 (Electric Arc Furnace #2) and emissions are calculated for Source 06.

E3-24. The combined process material input rate (charge rate) for sources 01, 06, and 31 shall not exceed 33,600 pounds per hour, on a daily average basis. *The combined process material input rate (charge rate) was increased from 31,880 pounds per hour, on a daily average basis to 33,600 pounds per hour, on a daily average basis due to increased production demands in accordance with the permittee's minor modification request dated November 12, 2002 and signed by Phillip Haine. This limitation is established pursuant to Rule 1200-03-09-.02(11)(f)5.(ii) of the Tennessee Air Pollution Control Regulations.*

Compliance Method: Compliance shall be assured through recording monthly the information shown in Log 3-2.

LOG 3-2 FOR THE COMBINED SOURCES 28-0025-01, 06, and 31—EAF's 1, 2 and 3

Month_____Year_____

Date	Material Input (pounds)	Hours of Operation	Input Rate (pounds per hour)
Sum for month			
Sum for previous 12 months			

Basis for removal: The 33,600 pounds per hour limit was specified for sources 01, 06, and 31 combined. As sources 01 and 31 have been removed from service, and the process weight limit for source 06 is set at 11,200 pounds per hour, this condition is no longer required. Also note that records of the hourly process rate are required for this source

E3-25. The combined volatile organic compounds (VOC) emissions from sources 01, 06 and 31 shall not exceed 14.5 tons per year.

From Condition E3-7 of Title V Permit No. 548583 issued August 13, 2002

Compliance Method: Compliance shall be assured through recording monthly the information shown in Log 3-1.

Basis for removal: The 14.5 tons per year VOC limit was specified for sources 01, 06, and 31 combined. As sources 01 and 31 have been removed from service, and the VOC emission limit for Source 06 is 4.8 tons per year, this condition is no longer required. Also note that records of the VOC emissions are required for Source 06.

E3-26. The combined carbon monoxide (CO) emissions from sources 01, 06 and 31 shall not exceed 167.1 tons per year.

From Condition E3-8 of Title V Permit No. 548583 issued August 13, 2002

Compliance Method: Compliance shall be assured through recording monthly the information shown in Log 3-1.

Basis for removal: The 167.1 tons per year CO limit was specified for sources 01, 06, and 31 combined. As sources 01 and 31 have been removed from service, and the CO emission limit for Source 06 is 55.2 tons per year, this condition is no longer required. Also note that records of the CO emissions are required for Source 06.

E3-27. The combined emissions of nitrogen oxides (NOx) emissions from sources 01, 06 and 31 shall not exceed 8.3 tons per year.

From Condition E3-9 of Title V Permit No. 548583 issued August 13, 2002

Compliance Method: Compliance shall be assured through recording monthly the information shown in Log 3-1.

Basis for removal: The 8.3 tons per year NOx limit was specified for sources 01, 06, and 31 combined. As sources 01 and 31 have been removed from service, and the NOx emission limit for Source 06 is 2.76 tons per year, this condition is no longer required. Also note that records of the NOx emissions are required for Source 06.

VII. Allowable Emissions Summary for Permit 576847

Below are the current allowable emissions from the facility

Emission Summaries - Ton/Yr

Permit Allowable Emission Rate

row(s) 1 - 31 of 31

	Point #	Point Description	Status	PM	SO2	CO	VOC	NOX	HAPS	EX	MISC	PB	Comment
	00	Entire Source	Active										Minor for HAP 24.8 combined and 9.8 single
	01	Electric Arc Furnace #1	Inactive										gone
	02	Green Sand Pouring, Cooling and Shakeout	Active	20.23	0.83	51.00	15.79	0.75					
	04	Heat Treat Furnace #1	Active	0.40	0.04	4.56	0.31	5.43					
	06	Electric Arc Furnace #2	Active	19.28	12.60	55.20	4.80	2.76					
	09	Sand Plant	Active	3.20									
	10	Heat Treat Furnace #2	Active	0.44	0.04	4.56	0.31	5.43					
	20	Storage Silo	Active	0.03									
	21	Storage Silo	Active	0.02									
	22	Storage Silo	Active	0.02									
	23	Storage Silo	Active	0.03									
	24	Storage Silo	Active	0.06									
	28	Induction Furnace	Active	4.20									
	30	Finishing & Grinding	Active	0.38									
	31	Electric Arc Furnace #3	Inactive										gone
	33	No Bake Shakeout	Active	31.00									
	36	No Bake Mixer	Active	11.76									
	37	Wheelabrator	Active	4.49									
	40	Didion Ball Mill	Active	8.35									
	44	Pangborn Shot Blast Operation	Active	4.27									
	45	Core Room Pep-set Mixer	Active	3.10			7.27						
	59	Charge Weight Hoppers	Active	7.66									
	62	Sand and Bentonite Receiving	Active	0.60									
	66	Waste Sand Loadout	Active	8.45									
	67	Fugitive Emissions	Active	30.60									
	68	Emergency Generator	Active	0.34	0.31	1.02	0.39	4.80					
	69	screening Operation	Active	3.00									
	70	Mold Release System	Active				52.60						
	71	Rotating Drum	Active	9.89									
	72	Induction Furnace #1	Active	4.50									
	73	induction Furnace #2	Active	4.50									
Report Total:				180.80	13.82	116.34	81.47	19.17					

row(s) 1 - 31 of 31

VIII .Dates Associated with this Permit

Activity	Date	Comments
Email Notification to EPA and states		
APC website notice		
EPA approval or comments		
APC response to EPA Comments		
Newspaper publication	September 2, 2020	
Newspaper publication + 30 days (for Public comment purposes)	October 2, 2020.	
Dates of Receipt of Public Comments		
Public Hearing date		
Issue date		
Expiration date		

IX. Public comments/public hearing

(To be determined)

STATE OF TENNESSEE
AIR POLLUTION CONTROL BOARD
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
NASHVILLE, TENNESSEE 37243

OPERATING PERMIT (TITLE V) Issued Pursuant to Tennessee Air Quality Act

This permit fulfills the requirements of Title V of the Federal Clean Air Act (42 U.S.C. 7661a-7661e) and the federal regulations promulgated thereunder at 40 CFR Part 70. (FR Vol. 57, No. 140, Tuesday, July 21, 1992 p.32295-32312). This permit is issued in accordance with the provisions of paragraph 1200-03-09-.02(11) of the Tennessee Air Pollution Control Regulations (TAPCR). The permittee has been granted permission to operate an air contaminant source in accordance with emissions limitations and monitoring requirements set forth herein.

Date Issued: TBD **DRAFT**

Date Expires: TBD

Permit Number:
576847

Issued To:
Magotteaux Inc.

Installation Address:
2360 Industrial Loop Road
Pulaski, TN 38478

Installation Description:
Secondary Iron and Steel Foundry
(see Table of Contents, Sections E5-E33 for individual sources)

Facility ID: 28-0025

Renewal Application Due Date:
Between ******* and *******

Primary SIC: 3322

Information Relied Upon:
Renewal Application dated May 5, 2019

(continued on the next page)

TECHNICAL SECRETARY

No Authority is Granted by this Permit to Operate, Construct, or Maintain any Installation in Violation of any Law, Statute, Code, Ordinance, Rule, or Regulation of the State of Tennessee or any of its Political Subdivisions.

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SECTION A

GENERAL PERMIT CONDITIONS

A permit issued under the provisions of paragraph 1200-03-09-.02(11) is a permit issued pursuant to the requirements of Title V of the Federal Act and its implementing Federal regulations promulgated at 40 CFR, Part 70.

A1. **Definitions.** Terms not otherwise defined in the permit shall have the meaning assigned to such terms in the referenced regulation.

TAPCR 1200-03

A2. **Compliance requirement.** All terms and conditions in a permit issued pursuant to paragraph 1200-03-09-.02(11) including any provisions designed to limit a source's potential to emit, are enforceable by the Administrator and citizens under the Federal Act.

The permittee shall comply with all conditions of its permit. Except for requirements specifically designated herein as not being federally enforceable (State Only), non-compliance with the permit requirements is a violation of the Federal Act and the Tennessee Air Quality Act and is grounds for enforcement action; for a permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. Non-compliance with permit conditions specifically designated herein as not being federally enforceable (State Only) is a violation of the Tennessee Air Quality Act and may be grounds for these actions.

TAPCR 1200-03-09-.02(11)(e)2(i) and 1200-03-09-.02(11)(e)1(vi)(I)

A3. **Need to halt or reduce activity.** The need to halt or reduce activity is not a defense for noncompliance. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit. However, nothing in this item shall be construed as precluding consideration of a need to halt or reduce activity as a mitigating factor in assessing penalties for noncompliance if the health, safety or environmental impacts of halting or reducing operations would be more serious than the impacts of continuing operations.

TAPCR 1200-03-09-.02(11)(e)1(vi)(II)

A4. **The permit.** The permit may be modified, revoked, reopened, and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition.

TAPCR 1200-03-09-.02(11)(e)1(vi)(III)

A5. **Property rights.** The permit does not convey any property rights of any sort, or any exclusive privilege.

TAPCR 1200-03-09-.02(11)(e)1(vi)(IV)

A6. **Submittal of requested information.** The permittee shall furnish to the Technical Secretary, within a reasonable time, any information that the Technical Secretary may request in writing to determine whether cause exists for modifying, revoking and reissuing, or termination of the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the Technical Secretary copies of records required to be kept by the permit. If the permittee claims that such information is confidential, the Technical Secretary may review that claim and hold the information in protected status until such time that the Board can hear any contested proceedings regarding confidentiality disputes. If the information is desired by EPA, the permittee may mail the information directly to EPA. Any claims of confidentiality for federal purposes will be determined by EPA.

TAPCR 1200-03-09-.02(11)(e)1(vi)(V)

A7. **Severability clause.** The requirements of this permit are severable. A dispute regarding one or more requirements of this permit does not invalidate or otherwise excuse the permittee from their duty to comply with the remaining portion of the permit.

TAPCR 1200-03-09.02(11)(e)1(v)

A8. **Fee payment.**

(a) The permittee shall pay an annual Title V emission fee based upon the responsible official's choice of actual emissions, allowable emissions, or a combination of actual and allowable emissions; and on the responsible official's choice of annual accounting period. An emission cap of 4,000 tons per year per regulated pollutant per major source SIC Code shall apply to actual or allowable based emission fees. A Title V annual emission fee will not be charged for emissions in excess of the cap. Title V annual emission fees will not be charged for carbon monoxide or for greenhouse gas pollutants solely because they are greenhouse gases.

(b) Title V sources shall pay allowable based emission fees until the beginning of the next annual accounting period following receipt of their initial Title V operating permit. At that time, the permittee shall begin paying their Title V fee based upon their choice of actual or allowable based fees, or mixed actual and allowable based fees. Once permitted, the Responsible Official may revise their existing fee choice by submitting a written request to the Division no later than December 31 of the annual accounting period for which the fee is due.

(c) **W**hen paying annual Title V emission fees, the permittee shall comply with all provisions of 1200-03-26-.02 and 1200-03-09-.02(11) applicable to such fees.

(d) Where more than one (1) allowable emission limit is applicable to a regulated pollutant, the allowable emissions for the regulated pollutants shall not be double counted. Major sources subject to the provisions of paragraph 1200-03-26-.02(9) shall apportion their emissions as follows to ensure that their fees are not double counted.

1. Sources that are subject to federally promulgated hazardous air pollutant under 40 CFR 60, 61, or 63 will place such regulated emissions in the regulated hazardous air pollutant (HAP) category.

2. A category of miscellaneous HAPs shall be used for hazardous air pollutants listed at part 1200-03-26-.02(2)(i)12 that are not subject to federally promulgated hazardous air pollutant standards under 40 CFR 60, 61, or 63.

3. HAPs that are also in the family of volatile organic compounds, particulate matter, or PM_{10} shall not be placed in either the regulated HAP category or miscellaneous HAP category.

4. Sources that are subject to a provision of chapter 1200-03-16 New Source Performance Standards (NSPS) or chapter 0400-30-39 Standards of Performance for New Stationary Sources for pollutants that are neither particulate matter, PM_{10}, sulfur dioxide (SO_2), volatile organic compounds (VOC), nitrogen oxides (NO_x), or hazardous air pollutants (HAPs) will place such regulated emissions in an NSPS pollutant category.

5. The regulated HAP category, the miscellaneous HAP category, and the NSPS pollutant category are each subject to the 4,000 ton cap provisions of subparagraph 1200-03-26-.02(2)(i).

6. Major sources that wish to pay annual emission fees for PM_{10} on an allowable emission basis may do so if they have a specific PM_{10} allowable emission standard. If a major source has a total particulate emission standard, but wishes to pay annual emission fees on an actual PM_{10} emission basis, it may do so if the PM_{10} actual emission levels are proven to the satisfaction of the Technical Secretary. The method to demonstrate the actual PM_{10} emission levels must be made as part of the source's major source operating permit in advance in order to exercise this option. The PM_{10} emissions reported under these options shall not be subject to fees under the family of particulate emissions. The 4,000 ton cap provisions of subparagraph 1200-03-26-.02(2)(i) shall also apply to PM_{10} emissions.

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TAPCR 1200-03-26-.02 and 1200-03-09-.02(11)(e)1(vii)

A9. **Permit revision not required.** A permit revision will not be required under any approved economic incentives, marketable permits, emissions trading and other similar programs or process for changes that are provided for in the permit.

TAPCR 1200-03-09-.02(11)(e)1(viii)

A10. **Inspection and entry.** Upon presentation of credentials and other documents as may be required by law, the permittee shall allow the Technical Secretary or an authorized representative to perform the following for the purposes of determining compliance with the permit applicable requirements:

(a) Enter upon, at reasonable times, the permittee's premises where a source is located or emissions-related activity is conducted, or where records must be kept under the conditions of the permit;

(b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit;

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(c) Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit; and

(d) As authorized by the Clean Air Act and Chapter 1200-03-10 of TAPCR, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit or applicable requirements.

(e) "Reasonable times" shall be considered to be customary business hours unless reasonable cause exists to suspect noncompliance with the Act, Division 1200-03 or any permit issued pursuant thereto and the Technical Secretary specifically authorizes an inspector to inspect a facility at any other time.

TAPCR 1200-03-09-.02(11)(e)3.(ii)

A11. **Permit shield.**

(a) Compliance with the conditions of this permit shall be deemed compliance with all applicable requirements as of the date of permit issuance, provided that:

1. Such applicable requirements are included and are specifically identified in the permit; or

2. The Technical Secretary, in acting on the permit application or revision, determines in writing that other requirements specifically identified are not applicable to the source, and the permit includes the determination or a concise summary thereof.

(b) Nothing in this permit shall alter or affect the following:

1. The provisions of section 303 of the Federal Act (emergency orders), including the authority of the Administrator under that section. Similarly, the provisions of T.C.A. §68-201-109 (emergency orders) including the authority of the Governor under the section;

2. The liability of an owner or operator of a source for any violation of applicable requirements prior to or at the time of permit issuance;

3. The applicable requirements of the acid rain program, consistent with section 408(a) of the Federal Act; or

4. The ability of EPA to obtain information from a source pursuant to section 114 of the Federal Act.

(c) Permit shield is granted to the permittee.

TAPCR 1200-03-09-.02(11)(e)6

A12). **Permit renewal and expiration.**

(a) An application for permit renewal must be submitted at least 180 days, but no more than 270 days prior to the expiration of this permit. Permit expiration terminates the source's right to operate unless a timely and complete renewal application has been submitted.

(b) If the permittee submits a timely and complete application for permit renewal the source will not be considered to be operating without a permit until the Technical Secretary takes final action on the permit application, except as otherwise noted in paragraph 1200-03-09-.02(11).

(c) This permit, its shield provided in Condition A11, and its conditions will be extended and effective after its expiration date provided that the source has submitted a timely, complete renewal application to the Technical Secretary.

TAPCR 1200-03-09-.02(11)(f)2 and 3, 1200-03-09-.02(11)(d)1(i)(III), and 1200-03-09-.02(11)(a)2

A13. **Reopening for cause.**

(a) A permit shall be reopened and revised prior to the expiration of the permit under any of the circumstances listed below:

1. Additional applicable requirements under the Federal Act become applicable to the sources contained in this permit provided the permit has a remaining term of 3 or more years. Such a reopening shall be completed not later than 18 months after promulgation of the applicable requirement. No such reopening is required if the effective date of the requirement is later than the permit expiration date of this permit, unless the original has been extended pursuant to 1200-03-09-.02(11)(a)2.

2. Additional requirements become applicable to an affected source under the acid rain program.

3. The Technical Secretary or EPA determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the permit.

4. The Technical Secretary or EPA determines that the permit must be revised or revoked to assure compliance with the applicable requirements.

(b) Proceedings to reopen and issue a permit shall follow the same proceedings as apply to initial permit issuance and shall affect only those parts of the permit for which cause to reopen exists, and not the entire permit. Such reopening shall be made as expeditiously as practicable.

(c) Reopenings for cause shall not be initiated before a notice of such intent is provided to the permittee by the Technical Secretary at least 30 days in advance of the date that the permit is to be reopened except that the Technical Secretary may provide

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a shorter time period in the case of an emergency. An emergency shall be established by the criteria of T.C.A. 68-201-109 or other compelling reasons that public welfare is being adversely affected by the operation of a source that is in compliance with its permit requirements.

(d) If the Administrator finds that cause exists to terminate, modify, or revoke and reissue a permit as identified in A13, he is required under federal rules to notify the Technical Secretary and the permittee of such findings in writing. Upon receipt of such notification, the Technical Secretary shall investigate the matter in order to determine if he agrees or disagrees with the Administrator's findings. If he agrees with the Administrator's findings, the Technical Secretary shall conduct the reopening in the following manner:

1. The Technical Secretary shall, within 90 days after receipt of such notification, forward to EPA a proposed determination of termination, modification, or revocation and reissuance, as appropriate. If the Administrator grants additional time to secure permit applications or additional information from the permittee, the Technical Secretary shall have the additional time period added to the standard 90 day time period.

2. EPA will evaluate the Technical Secretary's proposed revisions and respond as to their evaluation.

3. If EPA agrees with the proposed revisions, the Technical Secretary shall proceed with the reopening in the same manner prescribed under Condition A13 (b) and Condition A13 (c).

4. If the Technical Secretary disagrees with either the findings or the Administrator that a permit should be reopened or an objection of the Administrator to a proposed revision to a permit submitted pursuant to Condition A13(d), he shall bring the matter to the Board at its next regularly scheduled meeting for instructions as to how he should proceed. The permittee shall be required to file a written brief expressing their position relative to the Administrator's objection and have a responsible official present at the meeting to answer questions for the Board. If the Board agrees that EPA is wrong in their demand for a permit revision, they shall instruct the Technical Secretary to conform to EPA's demand, but to issue the permit under protest preserving all rights available for litigation against EPA.

TAPCR. 1200-03-09-.02(11)(f)6 and 7.

A14. **Permit transference.** An administrative permit amendment allows for a change of ownership or operational control of a source where the Technical Secretary determines that no other change in the permit is necessary, provided that the following requirements are met:

(a) Transfer of ownership permit application is filed consistent with the provisions of 1200-03-09-.03(6), and

(b) written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new permittee has been submitted to the Technical Secretary.

TAPCR 1200-03-09-.02(11)(f)4(i)(IV) and 1200-03-09-.03(6)

A15. **Air pollution alert.** When the Technical Secretary has declared that an air pollution alert, an air pollution warning, or an air pollution emergency exists, the permittee must follow the requirements for that episode level as outlined in TAPCR 1200-03-09-.03(1) and TAPCR 1200-03-15-.03.

A16. **Construction permit required.** Except as exempted in TAPCR 1200-03-09-.04, or excluded in subparagraph TAPCR 1200-03-02-.01(1)(aa) or subparagraph TAPCR 1200-03-02-.01(1)(cc), this facility shall not begin the construction of a new air contaminant source or the modification of an air contaminant source which may result in the discharge of air contaminants without first having applied for and received from the Technical Secretary a construction permit for the construction or modification of such air contaminant source.

TAPCR 1200-03-09-.01(1)(a)

A17. **Notification of changes.** The permittee shall notify the Technical Secretary 30 days prior to commencement of any of the following changes to an air contaminant source which would not be a modification requiring a construction permit.

(a) change in air pollution control equipment

(b) change in stack height or diameter

(c) change in exit velocity of more than 25 percent or exit temperature of more than 15 percent based on absolute temperature.

TAPCR 1200-03-09-.02(7)

A18. **Schedule of compliance.** The permittee will comply with any applicable requirement that becomes effective during the permit term on a timely basis. If the permittee is not in compliance the permittee must submit a schedule for coming into compliance which must include a schedule of remedial measure(s), including an enforceable set of deadlines for specific actions.

TAPCR 1200-03-09-.02(11)(d)3 and 40 CFR Part 70.5(c)

A19. **Title VI.**

(a) The permittee shall comply with the standards for recycling and emissions reduction pursuant to 40 CFR, Part 82, Subpart F, except as provided for motor vehicle air conditioners (MVACs) in Subpart B:

1. Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to Section 82.156.

2. Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to Section 82.158.

3. Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to Section 82.161.

(b) If the permittee performs a service on motor (fleet) vehicles when this service involves ozone depleting substance refrigerant in the motor vehicle air conditioner (MVAC), the permittee is subject to all the applicable requirements as specified in 40 CFR, Part 82, Subpart B, Servicing of Motor Vehicle Air Conditioners.

(c) The permittee shall be allowed to switch from any ozone-depleting substance to any alternative that is listed in the Significant New Alternatives Program(SNAP) promulgated pursuant to 40 CFR, Part 82, Subpart G, Significant New Alternatives Policy Program.

A20. **112 (r).** Sources which are subject to the provisions of Section 112(r) of the federal Clean Air Act or any federal regulations promulgated thereunder, shall annually certify in writing to the Technical Secretary that they are properly following their accidental release plan. The annual certification is due in the office of the Technical Secretary no later than January 31 of each year. Said certification will be for the preceding calendar year.

TAPCR 1200-03-32-.03(3)

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SECTION B

GENERAL CONDITIONS for MONITORING, REPORTING, and ENFORCEMENT

B1. **Recordkeeping.** Monitoring and related record keeping shall be performed in accordance with the requirements specified in the permit conditions for each individual permit unit. In no case shall reports of any required monitoring and record keeping be submitted less frequently than every six months.

(a) Where applicable, records of required monitoring information include the following:

1. The date, place as defined in the permit, and time of sampling or measurements;
2. The date(s) analyses were performed;
3. The company or entity that performed the analysis;
4. The analytical techniques or methods used;
5. The results of such analyses; and
6. The operating conditions as existing at the time of sampling or measurement.

(b) Digital data accumulation which utilizes valid data compression techniques shall be acceptable for compliance determination as long as such compression does not violate an applicable requirement and its use has been approved in advance by the Technical Secretary.

TAPCR 1200-03-09-.02(11)(e)1(iii)

B2. **Retention of monitoring data.** The permittee shall retain records of all required monitoring data and support information for a period of at least 5 years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, and copies of all reports required by the permit.

TAPCR 1200-03-09-.02(11)(e)1(iii)(II)II

B3. **Reporting.** Reports of any required monitoring and record keeping shall be submitted to the Technical Secretary in accordance with the frequencies specified in the permit conditions for each individual permit unit. Reports shall be submitted within 60 days of the close of the reporting period unless otherwise noted. All instances of deviations from permit requirements must be clearly identified in such reports. All required reports must be certified by a responsible official. Reports required under "State only requirements" are not required to be certified by a responsible official.

TAPCR 1200-03-09-.02(11)(e)1(iii)

B4. **Certification.** Except for reports required under "State Only" requirements, any application form, report or compliance certification submitted pursuant to the requirements of this permit shall contain certification by a responsible official of truth, accuracy and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate and complete.

TAPCR 1200-03-09-.02(11)(d)4

B5. **Annual compliance certification.** The permittee shall submit annually compliance certifications with terms and conditions contained in Sections A, B, D and E of this permit, including emission limitations, standards, or work practices. This compliance certification shall include all of the following (provided that the identification of applicable information may cross-reference the permit or previous reports, as applicable):

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

(b) The identification of the method(s) or other means used by the owner or operator for determining the compliance status with each term and condition during the certification period; such methods and other means shall include, at a minimum, the methods and means required by this permit. If necessary, the owner or operator also shall identify any other material information that must be included in the certification to comply with section 113(c)(2) of the Federal Act, which prohibits knowingly making a false certification or omitting material information;

(c) The status of compliance with the terms and conditions of the permit for the period covered by the certification, including whether compliance during the period was continuous or intermittent. The certification shall be based on the method or means designated in B5(b) above. The certification shall identify each deviation and take it into account in the compliance certification. The certification shall also identify as possible exceptions to compliance any periods during which compliance is required and in which an excursion* or exceedance** as defined below occurred; and

(d) Such other facts as the Technical Secretary may require to determine the compliance status of the source.

* "Excursion" shall mean a departure from an indicator range established for monitoring under this paragraph, consistent with any averaging period specified for averaging the results of the monitoring.

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** "Exceedance" shall mean a condition that is detected by monitoring that provides data in terms of an emission limitation or standard and that indicates that emissions (or opacity) are greater than the applicable emission limitation or standard (or less than the applicable standard in the case of a percent reduction requirement) consistent with any averaging period specified for averaging the results of the monitoring.

40 CFR Part 70.6(c)(5)(iii) as amended in the Federal Register Vol. 79, No.144, July 28, 2014, pages 43661 through 43667

B6. **Submission of compliance certification.** The compliance certification shall be submitted to:

The Tennessee Department of Environment and Conservation Environmental Field Office specified in Section E of this permit	and	Air Enforcement Branch US EPA Region IV 61 Forsyth Street, SW Atlanta, Georgia 30303

TAPCR 1200-03-09-.02(11)(e)3(v)(IV)

B7. **Emergency provisions.** An emergency constitutes an affirmative defense to an enforcement action brought against this source for noncompliance with a technology based emission limitation due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

(a) The affirmative defense of the emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:

1. An emergency occurred and that the permittee can identify the probable cause(s) of the emergency. "Probable" must be supported by a credible investigation into the incident that seeks to identify the causes and results in an explanation supported by generally accepted engineering or scientific principles.

2. The permitted source was at the time being properly operated. In determining whether or not a source was being properly operated, the Technical Secretary shall examine the source's written standard operating procedures which were in effect at the time of the noncompliance and any other code as detailed below that would be relevant to preventing the noncompliance. Adherence to the source's standard operating procedures will be the test of adequate preventative maintenance, careless operation, improper operation or operator error to the extent that such adherence would prevent noncompliance. The source's failure to follow recognized standards of practice to the extent that adherence to such a standard would have prevented noncompliance will disqualify the source from any claim of an emergency and an affirmative defense.

3. During the period of the emergency, the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit.

4. The permittee submitted notice of the emergency to the Technical Secretary according to the notification criteria for malfunctions in rule 1200-03-20-.03. For the purposes of this condition, "emergency" shall be substituted for "malfunction(s)" in rule 1200-03-20-.03 to determine the relevant notification threshold. The notice shall include a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.

(b) In any enforcement proceeding the permittee seeking to establish the occurrence of an emergency has the burden of proof.

(c) The provisions of this condition are in addition to any emergency, malfunction or upset requirement contained in Division 1200-03 or other applicable requirement.

TAPCR 1200-03-09-.02(11)(e)7

B8. **Excess emissions reporting.**

(a) The permittee shall promptly notify the Technical Secretary when any emission source, air pollution control equipment, or related facility breaks down in such a manner to cause the emission of air contaminants in excess of the applicable emission standards contained in Division 1200-03 or any permit issued thereto, or of sufficient duration to cause damage to property or public health. The permittee must provide the Technical Secretary with a statement giving all pertinent facts, including the estimated duration of the breakdown. Violations of the visible emission standard which occur for less than 20 minutes in one day (midnight to midnight) need not be reported. Prompt notification will be within 24 hours of the malfunction and shall be provided by telephone to the Division's Nashville office. The Technical Secretary shall be notified when the condition causing the failure or breakdown has been corrected. In attainment and unclassified areas if emissions other than from sources designated as significantly impacting on a nonattainment area in excess of the standards will not and do not occur over more than a 24-hour period (or will not recur over more than a 24-hour period) and no damage to property and or public health is anticipated, notification is not required.

(b) Any malfunction that creates an imminent hazard to health must be reported by telephone immediately to the Division's Nashville office at (615) 532-0554 and to the State Civil Defense.

(c) A log of all malfunctions, startups, and shutdowns resulting in emissions in excess of the standards in Division 1200-03 or any permit issued thereto must be kept at the plant. All information shall be entered in the log no later than twenty-four (24) hours after the startup or shutdown is complete, or the malfunction has ceased or has been corrected. Any later discovered corrections can be added in the log as footnotes with the reason given for the change. This log must record at least the following:

1. Stack or emission point involved
2. Time malfunction, startup, or shutdown began and/or when first noticed
3. Type of malfunction and/or reason for shutdown
4. Time startup or shutdown was complete or time the air contaminant source returned to normal operation
5. The company employee making entry on the log must sign, date, and indicate the time of each log entry

The information under items 1. and 2. must be entered into the log by the end of the shift during which the malfunction or startup began. For any source utilizing continuous emission(s) monitoring, continuous emission(s) monitoring collection satisfies the above log keeping requirement.

TAPCR 1200-03-20-.03 and .04

B9. **Malfunctions, startups and shutdowns - reasonable measures required.** The permittee must take all reasonable measures to keep emissions to a minimum during startups, shutdowns, and malfunctions. These measures may include installation and use of alternate control systems, changes in operating methods or procedures, cessation of operation until the process equipment and/or air pollution control equipment is repaired, maintaining sufficient spare parts, use of overtime labor, use of outside consultants and contractors, and other appropriate means. Failures that are caused by poor maintenance, careless operation or any other preventable upset condition or preventable equipment breakdown shall not be considered malfunctions. This provision does not apply to standards found in 40 CFR, Parts 60(Standards of performance for new stationary sources), 61(National emission standards for hazardous air pollutants) and 63(National emission standards for hazardous air pollutants for source categories).

TAPCR 1200-03-20-.02

B10. Reserved.

B11. **Report required upon the issuance of a notice of violation for excess emissions.** The permittee must submit within twenty (20) days after receipt of the notice of violation, the data required below. If this data has previously been available to the Technical Secretary prior to the issuance of the notice of violation no further action is required of the violating source. However, if the source desires to submit additional information, then this must be submitted within the same twenty (20) day time period. The minimum data requirements are:

(a) The identity of the stack and/or other emission point where the excess emission(s) occurred;

(b) The magnitude of the excess emissions expressed in pounds per hour and the units of the applicable emission limitation and the operating data and calculations used in determining the magnitude of the excess emissions;

(c) The time and duration of the emissions;

(d) The nature and cause of such emissions;

(e) For malfunctions, the steps taken to correct the situation and the action taken or planned to prevent the recurrence of such malfunctions;

(f) The steps taken to limit the excess emissions during the occurrence reported, and

(g) If applicable, documentation that the air pollution control equipment, process equipment, or processes were at all times maintained and operated in a manner consistent with good operating practices for minimizing emissions.

Failure to submit the required report within the twenty (20) day period specified shall preclude the admissibility of the data for determination of potential enforcement action.

TAPCR 1200-03-20-.06(2), (3) and (4)

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SECTION C
PERMIT CHANGES

C1. **Operational flexibility changes.** The source may make operational flexibility changes that are not addressed or prohibited by the permit without a permit revision subject to the following requirements:

(a) The change cannot be subject to a requirement of Title IV of the Federal Act or Chapter 1200-03-30.

(b) The change cannot be a modification under any provision of Title I of the federal Act or Division 1200-03.

(c) Each change shall meet all applicable requirements and shall not violate any existing permit term or condition.

(d) The source must provide contemporaneous written notice to the Technical Secretary and EPA of each such change, except for changes that are below the threshold of levels that are specified in Rule 1200-03-09-.04.

(e) Each change shall be described in the notice including the date, any change in emissions, pollutants emitted, and any applicable requirements that would apply as a result of the change.

(f) The change shall not qualify for a permit shield under the provisions of part 1200-03-09-.02(11)(e)6.

(g) The permittee shall keep a record describing the changes made at the source that result in emissions of a regulated air pollutant subject to an applicable requirement, but not otherwise regulated under the permit, and the emissions resulting from those changes. The records shall be retained until the changes are incorporated into subsequently issued permits.

TAPCR 1200-03-09-.02(11)(a)4 (ii)

C2. **Section 502(b)(10) changes.**

(a) The permittee can make certain changes without requiring a permit revision, if the changes are not modifications under Title I of the Federal Act or Division 1200-03 and the changes do not exceed the emissions allowable under the permit. The permittee must, however, provide the Administrator and Technical Secretary with written notification within a minimum of 7 days in advance of the proposed changes. The Technical Secretary may waive the 7 day advance notice in instances where the source demonstrates in writing that an emergency necessitates the change. Emergency shall be demonstrated by the criteria of TAPCR 1200-03-09-.02(11)(e)7 and in no way shall it include changes solely to take advantages of an unforeseen business opportunity. The Technical Secretary and EPA shall attach each such notice to their copy of the relevant permit.

(b) The written notification must be signed by a facility Title V responsible official and include the following:

1. a brief description of the change within the permitted facility;

2. the date on which the change will occur;

3. a declaration and quantification of any change in emissions;

4. a declaration of any permit term or condition that is no longer applicable as a result of the change; and

5. a declaration that the requested change is not a Title I modification and will not exceed allowable emissions under the permit.

(c) The permit shield provisions of TAPCR 1200-03-09-.02(11)(e)6 shall not apply to Section 502(b)(10) changes.

TAPCR 1200-03-09-.02(11)(a)4 (i)

C3. **Administrative amendment.**

(a) Administrative permit amendments to this permit shall be in accordance with 1200-03-09-.02(11)(f)4. The source may implement the changes addressed in the request for an administrative amendment immediately upon submittal of the request.

(b) The permit shield shall be extended as part of an administrative permit amendment revision consistent with the provisions of TAPCR 1200-03-09-.02(11)(e)6 for such revisions made pursuant to item (c) of this condition which meet the relevant requirements of TAPCR 1200-03-09-.02(11)(e), TAPCR 1200-03-09-.02(11)(f) and TAPCR 1200-03-09-.02(11)(g) for significant permit modifications.

(c) Proceedings to review and grant administrative permit amendments shall be limited to only those parts of the permit for which cause to amend exists, and not the entire permit.

TAPCR 1200-03-09-.02(11)(f)4

C4. **Minor permit modifications.**

(a) The permittee may submit an application for a minor permit modification in accordance with TAPCR 1200-03-09-.02(11)(f)5(ii).

(b) The permittee may make the change proposed in its minor permit modification immediately after an application is filed with the Technical Secretary.
(c) Proceedings to review and modify permits shall be limited to only those parts of the permit for which cause to modify exists, and not the entire permit.
(d) Minor permit modifications do not qualify for a permit shield.

TAPCR 1200-03-09-.02(11)(f)5(ii)

C5. **Significant permit modifications.**
(a) The permittee may submit an application for a significant modification in accordance with TAPCR 1200-03-09-.02(11)(f)5(iv).
(b) Proceedings to review and modify permits shall be limited to only those parts of the permit for which cause to modify exists, and not the entire permit.

TAPCR 1200-03-09-.02(11)(f)5(iv)

C6. **New construction or modifications.**
Future construction at this facility that is subject to the provisions of TAPCR 1200-03-09-.01 shall be governed by the following:
(a) The permittee shall designate in their construction permit application the route that they desire to follow for the purposes of incorporating the newly constructed or modified sources into their existing operating permit. The Technical Secretary shall use that information to prepare the operating permit application submittal deadlines in their construction permit.
(b) Sources desiring the permit shield shall choose the administrative amendment route of TAPCR 1200-03-09-.02(11)(f)4 or the significant modification route of TAPCR 1200-03-09-.02(11)(f)5(iv).
(c) Sources desiring expediency instead of the permit shield shall choose the minor permit modification procedure route of TAPCR 1200-03-09-.02(11)(f)5(ii) or group processing of minor modifications under the provisions of TAPCR 1200-03-09-.02(11)(f)5(iii) as applicable to the magnitude of their construction.

TAPCR 1200-03-09-.02(11)(d) 1(i)(V)

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SECTION D

GENERAL APPLICABLE REQUIREMENTS

D1. **Visible emissions.** With the exception of air emission sources exempt from the requirements of TAPCR Chapter 1200-03-05 and air emission sources for which a different opacity standard is specifically provided elsewhere in this permit, the permittee shall not cause, suffer, allow or permit discharge of a visible emission from any air contaminant source with an opacity in excess of twenty (20) percent for an aggregate of more than five (5) minutes in any one (1)hour or more than twenty (20) minutes in any twenty-four (24) hour period; provided, however, that for fuel burning installations with fuel burning equipment of input capacity greater than 600 million btu per hour, the permittee shall not cause, suffer, allow, or permit discharge of a visible emission from any fuel burning installation with an opacity in excess of twenty (20) percent (6-minute average) except for one six minute period per one (1) hour of not more than forty (40) percent opacity. Sources constructed or modified after July 7, 1992 shall utilize 6-minute averaging.

Consistent with the requirements of TAPCR Chapter 1200-03-20, due allowance may be made for visible emissions in excess of that permitted under TAPCR 1200-03-05 which are necessary or unavoidable due to routine startup and shutdown conditions. The facility shall maintain a continuous, current log of all excess visible emissions showing the time at which such conditions began and ended and that such record shall be available to the Technical Secretary or an authorized representative upon request.

TAPCR 1200-03-05-.01(1), TAPCR 1200-03-05-.03(6) and TAPCR 1200-03-05-.02(1)

D2. **General provisions and applicability for non-process gaseous emissions.** Any person constructing or otherwise establishing a non-portable air contaminant source emitting gaseous air contaminants after April 3, 1972, or relocating an air contaminant source more than 1.0 km from the previous position after November 6, 1988, shall install and utilize the best equipment and technology currently available for controlling such gaseous emissions.

TAPCR 1200-03-06-.03(2)

D3. **Non-process emission standards.** The permittee shall not cause, suffer, allow, or permit particulate emissions from non-process sources in excess of the standards in TAPCR 1200-03-06.

D4. **General provisions and applicability for process gaseous emissions.** Any person constructing or otherwise establishing an air contaminant source emitting gaseous air contaminants after April 3, 1972, or relocating an air contaminant source more than 1.0 km from the previous position after November 6, 1988, shall install and utilize equipment and technology which is deemed reasonable and proper by the Technical Secretary.

TAPCR 1200-03-07-.07(2)

D5. **Particulate emissions from process emission sources.** The permittee shall not cause, suffer, allow, or permit particulate emissions from process sources in excess of the standards in TAPCR 1200-03-07.

D6. **Sulfur dioxide emission standards.** The permittee shall not cause, suffer, allow, or permit Sulfur dioxide emissions from process and non-process sources in excess of the standards in TAPCR 1200-03-14. Regardless of the specific emission standard, new process sources shall utilize the best available control technology as deemed appropriate by the Technical Secretary of the Tennessee Air Pollution Control Board.

D7. **Fugitive Dust.**

(a) The permittee shall not cause, suffer, allow, or permit any materials to be handled, transported, or stored; or a building, its appurtenances, or a road to be used, constructed, altered, repaired, or demolished without taking reasonable precautions to prevent particulate matter from becoming airborne. Such reasonable precautions shall include, but not be limited to, the following:

1. Use, where possible, of water or chemicals for control of dust in demolition of existing buildings or structures, construction operations, grading of roads, or the clearing of land;

2. Application of asphalt, water, or suitable chemicals on dirt roads, material stock piles, and other surfaces which can create airborne dusts;

3. Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials. Adequate containment methods shall be employed during sandblasting or other similar operations.

(b) The permittee shall not cause, suffer, allow, or permit fugitive dust to be emitted in such manner to exceed five (5) minutes per hour or twenty (20) minutes per day as to produce a visible emission beyond the property line of the property on which the emission originates, excluding malfunction of equipment as provided in Chapter 1200-03-20.

TAPCR 1200-03-08

D8. **Open burning.** The permittee shall comply with the TAPCR 1200-03-04 for all open burning activities at the facility.

TAPCR 1200-03-04

D9. **Asbestos.** Where applicable, the permittee shall comply with the requirements of TAPCR 1200-03-11-.02(2)(d) when conducting any renovation or demolition activities at the facility.

TAPCR 1200-03-11-.02(2)(d) and 40 CFR, Part 61

D10. **Annual certification of compliance.** The generally applicable requirements set forth in Section D of this permit are intended to apply to activities and sources that are not subject to source-specific applicable requirements contained in State of Tennessee and U.S. EPA regulations. By annual certification of compliance, the permittee shall be considered to meet the monitoring and related record keeping and reporting requirements of TAPCR 1200-03-09-.02(11)(e)1.(iii) and 1200-03-10-.04(2)(b)1 and compliance requirements of TAPCR 1200-03-09-.02(11)(e)3.(i). The permittee shall submit compliance certification for these conditions annually.

D11. **Emission Standards for Hazardous Air Pollutants.** When applicable, the permittee shall comply with the TAPCR 0400-30-38 for all emission sources subject to a requirement contained therein.

TAPCR 0400-30-38

D12. **Standards of Performance for New Stationary Sources.** When applicable, the permittee shall comply with the TAPCR 0400-30-39 for all emission sources subject to a requirement contained therein.

TAPCR 0400-30-39

D13 **Gasoline Dispensing Facilities.** When applicable, the permittee shall comply with the TAPCR 1200-03-18-.24 for all emission sources subject to a requirement contained therein.

D14. **Internal Combustion Engines.**

(a) All stationary reciprocating internal combustion engines, including engines deemed insignificant activities and insignificant emission units, shall comply with the applicable provisions of TAPCR 0400-30-38-.01.
(b) All stationary compression ignition internal combustion engines, including engines deemed insignificant activities and insignificant emission units, shall comply with the applicable provisions of TAPCR 0400-30-39-.01.
(c) All stationary spark ignition internal combustion engines, including engines deemed insignificant activities and insignificant emission units, shall comply with the applicable provisions of TAPCR 0400-30-39-.02.

TAPCR 0400-30-38 and 39

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SECTION E

SOURCE SPECIFIC EMISSION STANDARDS, OPERATING LIMITATIONS, and MONITORING, RECORDKEEPING and REPORTING REQUIREMENTS

28-0025	**Source Description:**	This facility is a secondary iron and steel foundry located in Pulaski, TN. The major production operations include raw material handling and preparation, metal melting, mold and core production, pouring, cooling and mold shakeout, finishing, and heat treating. This facility produces wear resistant steel castings for reduction operations which includes small mill-media balls that range in size from ½" to 4-1/4", and larger parts such as hammers, jaws, and grates. The balls are used to pulverize various products in ball mills. The large parts are used by the mining industry and in recycling operations.

Conditions E1 through E3-28 apply to all sources in Section E of this permit unless otherwise noted.

E1. Fee payment

FEE EMISSIONS SUMMARY TABLE FOR MAJOR SOURCE 28-0025

REGULATED POLLUTANTS	ALLOWABLE EMISSIONS (tons per AAP)	ACTUAL EMISSIONS (tons per AAP)	COMMENTS
PARTICULATE MATTER (PM)	180.80	AEAR	Includes all fee emissions.
PM_{10}	N/A	AEAR	N/A
SO_2	13.82	AEAR	Includes all fee emissions.
VOC	81.47	AEAR	Includes all fee emissions.
NO_X	19.17	AEAR	Includes all fee emissions.
CATEGORY OF MISCELLANEOUS HAZARDOUS AIR POLLUTANTS (HAPs WITHOUT A STANDARD)*			
VOC FAMILY GROUP	9.8/24.8	AEAR	Fee emissions are included in VOC above.
NON-VOC GASEOUS GROUP	9.8/24.8	AEAR	No standard other than 9.8/24.8 HAP limits – HCN included
PM FAMILY GROUP	N/A	N/A	Fee emissions are included in PM above.
CATEGORY OF SPECIFIC HAZARDOUS AIR POLLUTANTS (HAPs WITH A STANDARD)**			
VOC FAMILY GROUP		AEAR	N/A
NON-VOC GASEOUS GROUP		AEAR	N/A
PM FAMILY GROUP	9.8/24.8	AEAR	NESHAP (40 CFR 63 Subpart ZZZZZ) Fee emissions are included in PM above. Lead emissions included
CATEGORY OF NSPS POLLUTANTS NOT LISTED ABOVE***			
EACH NSPS POLLUTANT NOT LISTED ABOVE		AEAR	N/A

NOTES

AAP The **Annual Accounting Period** (**AAP**) is a 12 consecutive month period that **either (a) begins each July 1st and ends June 30th of the following year when fees are paid on a fiscal year basis, or (b) begins January 1st and ends December 31st of the same year when paying on a calendar year basis. The Annual Accounting Period at the time of permit renewal issuance began July 1, 2020 and ends June 30, 2021. The next Annual Accounting Period begins July 1, 2021, and ends June 30, 2022, unless a request** to change the annual accounting period is submitted by the responsible official as required by subparagraph 1200-03-26-.02(9)(b) of the TAPCR and approved by the Technical Secretary**.** If the permittee wishes to revise their annual accounting period or their annual emission fee basis as allowed by subparagraph 1200-03-26-.02(9)(b) of the TAPCR, the responsible official must submit the request to the Division in writing on or before December 31 of the annual accounting period for which the fee is due. If a change in fee basis from allowable emissions to actual emissions for any pollutant is requested, the request from the responsible official must include the methods that will be used to determine actual emissions. Changes in fee bases must be made using the Title V Fee Selection form, form number APC 36 (CN-1583), included as an attachment to this permit and available on the Division of Air Pollution Control's website.

N/A **N/A** indicates that no emissions are specified for fee computation.

AEAR If the permittee is paying annual emission fees on an actual emissions basis, **AEAR** indicates that an **A**ctual **E**missions **A**nalysis is **R**equired to determine the actual emissions of:

(1) **each regulated pollutant** (Particulate matter, SO_2, VOC, NO_X and so forth. See TAPCR 1200-03-26-.02(2)(i) for the definition of a regulated pollutant.),
(2) **each pollutant group** (VOC Family, Non-VOC Gaseous, and Particulate Family),
(3) the **Miscellaneous HAP Category,**
(4) the **Specific HAP Category**, and
(5) the **NSPS Category**

under consideration during the **Annual Accounting Period**.

***** **Category Of Miscellaneous HAP (HAP Without A Standard):** This category is made-up of hazardous air pollutants that do not have a federal or state standard. Each HAP is classified into one of three groups, the **VOC Family** group**, the Non-VOC Gaseous** group**,** or the **Particulate (PM) Family** group**.** **For fee computation**, the **Miscellaneous HAP Category** is subject to the 4,000 ton cap provisions of subparagraph 1200-03-26-.02(2)(i) of the TAPCR.

****** **Category Of Specific HAP (HAP With A Standard):** This category is made-up of hazardous air pollutants (HAP) that are subject to Federally promulgated Hazardous Air Pollutant Standards that can be imposed under Chapter 1200-03-11 or Chapter 1200-03-31. Each individual hazardous air pollutant is classified into one of three groups, the **VOC Family** group**, the Non-VOC Gaseous** group**,** or the **Particulate (PM) Family** group**.** **For fee computation**, each individual hazardous air pollutant of the **Specific HAP Category** is subject to the 4,000 ton cap provisions of subparagraph 1200-03-26-.02(2)(i) of the TAPCR.

******* **Category Of NSPS Pollutants Not Listed Above:** This category is made-up of each **N**ew **S**ource **P**erformance **S**tandard (**NSPS**) pollutant whose emissions are not included in the **PM**, **SO_2, VOC** or **NO_X** emissions from each source in this permit. **For fee computation**, each **NSPS**

pollutant not listed above is subject to the 4,000 ton cap provisions of subparagraph 1200-03-26-.02(2)(i) of the TAPCR.

END NOTES

The permittee shall:

(1) Pay Title V **annual emission fees**, on the emissions and year bases requested by the responsible official and approved by the Technical Secretary, for each annual accounting period (AAP) by the payment deadline(s) established in TAPCR 1200-03-26-.02(9)(g). Fees may be paid on an **actual**, **allowable**, or **mixed** emissions basis; and on either a **state fiscal year** or a **calendar year**, provided the requirements of TAPCR 1200-03-26-.02(9)(b) are met. If any part of any fee imposed under TAPCR 1200-03-26-.02 is not paid within 15 days of the due date, penalties shall at once accrue as specified in TAPCR 1200-03-26-.02(8).

(2) Sources paying annual emissions fees on an allowable emissions basis: pay annual allowable based emission fees for each annual accounting period no later than April 1 of each year pursuant to TAPCR 1200-03-26-.02(9)(d).

(3) Sources paying annual emissions fees on an actual emissions basis: prepare an **actual emissions analysis** for each AAP and pay **actual based emission fees** pursuant to TAPCR 1200-03-26-.02(9)(d). The **actual emissions analysis** shall include:

(a) the completed **Fee Emissions Summary Table**,

(b) each **actual emissions analysis** required**,** and

(c) the actual emission records for each pollutant and each source as required for actual emission fee determination, or a summary of the actual emission records required for fee determination, as specified by the Technical Secretary or the Technical Secretary's representative. The summary must include sufficient information for the Technical Secretary to determine the accuracy of the calculations. These calculations must be based on the annual fee basis approved by the Technical Secretary (a state fiscal year [July 1 through June 30] or a calendar year [January 1 through December 31]). These records shall be used to complete the **actual emissions analyses** required by the above **Fee Emissions Summary Table**.

(4) Sources paying annual emissions fees on a mixed emissions basis: for all pollutants and all sources for which the permittee has chosen an actual emissions basis, prepare an **actual emissions analysis** for each AAP and pay **actual based emission fees** pursuant to TAPCR 1200-03-26-.02(9)(d). The **actual emissions analysis** shall include:

(a) the completed **Fee Emissions Summary Table**,

(b) each **actual emissions analysis** required**,** and

(c) the actual emission records for each pollutant and each source as required for actual emission fee determination, or a summary of the actual emission records required for fee determination, as specified by the Technical Secretary or the Technical Secretary's representative. The summary must include sufficient information for the Technical Secretary to determine the accuracy of the calculations. These calculations must be based on the fee bases approved by the Technical Secretary (payment on an actual or mixed emissions basis) and payment on a state fiscal year (July 1 through June 30) or a calendar year (January 1 through December 31). These records shall be used to complete the **actual emissions analysis**.

For all pollutants and all sources for which the permittee has chosen an allowable emissions basis, pay allowable based emission fees pursuant to TAPCR 1200-03-26-.02(9)(d).

(5) When paying on an actual or mixed emissions basis, submit the **actual emissions analyses** at the time the fees are paid in full.

The annual emission fee due dates are specified in TAPCR 1200-03-26-.02(9)(g) and are dependent on the Responsible Official's choice of fee bases as described above. If any part of any fee imposed under TAPCR 1200-03-26-.02 is not paid within 15 days of the

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due date, penalties shall at once accrue as specified in TAPCR 1200-03-26-.02(8). Emissions for regulated pollutants shall not be double counted as specified in Condition A8(d) of this permit.

Payment of the fee due and the actual emissions analysis (if required) shall be submitted to The Technical Secretary at the following address:

Payment of Fee to:		Actual Emissions Analyses to:
The Tennessee Department of Environment and Conservation Division of Fiscal Services Consolidated Fee Section – APC William R. Snodgrass Tennessee Tower 312 Rosa L. Parks Avenue, 10th Floor Nashville, Tennessee 37243	and	The Tennessee Department of Environment and Conservation Division of Air Pollution Control Emission Inventory Program William R. Snodgrass Tennessee Tower 312 Rosa L. Parks Avenue, 15th Floor Nashville, Tennessee 37243 or An electronic copy (PDF) of actual emissions analysis can also be submitted to: apc.inventory@tn.gov

E2. Reporting requirements

(a) **Semiannual reports.** Semiannual reports shall cover the six-month periods from January 1 to June 30, and July 1, to December 31, and shall be submitted within 60 days after the end of each six-month period. Subsequent reports shall be submitted within 60 days after the end of each 6-month period following the first report.
These semiannual reports shall include:

(1) Any monitoring and recordkeeping required by Conditions E3-1, E5-2, E5-3, E5-5, E5-6, E5-7, E7-2, E7-3, E7-4, E7-6, E7-7, E7-8, E8-1, E8-2, E10-1, E11-1, E12-1, E13-1, E14-1, E15-1, E15-2, E16-1, E18-1, E18-2, E18-3, E18-4, E19-2, E19-3, E19-4, E20-1, E20-2, E21-2, E21-3, E22-1, E23-2, E23-3, E23-4, E24-1, E25-1, E26-1, E26-2, E27-1, E29-1, E30-1, E31-1 E32-1, E32-2 and E32-3 of this permit. However, a summary report of this data is acceptable provided there is sufficient information to enable the Technical Secretary to evaluate compliance.

(2) The visible emission evaluation readings from Conditions E3-11, E5-8, E16-2, E18-7, E19-5, E21-4 (if requested), E21-5, E22-2, E24-2, E26-3, E29-2, E30-2, and E31-2 of this permit if required. However, a summary report of this data is acceptable provided there is sufficient information to enable the Technical Secretary to evaluate compliance.

(3) Identification of all instances of deviations from **ALL PERMIT REQUIR EMENTS**

These reports must be certified by a responsible official consistent with Condition B4 of this permit and shall be submitted to The Technical Secretary at the address in Condition E2(b) of this permit.

TAPCR 1200-03-09-.02(11)(e)1.(iii)

(b) **Annual compliance certification.** The permittee shall submit annually compliance certifications with each term or condition contained in Sections A, B, D and E of this permit, including emission limitations, standards, or work practices. This compliance certification shall include all of the following (provided that the identification of applicable information may cross-reference the permit or previous reports, as applicable):

(1) The identification of each term or condition of the permit that is the basis of the certification;
(2) The identification of the method(s) or other means used by the owner or operator for determining the compliance status with each term and condition during the certification period; Such methods and other means shall include, at a minimum, the methods and means required by this permit. If necessary, the owner or operator

also shall identify any other material information that must be included in the certification to comply with section 113(c)(2) of the Federal Act, which prohibits knowingly making a false certification or omitting material information;

(3) The status of compliance with each term or condition of the permit for the period covered by the certification, including whether compliance during the period was continuous or intermittent. The certification shall be based on the method or means designated in E2(b)2 above. The certification shall identify each deviation and take it into account in the compliance certification. The certification shall also identify as possible exceptions to compliance any periods during which compliance is required and in which an excursion* or exceedance** as defined below occurred; and

(4) Such other facts as the Technical Secretary may require to determine the compliance status of the source.

* "Excursion" shall mean a departure from an indicator range established for monitoring under this paragraph, consistent with any averaging period specified for averaging the results of the monitoring.

** "Exceedance" shall mean a condition that is detected by monitoring that provides data in terms of an emission limitation or standard and that indicates that emissions (or opacity) are greater than the applicable emission limitation or standard (or less than the applicable standard in the case of a percent reduction requirement) consistent with any averaging period specified for averaging the results of the monitoring.

Annual compliance certifications shall cover the 12-month period from July 1 to June 30 and shall be submitted within 60 days after the end of each 12-month period.

These certifications shall be submitted to: **TN APCD** and **EPA**

Division of Air Pollution Control Columbia Environmental Field Office 1421 Hampshire Pike Columbia, TN 38401 **or** APC.ColuEFO@tn.gov	**and**	Air Enforcement Branch US EPA Region IV 61 Forsyth Street, SW Atlanta, Georgia 30303

40 CFR Part 70.6(c)(5)(iii) as amended in the Federal Register Vol. 79, No.144, July 28, 2014, pages 43661 through 43667
TAPCR 1200-03-09-.02(11)(e)3.(v)

(c) **NESHAP Semiannual reports.** The semiannual reports shall cover each six-month period of July 1 to the following December 31, and the six month period of July 1 to the following December 31. Reports shall be submitted within 60 days after the end of each 6-month report period.

These semiannual reports shall include:

(1) Any monitoring, recordkeeping or notifications required by 40 CFR 63 Subpart ZZZZZ or required by **Condition F13** of this permit. However, a summary report of this data is acceptable provided there is sufficient information to enable the Technical Secretary to evaluate compliance.

(2) Identification of all instances of deviations from **Conditions F2 through F14.**

These reports must be certified by a responsible official consistent with condition B4 of this permit and shall be submitted to the Nashville Central Office at the address below. In lieu of mailing a hard copy of the report, the permittee may submit an electronic copy of the report to the email address below.

Tennessee Division of Air Pollution Control William R. Snodgrass Tennessee Tower 312 Rosa L. Parks Avenue, 15th Floor Nashville, TN 37243	OR	air.pollution.control@tn.gov

TAPCR 1200-03-09-.02(11)(e)1.(iii)

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(d) **Retention of Records** All records required by any condition in Section E of this permit must be retained for a period of not less than five years. Additionally, these records shall be kept available for inspection by the Technical Secretary or a Division representative.

TAPCR 1200-03-09-.02(11)(e)1.(iii)(II)II

E3. General Permit Requirements.

E3-1. Maximum emissions of any individual hazardous air pollutant (HAP) listed in Section 112 of the Federal Clean Air Act shall not exceed 9.8 tons during any period of 12 consecutive months. Maximum emissions of any combination of HAPs shall not exceed 24.8 tons during any period of 12 consecutive months.

TAPCR 1200-03-07-.01(5); Information in minor permit modification request received on November 24, 2003.

Compliance Method: Compliance with this condition shall be assured by accounting for all HAPs emitted at this facility. The permittee shall test the dust from baghouses and cyclones at a minimum of every 5 years. The results of the HAP content dust testing will be used to calculate a five year rolling average concentration for each HAP. This average will be used to calculate the annual emissions for the reporting year. Record of analyses will be maintained on site and made available for inspection by the Technical Secretary or Division representative. The HAP emissions from each source of particulate HAP shall be submitted in the following general form. The record of all HAP emissions across the entire facility shall be recorded in the following summary log.

Source:_____ Month/Year:_____

Pollutant	Chemical Content Analysis of Dust (lb/ton)	% Concentration by Weight	% Concentration by Weight (Five Year Ave.)	PM-HAP Emitted (tons/month)	PM-HAP Emitted (tons/12-months)

Month/Year:_____

Emission Source No. & HAP Category	HAP_1 (tons/month)	HAP_1 Tons per any consecutive 12 Month Period	HAP_i (tons/month)	HAP_i Tons per any consecutive 12 Month Period	TOTAL HAP EMISSIONS (tons HAP_1 thru HAP_n per month)	TOTAL HAP EMISSIONS (tons HAP_1 thru HAP_n per any consecutive 12 month period
01-Source Removed from service						
02 – VOC HAP						
02 – PM HAP						
06 – PM HAP						
09 – PM HAP						
28 – PM HAP						
30 – PM HAP						
31-Source removed from service						
33 – VOC HAP						
33 - PM HAP						
36 – VOC HAP						
36 – PM HAP						
37 – PM HAP						
40 – PM HAP						
44 – PM HAP						
45 – VOC HAP						

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45 – PM HAP						
59 – PM HAP						
65 – PM HAP						
66 – PM HAP						
67 – PM HAP						
69 – PM HAP						
70 – VOC HAP						
71 PM HAP						
72 PM HAP						
73 PM HAP						
Pattern Shop- Insig. Source						
Core Machine – Insig. Source						

Note: i = 1, 2, 3... n = the number of different HAPs

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E3-2. Any non compliance with **Condition E3-1** of this permit set to restrain the "potential to emit" below the applicability threshold(s) of Division Rule 1200-03-09-.02(11), shall be reported in writing to the Technical Secretary within 15 working days of such discovery. This notification, at a minimum, shall include the identification of the source, identification of the permit condition(s) violated and details of the violation.

Compliance Method: Reporting of violations

E3-3. Insignificant activities

Insignificant activities (as defined at TAPCR 1200-03-09-.04(5)) for this facility are listed in the application dated May 6, 2019. Additional insignificant activities may be added and operated at any time with the provision that a written notification shall be submitted to the Technical Secretary including an updated APC 2 application form along with a truth, accuracy, and completeness statement signed by a responsible official.

E3-4. General Recordkeeping Requirements

A. The following recordkeeping requirements shall apply to this facility:

1) For monthly recordkeeping, all data, including the results of all calculations, must be entered into the log no later than thirty (30) days from the end of the month for which the data is required.
2) For weekly recordkeeping, all data, including the results of all calculations, must be entered into the log no later than seven (7) days from the end of the week for which the data is required.
3) For daily recordkeeping, all data, including the results of all calculations, must be entered into the log no later than seven (7) days from the end of the day for which the data is required.
4) All maintenance activities required by **Condition E3-5** (including any ongoing maintenance that has not been completed) shall be entered in the maintenance log no later than thirty (30) days following the start of the maintenance.

B. Logs and records specified in this permit shall be kept readily available/accessible and made available upon request by the Technical Secretary or a Division representative and shall be retained for a period of not less than five years unless otherwise noted. Logs and records contained in this permit are based on a recommended format. Any logs that have an alternative format may be utilized provided such logs contain the same or equivalent information that is required. Computer-generated logs are also acceptable.

TAPCR 1200-03-10-.02(2)(a)

E3-5. Routine Maintenance Requirements

The permittee shall maintain and repair the emission source, associated air pollution control device(s), and compliance assurance monitoring equipment as required to maintain and assure compliance with the specified emission limits.

TAPCR 1200-03-09-.03(8)

Compliance Method: Records of all repair and maintenance activities required above shall be recorded in a suitable permanent form and kept available for inspection by the Division. These records must be retained for a period of not less than five years. The date each maintenance and repair activity began shall be entered in the log no later than 30 days following the start of the repair or maintenance activity, and the completion date shall be entered in the log no later than 30 days from activity completion.

E3-6. Other State and Federal Regulations

This source shall comply with all applicable state and federal air pollution regulations. This includes, but is not limited to, all applicable provisions of the Tennessee Air Pollution Control Regulations, federal regulations published under 40 CFR 61 and 40 CFR 63 for sources of hazardous air pollutants, and federal regulations published under 40 CFR 60, New Source Performance Standards.

TAPCR 1200-03-09-.03(8)

E3-7. Startup, Shutdown, and Malfunction Requirements

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A. The facility must take all reasonable measures to keep emissions to a minimum during source startups, shutdowns, and malfunctions. These measures may include installation and use of alternate control systems, changes in operating methods or procedures, cessation of operation until the process equipment and/or air pollution control equipment is repaired, maintaining sufficient spare parts, use of overtime labor, use of outside consultants and contractors, and other appropriate means. Failures that are caused by poor maintenance, careless operation or any other preventable upset condition or preventable equipment breakdown shall not be considered malfunctions.

TAPCR 1200-03-20-.02(1)

B. **Monitoring Systems**: Due allowance for failure to monitor shall be made during any period of monitoring system malfunction, provided that the source owner or operator shows, to the satisfaction of the Technical Secretary, that the malfunction was unavoidable and is being repaired as expeditiously as practicable, and that a log of all such malfunctions is being kept by the owner or operator, including the time the malfunction began, when it was detected, what was wrong, what was done to correct the malfunction, and when the malfunction was corrected. Failures that are caused by poor maintenance, careless operation or any other preventable upset condition or preventable equipment breakdown shall not be considered malfunctions.

TAPCR 1200-03-10-.02(1)(e)

E3-8. Excursions

All excursions from indicated parameter limits or ranges shall be recorded in a permanent suitable format and retained at the source location for a period of not less than five years.

The record of excursions shall include, at a minimum, the time the excursion was discovered, the corrective action taken, and the time that the process was back within the normal operating range.

TAPCR 1200-03-10-.02(2)(a)

"Excursion" shall mean a departure from an indicator range established for monitoring, consistent with any averaging period specified for averaging the results of the monitoring.

E3-9. Application and Agreement Letters

This source shall operate in accordance with the terms of this permit, the information submitted in the approved permit application dated May 5, 2019. and any documented agreements made with the Technical Secretary, including the Agreement Letter dated July 14, 2020.

TAPCR 1200-03-09-.01(1)(d) and 1200-03-09-.02(6)

E3-10. Pursuant to 1200-03-10-.04(2)(a)2. of TAPCR, gauges, indicators, and similar devices used to measure and conduct parametric monitoring of control equipment must maintain an operational availability of at least 95%. Logs and records to substantiate such operational availability must be kept and such records shall be made available to the Technical Secretary or Division representative upon request.

E3-11. Unless otherwise specified in this permit, visible emissions from any stack at this facility shall not exhibit greater than 20% opacity, except for one six-minute period in any one hour period, and for no more than four six-minute periods in any 24 hour period. Visible emissions from this source shall be determined by EPA Method 9, as published in the current 40 CFR 60, Appendix A (six-minute average).

TAPCR 1200-03-05-.03(6) and TAPCR 1200-03-05-.01(1)

Compliance Method: The permittee shall assure compliance with the opacity standard by utilizing the opacity matrix dated June 18, 1996, and amended September 11, 2013 **(Attachment 5)**.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

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E3-12. The permittee is not required to file an accidental release plan pursuant to Section 112(r) of the Clean Air Act and 1200-03-32 of TAPCR.

E3-13. Identification of Responsible Official, Technical Contact, and Billing Contact

a) The application that was utilized in the preparation of this permit is dated May 6, 2019, and signed by Keith Kimbrough, Production Manager of the permitted facility. Subsequent Notification on September 4, 2019 identified Rudi Jansen as the Plant Manager of this facility. If this person (Rudi Jansen) terminates his/her employment or is assigned different duties such that he/she is no longer a Responsible Official for this facility as defined in part 1200-03-09-.02(11)(b)21 of the Tennessee Air Pollution Control Regulations, the owner or operator of this air contaminant source shall notify the Technical Secretary of the change. Said notification must be in writing and must be submitted within thirty (30) days of the change. The notification shall include the name and title of the new Responsible Official and certification of truth and accuracy. All representations, agreement to terms and conditions, and covenants made by the former Responsible Official that were used in the establishment of the permit terms and conditions will continue to be binding on the facility until such time that a revision to this permit is obtained that would change said representations, agreements, and/or covenants.

b) The application that was utilized in the preparation of this permit is dated May 6, 2019, and identifies Danny Kermicle as the Principal Technical Contact for the permitted facility. Subsequent Notification on August 6, 2020 identified Scott Kinnear (EHS Manager) as the Principal Technical Contact. If this person (Scott Kinnear) terminates his/her employment or is assigned different duties such that he/she is no longer the Principal Technical Contact for this facility, the owner or operator of this air contaminant source shall notify the Technical Secretary of the change. Said notification must be in writing and must be submitted within thirty (30) days of the change. The notification shall include the name and title of the new Principal Technical Contact and certification of truth and accuracy.

c) The application that was utilized in the preparation of this permit is dated May 6, 2019 ad identifies Jennifer McKnight as the Billing Contact for the permitted facility. If this person terminates his/her employment or is assigned different duties such that he/she is no longer the Billing Contact for this facility, the owner or operator of this air contaminant source shall notify the Technical Secretary of the change. Said notification must be in writing and must be submitted within thirty (30) days of the change. The notification shall include the name and title of the new Billing Contact and certification of truth and accuracy.

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Federal Regulations. Conditions F1 through F14 apply to all sources subject to Subpart ZZZZZ

F1 This facility is an area source and is not subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Iron and Steel Foundries, 40 CFR Part 63, Subpart EEEEE.

Compliance Method: Compliance with Subpart EEEEE is not required at this time unless the permittee fails to comply with **Condition E3-1** and exceeds the applicability thresholds of Division Rule 1200-03-09-.02(11). Should this occur the permittee must also meet the requirements of 40 CFR §63.6(c)(5).

F2. Pursuant to 40 CFR §63.10880(a), this facility **is subject** to and shall comply with the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Iron and Steel Foundries Area Sources, 40 CFR Part 63, Subpart PSD
. The requirements of Subpart ZZZZZ are incorporated into the permit under the provisions of TAPCR 1200-03-09-.03(8).

Compliance Method: This is a declaratory statement.

F3. Pursuant to 40 CFR §63.10880(f), the permittee must determine the initial applicability of the requirements of Subpart ZZZZZ to a small foundry or a large foundry based on the permittee's metal production for calendar year 2008. If the metal melt production for calendar year 2008 is 20,000 tons or less, the permittee's area source is a small foundry. If the metal melt production for calendar year 2008 is greater than 20,000 tons, the permittee's area source is a large foundry. **On December 22, 2008, the Division received an initial applicability notification from the permittee dated November 25, 2008, indicating that the permittee's foundry is in excess of 20,000 tons per year and therefore is classified as a large foundry.**

Compliance Method: This is a declaratory statement.

F4. Pursuant to 40 CFR § 63.10881:

(a) If the permittee owns or operates an existing affected source, the permittee must achieve compliance with the applicable provisions of this subpart by the dates in paragraphs (a)(1) through (3) of this section.

(1) Not later than January 2, 2009 for the pollution prevention management practices for metallic scrap in §63.10885(a) and binder formulations in §63.10886.

(2) Not later than January 4, 2010 for the pollution prevention management practices for mercury in §63.10885(b).

(3) Except as provided in paragraph (d) of this section, not later than 2 years after the date of the permittee's large foundry's notification of the initial determination required in §63.10880(f) for the standards and management practices in §63.10895.

(d) Following the initial determination for an existing affected source required in §63.10880(f),

(2) If the permittee's facility is initially classified as a large foundry (or the permittee's small foundry subsequently becomes a large foundry), the permittee must comply with the requirements for a large foundry for at least 3 years before reclassifying the permittee's facility as a small foundry, even if the permittee's annual metal melt production falls below 20,000 tons. After 3 years, the permittee may reclassify the permittee's facility as a small foundry provided the permittee's annual metal melt production for the preceding calendar year was 20,000 tons or less. If the permittee reclassifies the permittee's large foundry as a small foundry, the permittee must submit a notification of reclassification to the Administrator within 30 days and comply with the requirements for a small foundry no later than the date the permittee notifies the Administrator of the reclassification. If the annual metal melt production exceeds 20,000 tons during a subsequent year, the permittee must submit a notification of reclassification to the Administrator within 30 days and comply with the requirements for a large foundry no later than the date the permittee notifies the Administrator of the reclassification.

Compliance Method: The permittee shall comply with the management practices by the deadlines as specified above.

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F5. Pursuant to 40 CFR § 63.10885(a), the permittee's management practices for metallic scrap are as follows:

(a) *Metallic scrap management program.* For each segregated metallic scrap storage area, bin or pile, the permittee must comply with the materials acquisition requirements in paragraph (a)(1) or (2) of this section. The permittee must keep a copy of the material specifications onsite and readily available to all personnel with material acquisition duties, and provide a copy to each of the permittee's scrap providers. The permittee may have certain scrap subject to paragraph (a)(1) of this section and other scrap subject to paragraph (a)(2) of this section at the permittee's facility provided the metallic scrap remains segregated until charge make-up.

(1) *Restricted metallic scrap.* The permittee must prepare and operate at all times according to written material specifications for the purchase and use of only metal ingots, pig iron, slitter, or other materials that do not include post-consumer automotive body scrap, post-consumer engine blocks, post-consumer oil filters, oily turnings, lead components, chlorinated plastics, or free liquids. For the purpose of this subpart, "free liquids" is defined as material that fails the paint filter test by EPA Method 9095B, "Paint Filter Liquids Test" (revision 2), November 2004 (incorporated by reference—see §63.14). The requirements for no free liquids do not apply if the owner or operator can demonstrate that the free liquid is water that resulted from scrap exposure to rain.

(2) *General iron and steel scrap.* The permittee must prepare and operate at all times according to written material specifications for the purchase and use of only iron and steel scrap that has been depleted (to the extent practicable) of organics and HAP metals in the charge materials used by the iron and steel foundry. The materials specifications must include at minimum the information specified in paragraph (a)(2)(i) or (ii) of this section.

(i) Except as provided in paragraph (a)(2)(ii) of this section, specifications for metallic scrap materials charged to a scrap preheater or metal melting furnace to be depleted (to the extent practicable) of the presence of used oil filters, chlorinated plastic parts, accessible lead-containing components (such as batteries and wheel weights), and a program to ensure the scrap materials are drained of free liquids.

(ii) For scrap charged to a cupola metal melting furnace that is equipped with an afterburner, specifications for metallic scrap materials to be depleted (to the extent practicable) of the presence of chlorinated plastics, accessible lead-containing components (such as batteries and wheel weights), and a program to ensure the scrap materials are drained of free liquids.

Compliance Method: Compliance shall be demonstrated from the reports as specified by condition F13.

F6. Pursuant to 40 CFR § 63.10885(b), the permittee's management practices for mercury switches are as follows:

(b) *Mercury requirements.* For scrap containing motor vehicle scrap, the permittee must procure the scrap pursuant to one of the compliance options in paragraphs (b)(1), (2), or (3) of this section for each scrap provider, contract, or shipment. For scrap that does not contain motor vehicle scrap, the permittee must procure the scrap pursuant to the requirements in paragraph (b)(4) of this section for each scrap provider, contract, or shipment. The permittee may have one scrap provider, contract, or shipment subject to one compliance provision and others subject to another compliance provision.

(1) *Site-specific plan for mercury switches.* The permittee must comply with the requirements in paragraphs (b)(1)(i) through (v) of this section.

(i) The permittee must include a requirement in the permittee's scrap specifications for removal of mercury switches from vehicle bodies used to make the scrap.

(ii) The permittee must prepare and operate according to a plan demonstrating how the permittee's facility will implement the scrap specification in paragraph (b)(1)(i) of this section for removal of mercury switches. The permittee must submit the plan to the Administrator for approval. The permittee must operate according to the plan as submitted during the review and approval process, operate according to the approved plan at all times after approval, and address any deficiency identified by the Administrator or delegated authority within 60 days following disapproval of a plan. The permittee may request approval to revise the plan and may operate according to the revised plan unless and until the revision is disapproved by the Administrator or delegated authority. The Administrator or delegated authority may change the approval status of the plan upon 90-days written notice based upon the semiannual report or other information. The plan must include:

(A) A means of communicating to scrap purchasers and scrap providers the need to obtain or provide motor vehicle scrap from which mercury switches have been removed and the need to ensure the proper management of the mercury switches removed from the scrap as required under the rules

implementing subtitle C of the Resource Conservation and Recovery Act (RCRA) (40 CFR parts 261 through 265 and 268). The plan must include documentation of direction to appropriate staff to communicate to suppliers throughout the scrap supply chain the need to promote the removal of mercury switches from end-of-life vehicles. Upon the request of the Administrator or delegated authority, the permittee must provide examples of materials that are used for outreach to suppliers, such as letters, contract language, policies for purchasing agents, and scrap inspection protocols;

(B) Provisions for obtaining assurance from scrap providers motor vehicle scrap provided to the facility meet the scrap specification;

(C) Provisions for periodic inspections or other means of corroboration to ensure that scrap providers and dismantlers are implementing appropriate steps to minimize the presence of mercury switches in motor vehicle scrap and that the mercury switches removed are being properly managed, including the minimum frequency such means of corroboration will be implemented; and

(D) Provisions for taking corrective actions (i.e., actions resulting in scrap providers removing a higher percentage of mercury switches or other mercury-containing components) if needed, based on the results of procedures implemented in paragraph (b)(1)(ii)(C) of this section).

(iii) The permittee must require each motor vehicle scrap provider to provide an estimate of the number of mercury switches removed from motor vehicle scrap sent to the facility during the previous year and the basis for the estimate. The Administrator may request documentation or additional information at any time.

(iv) The permittee must establish a goal for each scrap supplier to remove at least 80 percent of the mercury switches. Although a site-specific plan approved under paragraph (b)(1) of this section may require only the removal of convenience light switch mechanisms, the Administrator will credit all documented and verifiable mercury-containing components removed from motor vehicle scrap (such as sensors in anti-locking brake systems, security systems, active ride control, and other applications) when evaluating progress towards the 80 percent goal.

(v) For each scrap provider, the permittee must submit semiannual progress reports to the Administrator that provide the number of mercury switches removed or the weight of mercury recovered from the switches, the estimated number of vehicles processed, an estimate of the percent of mercury switches removed, and certification that the removed mercury switches were recycled at RCRA-permitted facilities or otherwise properly managed pursuant to RCRA subtitle C regulations referenced in paragraph (b)(1)(ii)(A) of this section. This information can be submitted in aggregate form and does not have to be submitted for each shipment. The Administrator may change the approval status of a site-specific plan following 90-days notice based on the progress reports or other information.

(2) *Option for approved mercury programs.* The permittee must certify in the permittee's notification of compliance status that the permittee participates in and purchases motor vehicle scrap only from scrap providers who participate in a program for removal of mercury switches that has been approved by the Administrator based on the criteria in paragraphs (b)(2)(i) through (iii) of this section. If the permittee purchases motor vehicle scrap from a broker, the permittee must certify that all scrap received from that broker was obtained from other scrap providers who participate in a program for the removal of mercury switches that has been approved by the Administrator based on the criteria in paragraphs (b)(2)(i) through (iii) of this section. The National Mercury Switch Recovery Program and the State of Maine Mercury Switch Removal Program are EPA-approved programs under paragraph (b)(2) of this section unless and until the Administrator disapproves the program (in part or in whole) under paragraph (b)(2)(iii) of this section.

(i) The program includes outreach that informs the dismantlers of the need for removal of mercury switches and provides training and guidance for removing mercury switches;

(ii) The program has a goal to remove at least 80 percent of mercury switches from motor vehicle scrap the scrap provider processes. Although a program approved under paragraph (b)(2) of this section may require only the removal of convenience light switch mechanisms, the Administrator will credit all documented and verifiable mercury-containing components removed from motor vehicle scrap (such as sensors in anti-locking brake systems, security systems, active ride control, and other applications) when evaluating progress towards the 80 percent goal; and

(iii) The program sponsor agrees to submit progress reports to the Administrator no less frequently than once every year that provide the number of mercury switches removed or the weight of mercury recovered from the switches, the estimated number of vehicles processed, an estimate of the percent of mercury switches

recovered, and certification that the recovered mercury switches were recycled at facilities with permits as required under the rules implementing subtitle C of RCRA (40 CFR parts 261 through 265 and 268). The progress reports must be based on a database that includes data for each program participant; however, data may be aggregated at the State level for progress reports that will be publicly available. The Administrator may change the approval status of a program or portion of a program (e.g., at the State level) following 90-days notice based on the progress reports or on other information.

(iv) The permittee must develop and maintain onsite a plan demonstrating the manner through which the permittee's facility is participating in the EPA-approved program.

(A) The plan must include facility-specific implementation elements, corporate-wide policies, and/or efforts coordinated by a trade association as appropriate for each facility.

(B) The permittee must provide in the plan documentation of direction to appropriate staff to communicate to suppliers throughout the scrap supply chain the need to promote the removal or mercury switches from end-of-life vehicles. Upon the request of the Administrator or delegated authority, the permittee must provide examples of materials that are used for outreach to suppliers, such as letters, contract language, policies for purchasing agents, and scrap inspection protocols.

(C) The permittee must conduct periodic inspections or other means of corroboration to ensure that scrap providers are aware of the need for and are implementing appropriate steps to minimize the presence of mercury in scrap from end-of-life vehicles.

(3) *Option for specialty metal scrap.* The permittee must certify in the permittee's notification of compliance status and maintain records of documentation that the only materials from motor vehicles in the scrap are materials recovered for their specialty alloy (including, but not limited to, chromium, nickel, molybdenum, or other alloys) content (such as certain exhaust systems) and, based on the nature of the scrap and purchase specifications, that the type of scrap is not reasonably expected to contain mercury switches.

(3) *Scrap that does not contain motor vehicle scrap.* For scrap not subject to the requirements in paragraphs (b)(1) through (3) of this section, the permittee must certify in the permittee's notification of compliance status and maintain records of documentation that this scrap does not contain motor vehicle scrap.

Compliance Method: Compliance shall be demonstrated from the records as specified by condition F13.

F7. Pursuant to 40 CFR §63.10886, for each furfuryl alcohol warm box mold or core making line at a new or existing iron and steel foundry, the permittee must use a binder chemical formulation that does not use methanol as a specific ingredient of the catalyst formulation. This requirement does not apply to the resin portion of the binder system.

Compliance Method: compliance shall be demonstrated from the records and reports as specified at condition F13.

F8. If this facility is reclassified as a small iron and steel foundry, the permittee shall comply with 40 CFR §63.10890.

Compliance Method: This is a declaratory statement

F9. Pursuant to 40 CFR §63.10895, the following standards and management practice requirements are for new and existing affected sources classified as large iron and steel foundries:

(a) If the permittee owns or operates an affected source that is a large foundry as defined in §63.10906, the permittee must comply with the pollution prevention management practices in §§63.10885 and 63.10886, the requirements in paragraphs (b) through (e) of this section, and the requirements in §§63.10896 through 63.10900.

(b) The permittee must operate a capture and collection system for each metal melting furnace at a new or existing iron and steel foundry unless that furnace is specifically uncontrolled as part of an emissions averaging group. Each capture and collection system must meet accepted engineering standards, such as those published by the American Conference of Governmental Industrial Hygienists.

(c) The permittee must not discharge to the atmosphere emissions from any metal melting furnace or group of all metal melting furnaces that exceed the applicable limit in paragraph (c)(1) or (2) of this section. When an alternative emissions limit is provided for a given emissions source, the permittee is not restricted in the selection of which applicable alternative emissions limit is used to demonstrate compliance.

(1) For an existing iron and steel foundry, 0.8 pounds of particulate matter (PM) per ton of metal charged or 0.06 pounds of total metal HAP per ton of metal charged.

(2) For a new iron and steel foundry, 0.1 pounds of PM per ton of metal charged or 0.008 pounds of total metal HAP per ton of metal charged.

(d) If the permittee owns or operates a new affected source, the permittee must comply with each control device parameter operating limit in paragraphs (d)(1) and (2) of this section that applies to the permittee.

(1) For each wet scrubber applied to emissions from a metal melting furnace, the permittee must maintain the 3-hour average pressure drop and scrubber water flow rate at or above the minimum levels established during the initial or subsequent performance test.

(2) For each electrostatic precipitator applied to emissions from a metal melting furnace, the permittee must maintain the voltage and secondary current (or total power input) to the control device at or above the level established during the initial or subsequent performance test.

(e) If the permittee owns or operates a new or existing iron and steel foundry, the permittee must not discharge to the atmosphere fugitive emissions from foundry operations that exhibit opacity greater than 20 percent (6-minute average), except for one 6-minute average per hour that does not exceed 30 percent.

Compliance Method: Compliance with these requirements shall be demonstrated from testing as required by condition F12.

F10. Pursuant to 40 CFR §63.10896, the following operation and maintenance requirements are for new and existing affected sources classified as large iron and steel foundries:

(a) The permittee must prepare and operate at all times according to a written operation and maintenance (O&M) plan for each control device for an emissions source subject to a PM, metal HAP, or opacity emissions limit in §63.10895. The permittee must maintain a copy of the O&M plan at the facility and make it available for review upon request. At a minimum, each plan must contain the following information:

(1) General facility and contact information;

(2) Positions responsible for inspecting, maintaining, and repairing emissions control devices which are used to comply with this subpart;

(3) Description of items, equipment, and conditions that will be inspected, including an inspection schedule for the items, equipment, and conditions. For baghouses that are equipped with bag leak detection systems, the O&M plan must include the site-specific monitoring plan required in §63.10897(d)(2).

(4) Identity and estimated quantity of the replacement parts that will be maintained in inventory; and

(5) For a new affected source, procedures for operating and maintaining a CPMS in accordance with manufacturer's specifications.

(b) The permittee may use any other O&M, preventative maintenance, or similar plan which addresses the requirements in paragraph (a)(1) through (5) of this section to demonstrate compliance with the requirements for an O&M plan.

Compliance Method: The permittee shall maintain a copy of an operation and maintenance (O&M) in accordance with the above requirements and make such plan available to a Division representative.

F11. Pursuant to 40 CFR §63.10897, the following monitoring requirements are for new and existing affected sources classified as large iron and steel foundries:

(a) The permittee must conduct an initial inspection of each PM control device for a metal melting furnace at an existing affected source. The permittee must conduct each initial inspection no later than 60 days after the permittee's applicable compliance date for each installed control device which has been operated within 60 days of the compliance date. For an installed control device which has not operated within 60 days of the compliance date, the permittee must conduct an initial inspection prior to startup of the control device. Following the initial inspections, the permittee must perform periodic inspections and maintenance of each PM control device for a metal melting furnace at an existing affected source. The permittee must perform the initial and periodic inspections according to the requirements in paragraphs (a)(1) through (4) of this section. The permittee must record the results of each initial and periodic inspection and any maintenance action in the logbook required in §63.10899(b)(13).

(1) For the initial inspection of each baghouse, the permittee must visually inspect the system ductwork and baghouse units for leaks. The permittee must also inspect the inside of each baghouse for structural integrity and fabric filter

condition. Following the initial inspections, the permittee must inspect and maintain each baghouse according to the requirements in paragraphs (a)(1)(i) and (ii) of this section.

(i) The permittee must conduct monthly visual inspections of the system ductwork for leaks.

(ii) The permittee must conduct inspections of the interior of the baghouse for structural integrity and to determine the condition of the fabric filter every 6 months.

(2) For the initial inspection of each dry electrostatic precipitator, the permittee must verify the proper functioning of the electronic controls for corona power and rapper operation, that the corona wires are energized, and that adequate air pressure is present on the rapper manifold. The permittee must also visually inspect the system ductwork and electrostatic housing unit and hopper for leaks and inspect the interior of the electrostatic precipitator to determine the condition and integrity of corona wires, collection plates, hopper, and air diffuser plates. Following the initial inspection, the permittee must inspect and maintain each dry electrostatic precipitator according to the requirements in paragraphs (a)(2)(i) through (iii) of this section.

(i) The permittee must conduct a daily inspection to verify the proper functioning of the electronic controls for corona power and rapper operation, that the corona wires are energized, and that adequate air pressure is present on the rapper manifold.

(ii) The permittee must conduct monthly visual inspections of the system ductwork, housing unit, and hopper for leaks.

(iii) The permittee must conduct inspections of the interior of the electrostatic precipitator to determine the condition and integrity of corona wires, collection plates, plate rappers, hopper, and air diffuser plates every 24 months.

(3) For the initial inspection of each wet electrostatic precipitator, the permittee must verify the proper functioning of the electronic controls for corona power, that the corona wires are energized, and that water flow is present. The permittee must also visually inspect the system ductwork and electrostatic precipitator housing unit and hopper for leaks and inspect the interior of the electrostatic precipitator to determine the condition and integrity of corona wires, collection plates, plate wash spray heads, hopper, and air diffuser plates. Following the initial inspection, the permittee must inspect and maintain each wet electrostatic precipitator according to the requirements in paragraphs (a)(3)(i) through (iii) of this section.

(i) The permittee must conduct a daily inspection to verify the proper functioning of the electronic controls for corona power, that the corona wires are energized, and that water flow is present.

(ii) The permittee must conduct monthly visual inspections of the system ductwork, electrostatic precipitator housing unit, and hopper for leaks.

(iii) The permittee must conduct inspections of the interior of the electrostatic precipitator to determine the condition and integrity of corona wires, collection plates, plate wash spray heads, hopper, and air diffuser plates every 24 months.

(4) For the initial inspection of each wet scrubber, the permittee must verify the presence of water flow to the scrubber. The permittee must also visually inspect the system ductwork and scrubber unit for leaks and inspect the interior of the scrubber for structural integrity and the condition of the demister and spray nozzle. Following the initial inspection, the permittee must inspect and maintain each wet scrubber according to the requirements in paragraphs (a)(4)(i) through (iii) of this section.

(i) The permittee must conduct a daily inspection to verify the presence of water flow to the scrubber.

(ii) The permittee must conduct monthly visual inspections of the system ductwork and scrubber unit for leaks.

(iii) The permittee must conduct inspections of the interior of the scrubber to determine the structural integrity and condition of the demister and spray nozzle every 12 months.

(b) For each wet scrubber applied to emissions from a metal melting furnace at a new affected source, the permittee must use a continuous parameter monitoring system (CPMS) to measure and record the 3-hour average pressure drop and scrubber water flow rate.

(c) For each electrostatic precipitator applied to emissions from a metal melting furnace at a new affected source, the permittee must measure and record the hourly average voltage and secondary current (or total power input) using a CPMS.

(d) If the permittee owns or operates an existing affected source, the permittee may install, operate, and maintain a bag leak detection system for each negative pressure baghouse or positive pressure baghouse as an alternative to the baghouse inspection requirements in paragraph (a)(1) of this section. If the permittee owns or operates a new affected source, the permittee must install, operate, and maintain a bag leak detection system for each negative pressure baghouse or positive pressure baghouse. The permittee must install, operate, and maintain each bag leak detection system according to the requirements in paragraphs (d)(1) through (3) of this section.

(1) Each bag leak detection system must meet the requirements in paragraphs (d)(1)(i) through (vii) of this section.

(i) The system must be certified by the manufacturer to be capable of detecting emissions of particulate matter at concentrations of 10 milligrams per actual cubic meter (0.00044 grains per actual cubic foot) or less.

(ii) The bag leak detection system sensor must provide output of relative particulate matter loadings and the owner or operator shall continuously record the output from the bag leak detection system using a strip chart recorder, data logger, or other means.

(iii) The system must be equipped with an alarm that will sound when an increase in relative particulate loadings is detected over the alarm set point established in the operation and maintenance plan, and the alarm must be located such that it can be heard by the appropriate plant personnel.

(iv) The initial adjustment of the system must, at minimum, consist of establishing the baseline output by adjusting the sensitivity (range) and the averaging period of the device, and establishing the alarm set points. If the system is equipped with an alarm delay time feature, the permittee also must adjust the alarm delay time.

(v) Following the initial adjustment, do not adjust the sensitivity or range, averaging period, alarm set point, or alarm delay time. Except, once per quarter, the permittee may adjust the sensitivity of the bag leak detection system to account for seasonable effects including temperature and humidity according to the procedures in the monitoring plan required by paragraph (d)(2) of this section.

(vi) For negative pressure baghouses, induced air baghouses, and positive pressure baghouses that are discharged to the atmosphere through a stack, the bag leak detector sensor must be installed downstream of the baghouse and upstream of any wet scrubber.

(vii) Where multiple detectors are required, the system's instrumentation and alarm may be shared among detectors.

(2) The permittee must prepare a site-specific monitoring plan for each bag leak detection system to be incorporated in the permittee's O&M plan. The permittee must operate and maintain each bag leak detection system according to the plan at all times. Each plan must address all of the items identified in paragraphs (d)(2)(i) through (vi) of this section.

(i) Installation of the bag leak detection system.

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

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

(iv) Maintenance of the bag leak detection system including a routine maintenance schedule and spare parts inventory list.

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

(vi) Procedures for determining what corrective actions are necessary in the event of a bag leak detection alarm as required in paragraph (d)(3) of this section.

(3) In the event that a bag leak detection system alarm is triggered, the permittee must initiate corrective action to determine the cause of the alarm within 1 hour of the alarm, initiate corrective action to correct the cause of the problem within 24 hours of the alarm, and complete corrective action as soon as practicable, but no later than 10 calendar days from the date of the alarm. The permittee must record the date and time of each valid alarm, the time the permittee initiated corrective action, the correction action taken, and the date on which corrective action was completed. Corrective actions may include, but are not limited to:

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

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(ii) Sealing off defective bags or filter media.

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

(iv) Sealing off a defective baghouse department.

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

(vi) Shutting down the process producing the particulate emissions.

(e) The permittee must make monthly inspections of the equipment that is important to the performance of the total capture system (i.e., pressure sensors, dampers, and damper switches). This inspection must include observations of the physical appearance of the equipment (e.g., presence of holes in the ductwork or hoods, flow constrictions caused by dents or accumulated dust in the ductwork, and fan erosion). The permittee must repair any defect or deficiency in the capture system as soon as practicable, but no later than 90 days. The permittee must record the date and results of each inspection and the date of repair of any defect or deficiency.

(f) The permittee must install, operate, and maintain each CPMS or other measurement device according to the permittee's O&M plan. The permittee must record all information needed to document conformance with these requirements.

(g) In the event of an exceedance of an established emissions limitation (including an operating limit), the permittee must restore operation of the emissions source (including the control device and associated capture system) to its normal or usual manner or operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the exceedance. The permittee must record the date and time correction action was initiated, the correction action taken, and the date corrective action was completed.

(h) If the permittee chooses to comply with an emissions limit in §63.10895(c) using emissions averaging, the permittee must calculate and record for each calendar month the pounds of PM or total metal HAP per ton of metal melted from the group of all metal melting furnaces at the permittee's foundry. The permittee must calculate and record the weighted average pounds per ton emissions rate for the group of all metal melting furnaces at the foundry determined from the performance test procedures in §63.10898(d) and (e).

Compliance Method: The permittee shall demonstrate compliance by means of the recordkeeping and reporting requirements found at condition F13.

F12. Pursuant to 40 CFR §63.10898, the following performance test requirements are for new and existing affected sources classified as large iron and steel foundries:

(a) The permittee must conduct a performance test to demonstrate initial compliance with the applicable emissions limits for each metal melting furnace or group of all metal melting furnaces that is subject to an emissions limit in §63.10895(c) and for each building or structure housing foundry operations that is subject to the opacity limit for fugitive emissions in §63.10895(e). The permittee must conduct the test within 180 days of the permittee's compliance date and report the results in the permittee's notification of compliance status.

(1) If the permittee owns or operates an existing iron and steel foundry, the permittee may choose to submit the results of a prior performance test for PM or total metal HAP that demonstrates compliance with the applicable emissions limit for a metal melting furnace or group of all metal melting furnaces provided the test was conducted within the last 5 years using the methods and procedures specified in this subpart and either no process changes have been made since the test, or the permittee can demonstrate that the results of the performance test, with or without adjustments, reliably demonstrate compliance with the applicable emissions limit despite such process changes.

(2) If the permittee owns or operates an existing iron and steel foundry and the permittee chooses to submit the results of a prior performance test according to paragraph (a)(1) of this condition, the permittee must submit a written notification to the Administrator of the permittee's intent to use the previous test data no later than 60 days after the permittee's compliance date. The notification must contain a full copy of the performance test and contain information to demonstrate, if applicable, that either no

process changes have been made since the test, or that the results of the performance test, with or without adjustments, reliably demonstrate compliance despite such process changes.

(3) If the permittee has an electric induction furnace equipped with an emissions control device at an existing foundry, the permittee may use the test results from another electric induction furnace to demonstrate compliance with the applicable PM or total metal HAP emissions limit in §63.10895(c) provided the furnaces are similar with respect to the type of emission control device that is used, the composition of the scrap charged, furnace size, and furnace melting temperature.

(4) If the permittee has an uncontrolled electric induction furnace at an existing foundry, the permittee may use the test results from another electric induction furnace to demonstrate compliance with the applicable PM or total metal HAP emissions limit in §63.10895(c) provided the test results are prior to any control device and the electric induction furnaces are similar with respect to the composition of the scrap charged, furnace size, and furnace melting temperature.

(5) For electric induction furnaces that do not have emission capture systems, the permittee may install a temporary enclosure for the purpose of representative sampling of emissions. A permanent enclosure and capture system is not required for the purpose of the performance test.

(b) The permittee must conduct subsequent performance tests to demonstrate compliance with all applicable PM or total metal HAP emissions limits in §63.10895(c) for a metal melting furnace or group of all metal melting furnaces no less frequently than every 5 years and each time the permittee elects to change an operating limit or makes a process change likely to increase HAP emissions.

(c) The permittee must conduct each performance test according to the requirements in §63.7(e)(1), Table 1 to this subpart, and paragraphs (d) through (g) of this section (40 CFR §63.10898).

(h) The permittee must conduct each opacity test for fugitive emissions according to the requirements in §63.6(h)(5) and Table 1 to this subpart.

(i) The permittee must conduct subsequent performance tests to demonstrate compliance with the opacity limit in §63.10895(e) no less frequently than every 6 months and each time the permittee makes a process change likely to increase fugitive emissions.

(j) In the permittee's performance test report, the permittee must certify that the capture system operated normally during the performance test.

(k) The permittee must establish operating limits for a new affected source during the initial performance test according to the requirements in Table 2 of this subpart.

(l) The permittee may change the operating limits for a wet scrubber, electrostatic precipitator, or baghouse if the permittee meets the requirements in paragraphs (l)(1) through (3) of this section.

(1) Submit a written notification to the Administrator of the permittee's plan to conduct a new performance test to revise the operating limit.

(2) Conduct a performance test to demonstrate compliance with the applicable emissions limitation in §63.10895(c).

(3) Establish revised operating limits according to the applicable procedures in Table 2 to this subpart.

Compliance Method: The permittee shall conduct performance testing and submit reports of said testing to the Division as required above.

F13. Pursuant to 40 CFR §63.10899, the following recordkeeping and reporting requirements are for new and existing affected sources classified as large iron and steel foundries:

(a) As required by §63.10(b)(1), the permittee must maintain files of all information (including all reports and notifications) for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. At a minimum, the most recent 2 years of data shall be retained on site. The remaining 3 years of data may be retained

off site. Such files may be maintained on microfilm, on a computer, on computer floppy disks, on magnetic tape disks, or on microfiche.

(b) In addition to the records required by 40 CFR 63.10, the permittee must keep records of the information specified in paragraphs (b)(1) through (13) of this section.

(1) The permittee must keep records of the permittee's written materials specifications according to §63.10885(a) and records that demonstrate compliance with the requirements for restricted metallic scrap in §63.10885(a)(1) and/or for the use of general scrap in §63.10885(a)(2) and for mercury in §63.10885(b)(1) through (3), as applicable. The permittee must keep records documenting compliance with §63.10885(b)(4) for scrap that does not contain motor vehicle scrap.

(2) If the permittee is subject to the requirements for a site-specific plan for mercury under §63.10885(b)(1), the permittee must:

(i) Maintain records of the number of mercury switches removed or the weight of mercury recovered from the switches and properly managed, the estimated number of vehicles processed, and an estimate of the percent of mercury switches recovered; and

(ii) Submit semiannual reports of the number of mercury switches removed or the weight of mercury recovered from the switches and properly managed, the estimated number of vehicles processed, an estimate of the percent of mercury switches recovered, and a certification that the recovered mercury switches were recycled at RCRA-permitted facilities. The semiannual reports must include a certification that the permittee has conducted periodic inspections or taken other means of corroboration as required under §63.10885(b)(1)(ii)(C). The permittee must identify which option in §63.10885(b) applies to each scrap provider, contract, or shipment. The permittee may include this information in the semiannual compliance reports required under paragraph (c) of this section.

(3) If the permittee is subject to the option for approved mercury programs under §63.10885(b)(2), the permittee must maintain records identifying each scrap provider and documenting the scrap provider's participation in an approved mercury switch removal program. If the permittee's scrap provider is a broker, the permittee must maintain records identifying each of the broker's scrap suppliers and documenting the scrap supplier's participation in an approved mercury switch removal program.

(4) The permittee must keep records to document use of any binder chemical formulation that does not contain methanol as a specific ingredient of the catalyst formulation for each furfuryl alcohol warm box mold or core making line as required by §63.10886. These records must be the Material Safety Data Sheet (provided that it contains appropriate information), a certified product data sheet, or a manufacturer's hazardous air pollutant data sheet.

(5) The permittee must keep records of the annual quantity and composition of each HAP-containing chemical binder or coating material used to make molds and cores. These records must be copies of purchasing records, Material Safety Data Sheets, or other documentation that provide information on the binder or coating materials used.

(6) The permittee must keep records of monthly metal melt production for each calendar year.

(7) The permittee must keep a copy of the operation and maintenance plan as required by §63.10896(a) and records that demonstrate compliance with plan requirements.

(8) If the permittee uses emissions averaging, the permittee must keep records of the monthly metal melting rate for each furnace at the permittee's iron and steel foundry, and records of the calculated pounds of PM or total metal HAP per ton of metal melted for the group of all metal melting furnaces required by §63.10897(h).

(9) If applicable, the permittee must keep records for bag leak detection systems as follows:

(i) Records of the bag leak detection system output;

(ii) Records of bag leak detection system adjustments, including the date and time of the adjustment, the initial bag leak detection system settings, and the final bag leak detection system settings; and

(iii) The date and time of all bag leak detection system alarms, and for each valid alarm, the time the permittee initiated corrective action, the corrective action taken, and the date on which corrective action was completed.

(10) The permittee must keep records of capture system inspections and repairs as required by §63.10897(e).

(11) The permittee must keep records demonstrating conformance with the permittee's specifications for the operation of CPMS as required by §63.10897(f).

(12) The permittee must keep records of corrective action(s) for exceedances and excursions as required by §63.10897(g).

(13) The permittee must record the results of each inspection and maintenance required by §63.10897(a) for PM control devices in a logbook (written or electronic format). The permittee must keep the logbook onsite and make the logbook available to the Technical Secretary upon request. The permittee must keep records of the information specified in paragraphs (b)(13)(i) through (iii) of this section.

(i) The date and time of each recorded action for a fabric filter, the results of each inspection, and the results of any maintenance performed on the bag filters.

(ii) The date and time of each recorded action for a wet or dry electrostatic precipitator (including ductwork), the results of each inspection, and the results of any maintenance performed for the electrostatic precipitator.

(iii) The date and time of each recorded action for a wet scrubber (including ductwork), the results of each inspection, and the results of any maintenance performed on the wet scrubber.

(c) The permittee must submit semiannual compliance reports to the Technical Secretary according to the requirements in §63.10(e). The reports must include, at a minimum, the following information as applicable:

(1) Summary information on the number, duration, and cause (including unknown cause, if applicable) of excursions or exceedances, as applicable, and the corrective action taken;

(2) Summary information on the number, duration, and cause (including unknown cause, if applicable) for monitor downtime incidents (other than downtime associated with zero and span or other calibration checks, if applicable); and

(3) Summary information on any deviation from the pollution prevention management practices in §§63.10885 and 63.10886 and the operation and maintenance requirements §63.10896 and the corrective action taken.

(d) The permittee must submit written notification to the Technical Secretary of the initial classification of the permittee's new or existing affected source as a large iron and steel facility as required in §63.10880(f) and (g), as applicable, and for any subsequent reclassification as required in §63.10881(d) or (e), as applicable.

Compliance Method: the permittee shall retain records and submit required documentation to the Division as required above.

F14. Pursuant to 40 CFR § 63.10899 the following General Provisions are for new and existing affected sources classified as large iron and steel foundries:

(a) If the permittee owns or operates a new or existing affected source that is classified as a large foundry, the permittee must comply with the requirements of the General Provisions (40 CFR part 63, subpart A) according to Table 3 of this subpart.

(b) If the permittee owns or operators a new or existing affected source that is classified as a large foundry, the permittee's notification of compliance status required by §63.9(h) must include each applicable certification of compliance, signed by a responsible official, in Table 4 of this subpart.

Compliance Method: The permittee shall comply with the General Provisions as specified at Attachment 3 to this permit.

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28-0025-02. Green Sand Pouring, Cooling & Shakeout. Conditions E5-1 through E5-8 apply to source 28-0025-02
The permittee pours metal into green sand molds. After the castings proceed through a cooling chamber, a breaker-drum (included in source 36) separates the individual products from the casting "raft." Other machines process the used sand by breaking lumps and removing sand fines and scrap metal. The used sand is conveyed to (3) 66-ton storage bins.

E5-1. The process material input rate for this source (28-0025-02) shall not exceed 102,150 pounds per hour, including premix, sand, casting, and hot topping.

TAPCR 1200-03-09-.01(1)(d)
Compliance Method: The permittee shall annually certify compliance in accordance with condition E2(b)

E5-2. Operating time for this source (28-0025-02) shall not exceed 7,200 hours during all intervals of twelve consecutive months. This limit was originally set to avoid PSD on source 32, Green Sand Pouring and Shakeout in 1997.

TAPCR 1200-03-09-.01(4), Supplemental information in the application dated May 29, 1997

Compliance Method: Compliance shall be assured through recording monthly the information shown in Log 5-1.

LOG 5-1: MONTHLY SEACOAL EMISSIONS FOR SOURCE 28-0025-02

Month/Year	Sea Coal Used (pounds per month)	Hours of Operation		CO		VOC		NO_x	
		hrs/ month	Hrs per any 12 consecutive 12 month period	ton/ month	tons per any 12 consecutive 12 month period	ton/ month	Tons per any 12 consecutive 12 month period	ton/ month	Tons per any 12 consecutive 12 month period

To calculate emissions use the equation: *EF x Material Input* where *EF* is the appropriate emission factor below.

Pollutant	Emission Factor (ton/ton of Sea Coal Used)	Emission Factor (lb/ton of Sea Coal Used)
CO	0.03859	77.18
VOC	0.011941	23.882
NO_x	0.000562	1.124
Acrolein	0.000002	0.004
Benzene	0.000611	1.222
Formaldehyde	0.000004	0.008
Hydrogen Cyanide	0.000118	0.236
Xylene	0.000041	0.082
Napthalene	0.000021	0.042
Phenol	0.000131	0.262
Toluene	0.000063	0.126

*Emission factors produced by Gary E. Mosher, Director of Environmental Affairs, American Foundrymen's Society, "Calculating Emission Factors for Pouring, Cooling and Shakeout", Modern Casting, October 1994. See the attachments

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E5-3. Particulate matter emitted from the baghouse serving this source (28-0025-02) shall not exceed 0.25 grains per dry standard cubic foot and 5.62 lb./hr. This limit was originally set to avoid PSD on source 32, Green Sand Pouring and Shakeout in 1997.

TAPCR 1200-03-09-.01(4), 1200-03-07-.01(5), Supplemental information in the application dated May 29, 1997

Compliance Method: Compliance with this requirement shall be assured by maintaining a minimum pressure drop of 1.9 inches of water across the baghouse. The pressure drop for the baghouse shall be recorded once daily while the source is operating. The days when the source does not operate shall be noted.

For lower pressure drop reading(s) resulting from replacement of bags, the permittee shall record the deviation(s) as such in their daily records. Due allowance will be made for lower pressure drop reading(s) which follow replacement of bags provided the permittee establishes to the satisfaction of the Technical Secretary that these lower readings resulted from the replacement of bags.

The permittee shall certify with each semiannual report that each baghouse was in proper operation during all times this process was operational.

Log 5-2 shall be used to certify compliance with this condition and in the reporting requirements of **E2** of this permit, and must be retained for a period of not less than five years. Reports and certifications shall be submitted in accordance with Condition **E2** of this permit.

LOG 5-2 - DAILY PARTICULATE COMPLIANCE LOG FOR SOURCE 28-0025-02

Date	Time	Daily Pressure Drop Across the Bag House (inches of water)
		02-S1

E5-4. Sulfur dioxide emitted from this source (28-0025-02) shall not exceed 0.23 pounds per hour.

TAPCR 1200-03-14-.03(5)

Compliance Method: Compliance shall be assured by the calculation that emissions on an hourly basis at maximum capacity are less than the stated allowable emissions limit for sulfur dioxide. The calculation is performed by multiplying the maximum amount of sea coal used by the emission factor of 0.000253 pounds of sulfur dioxide per pound of Seacoal as published by Gary E. Mosher, Director of Environmental Affairs, American Foundrymen's Society, "Calculating Emission Factors for Pouring, Cooling and Shakeout", Modern Casting, October, 1994, as shown in the attachment 7.

E5-5. Volatile organic compounds emitted from this source (28-0025-02) shall not exceed 1.71 tons per month and 15.79 tons during any period of 12 consecutive months.

TAPCR 1200-03-07-.07(2)

Compliance Method: Compliance shall be assured through recording monthly the information shown in Log 5-1.

E5-6. Nitrogen oxide emitted from this source (28-0025-02) shall not exceed 0.10 tons per month and 0.75 tons during any period of 12 consecutive months.

TAPCR 1200-03-07-.07(2)

Compliance Method: Compliance shall be assured through recording monthly the information shown in Log 5-1.

E5-7. Carbon monoxide emitted from this source (28-0025-02) shall not exceed 5.53 tons per month and 51.02 tons during any period of 12 consecutive months.

TAPCR 1200-03-07-.07(2)

Compliance Method: Compliance shall be assured through recording monthly the information shown in Log 5-1.

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E5-8. Visible emissions from this source (28-0025-02) shall not exhibit greater than ten percent opacity, except for one six-minute period in any one hour period, and for no more than four six-minute periods in any 24 hour period. Visible emissions from this source shall be determined by EPA Method 9, as published in the current 40 CFR 60, Appendix A (six-minute average).

TAPCR 1200-03-05-.01(3), Supplemental information in the application dated May 29, 1997.

Compliance Method: The permittee shall assure compliance with the opacity standard by utilizing the opacity matrix dated June 18, 1996 and amended September 11, 2013 **(Attachment 5)**.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

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28-0025-04. Heat Treat Furnace #1. Conditions E6-1 and E6-2 apply to source 28-0025-04.
Heat treat furnace #1 is used to treat the metal castings. The furnace has a burner capacity of 12.4 MMBtu/hr and uses only natural gas. The source does not utilize pollution control equipment.

E6-1. Only natural gas shall be used as fuel for this source (28-0028-04). The maximum heat input for this source shall not exceed 12.4 MMBtu.

Compliance Method: This condition is a statement of the design input capacity for this source. If the permittee wants to increase the design input capacity or change the type of fuel used, the permittee shall apply for a construction permit in accordance with TAPCR 1200-03-09-.01(1) or a Title V modification in accordance with TAPCR 1200-03-09-.02(11).

E6-2. The following emissions are from the combustion of natural gas based on a furnace capacity of 12.4 MMBtu/hr, operating 24 hours per day and 365 days per year, and utilizing AP42, Tables 1.4-1 and 1.4-2, dated July 1998. These emission limits are for fee purposes.

Pollutant	Emission Factor (lb/10^6 scf)	Emission Rate (lb/hr)	Emission Rate (ton/yr)
PM	7.6	0.09	0.40
SO_2	0.6	0.01	0.04
VOC	5.5	0.07	0.31
NO_X	100	1.24	5.43

Calculations are based on a natural gas heating value of 1,000 Btu/scf.
The above TSP emission factor includes both filterable and condensable particulate matter.

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28-0025-06. Electric Arc Furnace #2. Conditions E7-1 through E7-8 apply to source 28-0025-06.
EAF to melt scrap iron controlled by a 50,000 cfm baghouse.

E7-1. This source will be subject to NSPS standards for Electric Arc Furnaces, currently subparts AA and AAa, if the source produces intermediate products, metal castings used by other companies to produce final parts. As long as the source produces finished metal castings the source is not subject to NSPS.

Applicability Determination Index Control Numbers NS01 and 0100015 are included as **Attachment #8** to this permit.

Compliance Method: This is a declaratory statement

E7-2. The process material input rate (charge rate) for the electric arc furnace shall not exceed 11,200 pounds per hour, on a daily average basis.

TAPCR 1200-03-09-.01(1)(d)

Compliance Method: Compliance shall be assured through recording monthly the information shown in Log 7-1.

LOG 7-1 FOR SOURCE 28-0025-06—EAF 2

Month_____Year_____

Date	Material Input (pounds)	Hours of Operation	Input Rate (pounds per hour)
Sum for month			
Sum for any previous consecutive 12 month period			

E7-3. Operating time for this source (28-0025-06) shall not exceed 7,500 hours during all intervals of twelve consecutive months. This limitation was set based on a PSD netting analysis for several sources that were permitted for the first time in 1996/1997 or that received a substantial increase in allowable particulate emission in 1996/1997. The electric arc furnace number 2 was not part of the project that initiated the PSD analysis.

TAPCR 1200-3-9-.01(4), Agreement letter dated July 14, 2020

Compliance Method: Compliance shall be assured through recording monthly the information shown in Log 7-2.

LOG 7-2 FOR SOURCE 28-0025-06—EAF 2

Month/Year	Material Input (pounds per month)	Hours of Operation		CO		VOC		NO_x	
		hrs/ month	Hrs per any consecutive 12 month period	ton/ month	Tons per any consecutive 12 month period	ton/ month	Tons per any consecutive 12 month period	ton/ month	Tons per any consecutive 12 month period

To calculate emission in lbs/month use the equation: *EF x Material Input* where *EF* is the appropriate emission factor below.

Pollutant	Emission Factor (lbs/ton of metal processed)	Emission Factor (tons/ton of metal processed)	Source of Factor
CO	4.0	0.002	Informal Stack Test Results per Lacey Hardin's Notes
VOC	0.35	0.000175	FIRE/SCC Manual, March 1990
NO_x	0.2	0.00010	AP-42, 5th Ed., 01/95 see permit attachments

E7-4. Particulate matter emitted from the baghouse serving this source (28-0025-06) shall not exceed 0.02 grains per dry standard cubic foot (5.14 pounds per hour). This limitation was set based on a PSD netting analysis for several sources that were permitted for the first time in 1996/1997 or that received a substantial increase in allowable particulate emission in 1996/1997. The electric arc furnace #2 was not part of the project that initiated the PSD analysis.

TAPCR 1200-03-09-.01(4), Agreement letter dated July 14, 2020

The permittee must not discharge to the atmosphere emissions from any metal melting furnace or group of all metal melting furnaces that exceed 0.8 pounds of particulate matter (PM) per ton of metal charged or 0.06 pounds of total metal HAP per ton of metal charged.

40 CFR §63.10895

Compliance Method: Compliance with this requirement shall be assured by maintaining a minimum pressure drop of 1.0 inches of water across the baghouse for arc furnace 2. The pressure drop for the baghouse shall be recorded once daily while the source is operating. The days when the source does not operate shall be noted.

For lower pressure drop reading(s) resulting from replacement of bags, the permittee shall record the deviation(s) as such in their daily records. Due allowance will be made for lower pressure drop reading(s) which follow replacement of bags provided the permittee establishes to the satisfaction of the Technical Secretary that these lower readings resulted from the replacement of bags.

The permittee shall certify with each semiannual report that each baghouse was in proper operation during all times this process was operational. Log 7-3 shall be used to certify compliance with this condition and in the reporting requirements of **E2** of this permit, and must be must be retained for a period of not less than five years. Reports and certifications shall be submitted in accordance with Condition **E2** of this permit.

LOG 7-3 - DAILY PARTICULATE COMPLIANCE LOG FOR SOURCE 28-0025-06

Date	Time	Daily Pressure Drop Across the Bag House (inches of water)
		06-S1

E7-5. Sulfur dioxide emitted from this source (28-0025-06) shall not exceed 3.36 pounds per hour.

TAPCR 1200-3-14-03(5)

Compliance Method: Compliance shall be assured by the calculation that emissions on an hourly basis at maximum capacity are less than the stated allowable emissions limit for SO_2. The calculation is performed by multiplying the maximum amount of material input by the emission factor of 0.24 pounds of SO_2 per ton of metal processed, as shown in the FIRE/SCC Manual, March 1990.

E7-6. Volatile organic compounds emitted from this source (28-0025-06) shall not exceed 1.96 pounds per hour and 4.8 tons per year.

TAPCR 1200-3-7-.07(2)

Compliance Method: Compliance with the annual limit shall be assured through recording monthly the information shown in Log 7-2. Compliance with the hourly limit shall be assured by the calculation that emissions on an hourly basis at maximum capacity are less than the stated allowable emissions limit for VOCs using the equation with Log 7-2.

E7-7. Nitrogen oxides emitted from this source (28-0025-06) shall not exceed 1.12 pounds per hour and 2.76 tons per year.

TAPCR 1200-3-7-.07(2)

Compliance Method: Compliance with the annual limit shall be assured through recording monthly the information shown in Log 7-2. Compliance with the hourly limit shall be assured by the calculation that emissions on an hourly basis at maximum capacity are less than the stated allowable emissions limit for NO_x using the equation with Log 7-2.

E7-8. Carbon monoxide emitted from this source (28-0025-06) shall not exceed 22.4 pounds per hour and 55.2 tons per year.

TAPCR 1200-3-7-.07(2)

Compliance Method: Compliance with the annual limit shall be assured through recording monthly the information shown in Log 7-2. Compliance with the hourly limit shall be assured by the calculation that emissions on an hourly basis at maximum capacity are less than the stated allowable emissions limit for CO using the equation with Log 7-2.

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28-0025-09. Sand Plant. Conditions E8-1 and E8-2 apply to source 28-0025-09.
The sand plant consists of the used green sand bins, the sand weight hopper for the green sand molds, and conveyors from material silos to the weight hoppers. A common 5000 cfm baghouse controls the particulate emissions from the bins and the weight hopper.

E8-1. Operating time for this source (28-0025-09) shall not exceed 7,488 hours during all intervals of twelve consecutive months. This limitation was set based on a PSD netting analysis for several sources that were permitted for the first time in 1996/1997 or that received a substantial increase in allowable particulate emission in 1996/1997. The sand plant was not part of the project that initiated the PSD analysis.

TAPCR 1200-03-09-.01(4), Supplemental information in the application dated May 29, 1997.

Compliance Method: Compliance shall be assured through recording monthly the information shown in Log 8-1.

LOG 8-1: FOR SOURCE 28-0025-09

Month/ Year	Hours Operated (hr/month)	Hours Operated (hrs per any consecutive 12 month period)
June/Year		
July/Year		

E8-2. Particulate matter emitted from the baghouse serving this source (28-0025-09) shall not exceed 0.86 lb./hr. This limitation was set based on a PSD netting analysis for several sources that were permitted for the first time in 1996/1997 or that received a substantial increase in allowable particulate emission in 1996/1997. The sand plant was not part of the project that initiated the PSD analysis.

TAPCR 1200-03-09-.01(4), 1200-03-07-.01(5), Supplemental information in the application dated May 29, 1997.

Compliance Method: Compliance with this requirement shall be assured by maintaining a minimum pressure drop of 1.69 inches of water across the baghouse for the sand plant. The pressure drop for the baghouse shall be recorded once daily while the source is operating. The days when the source does not operate shall be noted.

For lower pressure drop reading(s) resulting from replacement of bags, the permittee shall record the deviation(s) as such in their daily records. Due allowance will be made for lower pressure drop reading(s) which follow replacement of bags provided the permittee establishes to the satisfaction of the Technical Secretary that these lower readings resulted from the replacement of bags.

The permittee shall certify with each semiannual report that each baghouse was in proper operation during all times this process was operational.

Log 8-2 shall be used to certify compliance with this condition and in the reporting requirements of **E2** of this permit, and must be must be retained for a period of not less than five years. Reports and certifications shall be submitted in accordance with Condition **E2** of this permit.

LOG 8-2 DAILY PARTICULATE COMPLIANCE LOG FOR SOURCE 28-0025-09

Date	Time	Daily Pressure Drop Across the Bag House (inches of water)
		09-S1

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28-0025-10. Heat Treat Furnace #2. Conditions E9-1 and E9-2 apply to source 28-0025-10.
Heat treat furnace #2 is used to treat the metal castings. The furnace has a burner capacity of 12.4 MMBtu/hr and uses only natural gas.

E9-1. Only natural gas shall be used as fuel for this source (28-0025-10). The maximum heat input for this source shall not exceed 12.4 MMBtu.

Compliance Method: This condition is a statement of the design input capacity for this source. If the permittee wants to increase the design input capacity or change the type of fule used, , the permittee shall apply for a construction permit in accordance with TAPCR 1200-03-09-.01(1) or a Title V modification in accordance with TAPCR 1200-03-09-.02(11).

E9-2. The following emissions are from the combustion of natural gas based on a furnace capacity of 12.4 MMBtu/hr, operating 24 hours per day and 365 days per year, and utilizing AP42, Tables 1.4-1 and 1.4-2, dated July 1998. These emission limits are for fee purposes.

Pollutant	Emission Factor (lb/10^6 scf)	Emission Rate (lb/hr)	Emission Rate (ton/yr)
PM	7.6	0.09	0.44
SO_2	0.6	0.01	0.04
VOC	5.5	0.07	0.31
NO_X	100	1.24	5.43

Calculations are based on a natural gas heating value of 1,000 Btu/scf.
The above TSP emission factor includes both filterable and condensable particulate matter.

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28-0025-20. Storage Silo. Condition E10-1 applies to source 28-0025-20
200 ton Capacity Sand Storage Silo with Bin Vent Fabric Filter Control

E10-1. Particulate matter emitted from this source (28-0025-20) shall not exceed 0.0069 pounds per hour.

TAPCR 1200-03-09-.01(4), 1200-03-07-.01(5), Supplemental information included in the application dated July 1, 1996. The limitation was set based on a PSD netting analysis for several sources that were permitted for the first time in 1996/1997 or that received a substantial increase in allowable particulate emission in 1996/1997. Source 20, a storage silo, was not part of the project that initiated the PSD analysis.

Compliance Method: The baghouse/filter shall be maintained, kept in good operating condition, and inspected semiannually to assure compliance with the applicable particulate matter limits. Documentation of the semiannual inspections and any maintenance performed will be kept on site for a period of not less than five years. A summary of these logs in a format chosen by the permittee shall be kept and reported in accordance with Condition **E2**.

28-0025-21. Storage Silo. Condition E11-1 applies to source 28-0025-21
150 ton Capacity Sand Storage Silo with Bin Vent Fabric Filter Control

E11-1. Particulate matter emitted from this source (28-0025-21) shall not exceed 0.0052 pounds per hour.

TAPCR 1200-03-09-.01(4), 1200-03-07-.01(5), Supplemental information included in the application dated July 1, 1996. The limitation was set based on a PSD netting analysis for several sources that were permitted for the first time in 1996/1997 or that received a substantial increase in allowable particulate emission in 1996/1997. Source 21, a storage silo, was not part of the project that initiated the PSD analysis.

Compliance Method: The baghouse/filter shall be maintained, kept in good operating condition, and inspected semiannually to assure compliance with the applicable particulate matter limits. Documentation of the semiannual inspections and any maintenance performed will be kept on site for a period of not less than five years. A summary of these logs in a format chosen by the permittee shall be kept and reported in accordance with Condition **E2**.

28-0025-22. Storage Silo. Condition E12-1 applies to source 28-0025-22
157 ton Capacity Sand Storage Silo with Bin Vent Fabric Filter Control

E12-1. Particulate matter emitted from this source (28-0025-22) shall not exceed 0.0054 pounds per hour.

TAPCR 1200-03-09-.01(4), 1200-03-07-.01(5), Supplemental information included in the application dated July 1, 1996. The limitation was set based on a PSD netting analysis for several sources that were permitted for the first time in 1996/1997 or that received a substantial increase in allowable particulate emission in 1996/1997. Source 22, a storage silo, was not part of the project that initiated the PSD analysis.

Compliance Method: The baghouse/filter shall be maintained, kept in good operating condition, and inspected semiannually to assure compliance with the applicable particulate matter limits. Documentation of the semiannual inspections and any maintenance performed will be kept on site for a period of not less than five years. A summary of these logs in a format chosen by the permittee shall be kept and reported in accordance with Condition **E2**.

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28-0025-23. Storage Silo. Condition E13-1 applies to source 28-0025-23
55 ton Capacity Bentonite Pre-Mix Silo with Bin Vent Fabric Filter Control

E13-1. Particulate matter emitted from this source (28-0025-23) shall not exceed 0.0058 pounds per hour.

TAPCR 1200-03-09-.01(4), 1200-03-07-.01(5), Supplemental information included in the application dated July 1, 1996. The limitation was set based on a PSD netting analysis for several sources that were permitted for the first time in 1996/1997 or that received a substantial increase in allowable particulate emission in 1996/1997. Source 23, a storage silo, was not part of the project that initiated the PSD analysis.

Compliance Method: The baghouse/filter shall be maintained, kept in good operating condition, and inspected semiannually to assure compliance with the applicable particulate matter limits. Documentation of the semiannual inspections and any maintenance performed will be kept on site for a period of not less than five years. A summary of these logs in a format chosen by the permittee shall be kept and reported in accordance with Condition **E2**.

28-0025-24. Storage Silo. Condition E14-1 applies to source 28-0025-24
135 ton Capacity Bentonite Pre-Mix Silo with Bin Vent Fabric Filter Control

E14-1. Particulate matter emitted from this source (28-0025-24) shall not exceed 0.0142 pounds per hour.

TAPCR 1200-03-09-.01(4), 1200-03-07-.01(5), Supplemental information included in the application dated July 1, 1996. The limitation was set based on a PSD netting analysis for several sources that were permitted for the first time in 1996/1997 or that received a substantial increase in allowable particulate emission in 1996/1997. Source 24, a storage silo, was not part of the project that initiated the PSD analysis.

Compliance Method: The baghouse/filter shall be maintained, kept in good operating condition, and inspected semiannually to assure compliance with the applicable particulate matter limits. Documentation of the semiannual inspections and any maintenance performed will be kept on site for a period of not less than five years. A summary of these logs in a format chosen by the permittee shall be kept and reported in accordance with Condition **E2**.

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28-0025-28. Electric Induction Furnace. Conditions E15-1 and E15-2 apply to source 28-0025-28
This furnace melts scrap metal and additives for use in forming finished produces. There are two baghouses for pollution control.

E15-1. The process weight rate of scrap metal and additives shall not exceed 19,200 pounds per hour and 40,000 tons per all intervals of twelve consecutive months.

TAPCR 1200-03-26-.02(6)(b), Agreement letter dated July 14, 2020.. The 40,000 ton limit was originally set to avoid PSD. However, since the furnace was installed as a new project in 1998 that would not have triggered PSD by itself, this limit will not be maintained to avoid PSD.

Compliance Method: Compliance with the 40,000 ton limit shall be assured through recording daily the information shown in Log 15-1. The Technical Secretary may require the permittee to assure compliance with the hourly limitation. Per permit 950259P, the maximum averaging time shall be 24 hours.

LOG 15- 1 FOR SOURCE 28-0025-28

Month:_____Year:_____

Date (period)	Hours of Operation	Material Input (tons per period)
Sum for month		
Sum for any consecutive 12 month period		

E15-2. Particulate matter emissions from this source (28-0025-28) shall not exceed 0.1 pounds per ton of scrap metal and additives processed (0.96 pounds per hour).

TAPCR 1200-03-07-.01(5) and 1200-03-09-.01(4), Agreement letter dated July 14, 2020.
Previous agreement letter dated October 26, 1998, from the permittee set a limit of 0.2 pounds per ton of steel. The agreements contained in the Title V application dated May 2001, adjusted the particulate limits for this source and source 30.

The permittee must not discharge to the atmosphere emissions from any metal melting furnace or group of all metal melting furnaces that exceed 0.8 pounds of particulate matter (PM) per ton of metal charged or 0.06 pounds of total metal HAP per ton of metal charged.

40 CFR §63.10895

Compliance Method: The permittee shall assure compliance with the particulate matter emission limitation by keeping the pressure drop across the baghouses equal to or above the values listed in the table below:

Identification Number	Minimum Pressure Drop (inches of water)
28-S1	1.0
28-S2	0.5

The pressure drop for the baghouses shall be recorded once daily while the source is operating. The days when the source does not operate shall be noted.

For lower pressure drop reading(s) resulting from replacement of bags, the permittee shall record the deviation(s) as such in their daily records. Due allowance will be made for lower pressure drop reading(s) which follow replacement of bags provided the permittee establishes to the satisfaction of the Technical Secretary that these lower readings resulted from the replacement of bags.

The permittee shall certify with each semiannual report that each baghouse was in proper operation during all times this process was operational. If one baghouse is down, then the other baghouse shall be used to collect emissions from both crucibles. Log 15-2 shall be used to certify compliance with this condition and in the reporting requirements of E2 of this permit, and must be must be retained for a period of not less than five years. Reports and certifications shall be submitted in accordance with Condition **E2** of this permit.

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LOG 15-2 DAILY PARTICULATE LOG FOR SOURCE 28-0025-28

Date	Time	Daily Pressure Drop Across the Bag House (inches of water)	
		28-S1	28-S2

28-0025-30. No Bake Finishing and Grinding. Conditions E16-1 and E16-2 apply to source 28-0025-30.
This source consists of grinding and cutting of steel castings using a cup-wheel grinder, swing arm grinders, and a cut-off saw. Particulate emissions are controlled with three parallel cyclones, rated at 24,000 cfm and efficiencies of 97.37% each.

E16-1. Particulate matter emitted from this source (28-0025-30) shall not exceed 0.18 pounds per hour and 0.375 tons per year.

TAPCR 1200-03-09-.01(4), 1200-03-07-.01(5). Agreement letter dated July 14, 2020 , from the permittee placed a limit of 0.375 tons per year. The Title V application of May 17, 2001, adjusted the particulate limits for this source and source 28, the Induction Furnace. The 1997 limitation was set based on a PSD netting analysis for several sources that were permitted for the first time in 1996/1997 or that received a substantial increase in allowable particulate emission in 1996/1997. Source 30, No Bake Finishing and Grinding, was not part of the project that initiated the PSD analysis.

Compliance Method: This process shall not be operated without the use of cyclone control. Each cyclone shall be externally inspected daily to assure that abrasion holes and plugging problems have not developed. Any abrasion holes shall be promptly repaired. Any ductwork with plugging problems shall be remedied promptly. Reports and certifications shall be submitted in accordance with Condition **E2** of this permit.

E16-2. Visible emissions from this source (28-0025-30) shall not exhibit greater than ten percent opacity, except for one six-minute period in any one hour period, and for no more than four six-minute periods in any 24 hour period. Visible emissions from this source shall be determined by EPA Method 9, as published in the current 40 CFR 60, Appendix A (six-minute average).

TAPCR 1200-03-05-.01(3), Agreement letter dated July 14, 2020.

Compliance Method: The permittee shall assure compliance with the opacity standard by utilizing the opacity matrix dated June 18, 1996 and amended September 11, 2013 **(Attachment 5)**.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

E17: Reserved

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28-0025-33. No Bake Shakeout. Conditions E18-1 through E18-7 apply to source 28-0025-33.
Castings are poured and allowed to cool before being broken out of the molds on a vibrating table. Following removal of the castings, the reusable sand is separated from the sand fines and any remaining metallic material is removed by the Didion Drum. Castings separated from the sand are sent to the shot blast machine. A 39,000 cfm baghouse (33-S2) exhausts the inclined conveyors, thermal reclaimer, shot blast, sand cooler, Didion, and elevators. A 35,000 cfm baghouse (33-S1) exhausts the vibrating table and sand bin. The input to the Didion Drum consists of both castings and sand. The input to the shot blast consists of only castings. The calcinating furnace removes the binder from the sand and has a maximum rating of 3.3 MM Btu/hr and burns only natural gas.

E18-1. This source shall consist of the following operations, with the following process limits and hours limitations as shown in Table 18-1. The process limit for resin will serve as a surrogate for limitations on all castings and mold materials including no-bake mold sand, pre-coated core sand, binder(s)/resin(s), catalyst(s), iron oxide(s), chromite, hot topping, and mold wash.

Table 18-1, Process and Hours Limitations for 28-0025-33, No Bake Shakeout

Operation	Hours Limits (per all consecutive 12 month intervals)	Resin Throughput Limit (tons/year)	Associated Control Device (and CFM)
No Bake Casting, Pouring, and Cooling	7200	822	none
Vibrating Table	7200	822	Baghouse 33-S1 (35,000)
Inclined Conveyors, and Didion Drum	No limit specified, however they depend on output from the Vibrating Table	NA	Baghouse 33-S2 (39,000)
Calcinating Furnace (Thermal Reclaimer)	No limit, however, it runs on a different schedule from the other devices	NA	Baghouse 33-S2 (39,000)
Table Shot Blast	7200	NA	Baghouse 33-S2 (39,000)

TAPCR 1200-03-09-.01(4), information contained in the application dated October 30, 1996, and the modifications requested in the Title V application dated May 2001. These later modifications combined sources 33, no bake shakeout and 35, calcinating furnace (thermal reclaimer), increased to the operating time of baghouse S2 and reduced the allowable grain loading of baghouse S2. *The resin throughput limit was established with the issuance of construction permit 961897P on June 3, 2008 to install a new Didion drum machine to replace the Vibramill.*

Compliance Method: Compliance with the hour limitations shall be assured by recording hours of operation in Log 18-1. The Technical Secretary may require the permittee to prove compliance with the process weight rate limitation.

LOG 18-1 FOR SOURCE 28-0025-33,
NO BAKE POURING, COOLING AND SHAKEOUT

	Casting and Pouring		Vibrating Table		Table Shot Blast	
Month/Year	**Hours of Operation (hours per month)**	**Hours of Operation (hours per any consecutive 12 month period)**	**Hours of Operation (hours per month)**	**Hours of Operation (hours per any consecutive 12 month period)**	**Hours of Operation (hours per month)**	**Hours of Operation (hours per any consecutive 12 month period)**

E18-2. Total particulate matter emitted this source (28-0025-33) shall not exceed 8.62 lbs/hr and 31.0 tons/year. Particulate matter emissions from baghouse 33-S1 (35,000 cfm) shall not exceed 0.015 grains per dry standard cubic foot (4.5 pounds per hour). Particulate matter emissions from baghouse 33-S2 (39,000 cfm) shall not exceed 0.0123 grains per dry standard cubic foot (4.12 pounds per hour).

TAPCR 1200-03-07-.01(5), 1200-03-09-.01(4), and agreements contained in the applications dated May 2001 and April 10, 2008. As a result of the modifications requested in the Title V application of May 21, 2001, sources 33, no bake shakeout and 35, calcinating furnace (thermal reclaimer), were combined. *As a result of the modification requested in the construction permit application of April 10, 2008, sources 33, no bake shakeout and 43, table shot blast, were combined.*

Compliance Method: Compliance with this requirement shall be assured by maintaining a minimum pressure drop of 0.5 inches of water across baghouse 33-S1 and 1.5 inches of water across baghouse 33-S2. The pressure drop for the baghouses shall be recorded once daily while the source is operating. The days when the source does not operate shall be noted.

For lower pressure drop reading(s) resulting from replacement of bags, the permittee shall record the deviation(s) as such in their daily records. Due allowance will be made for lower pressure drop reading(s) which follow replacement of bags provided the permittee establishes to the satisfaction of the Technical Secretary that these lower readings resulted from the replacement of bags.

The permittee shall certify with each semiannual report that each baghouse was in proper operation during all times this process was operational.

Log 18-2 shall be used to certify compliance with this condition and in the reporting requirements of E2 of the Title V operating permit, and must be retained for a period of not less than five (5) years. Reports and certifications shall be submitted in accordance with Condition E2 of the Title V operating permit.

Log 18-2 - DAILY PARTICULATE LOG FOR SOURCE 28-0025-33

Date	Time	Daily Pressure Drop Across the Bag House (inches of water)	
		33-S1	33-S2

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E18-3. Volatile organic compounds emissions from this source (28-0025-33) shall not exceed 1.92 tons per month and 11.5 tons during all intervals of twelve consecutive months.

TAPCR 1200-03-07-.07(2)

Compliance Method: Compliance shall be assured through recording monthly the information shown in Log 18-3, using the emission factors presented in Table 18-3. Additional emission factors shall be added to table 18-3 within one month of discovery.

LOG 18-3 FOR SOURCE 28-0025-33, NO BAKE SHAKEOUT

Month/ Year	Resin Type	Resin Used (tons per **any consecutive 12 month period**)	Total VOC		HAP 1		HAPi		Total HAPs		Total Non-VOC HAPs	
			ton/ month	Tons per **any consecutive 12 month period**	ton/ month	Tons per **any consecutive 12 month period**	ton/ month	Tons per **any consecutive 12 month period**	ton/ month	Tons per **any consecutive 12 month period**	ton/ month	Tons per **any consecutive 12 month period**
July/ Year	No Bake Molding											
	Shell Core											
	Pep-Set Core											
	TOTAL											
August/ Year	No Bake Molding											
	Shell Core											
	Pep-Set Core											
	TOTAL											
June/ Year	No Bake Molding											
	Shell Core											
	Pep-Set Core											
	TOTAL											

Notes:

(1) To calculate emission in tons/month use the equation: *EF x Material Input* where *EF* is the appropriate emission factor from Table 18-3.

(2) The Tons per 12 Month value is the sum of the VOC emissions in the 11 months preceding the month just completed + the VOC emissions in the month just completed. If data is not available for the 11 months preceding the initial use of this Table, this value will be equal to the value for tons per month. For the second month it will be the sum of the first month and the second month. Indicate in parentheses the number of months summed [i.e., 6 (2) represents 6 tons emitted in 2 months]. This log is the total amount of VOCs emitted to the air on a 12 month consecutive basis.

(3) The permittee shall include all HAPs emitted by the resins and shall specifically identify the HAP by name and/or CAS number.

Table 18-3, Selected Emission Factors for 28-0025-33, No Bake Shakeout

Pollutant	Emission Factor By Resin Type (lbs/ lbs Resin)		
	No Bake Molding	Shell Core	Pep-Set Core
Total VOC's	0.012159	0.022421	0.023377
Total HAPs	0.016174	0.026222	0.012355
Acrolein	0.000005	0.000047	0.000031
Benzene	0.011209	0.00667	0.005351
Formaldehyde	0.00001	0.000035	0.000022
Hydrogen Cyanide	0.000029	0.010526	0.001053
M-Xylene	0.000097	0.000585	0.000439
Napthalene	0.000049	0.000058	0.000022
O-Xylene	0.000049	0.000117	0.000132
Phenol	0.000975	0.002456	0.003904

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Toluene	0.000634	0.002807	0.000833

These emission factors were provided by the applicant and published by Gary E. Mosher, Director of Environmental Affairs, American Foundrymen's Society, "Calculating Emission Factors for Pouring, Cooling and Shakeout", Modern Casting, October, 1994. Attachment 7

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E18-4. Total emissions of all Hazardous Air Pollutants (HAPs) from this source (28-0025-33) shall not exceed 2.22 tons per month and 13.3 tons during all intervals of twelve consecutive months.

TAPCR 1200-03-07-.07(2)

Compliance Method: Compliance shall be assured through recording monthly the information shown in Log 18-3, using the emission factors presented in Table 18-3. Additional emission factors shall be added to table 18-3 within one month of discovery.

E18-5. Sulfur dioxide emitted from this source (28-0025-33) shall not exceed 6.0 pounds per hour.

TAPCR 1200-03-14-.03(5)

Compliance Method: Compliance shall be assured by the calculation that emissions at maximum capacity are less than the stated allowable emissions limit for SO_2. The calculation is performed by multiplying the maximum throughput of resin by the emission factor of 0.01507 pounds of SO_2 per pound of resin used. This factor is the worst-case factor from the three resin systems used: no bake molding, shell core, and pep-set core. It was published by Gary E. Mosher, Director of Environmental Affairs, American Foundrymen's Society, "Calculating Emission Factors for Pouring, Cooling and Shakeout", Modern Casting, October, 1994. Attachment 7

E18-6. Nitrogen oxide emissions from pouring and cooling shall not exceed 0.011 tons per month and 0.064 tons during all intervals of twelve consecutive months.

TAPCR 1200-03-07-.07(2)

Compliance Method: The potential to emit nitrogen oxides from this source is less than five tons per year. In accordance with TAPCR 1200-03-09-.04(5)(c)3. and by annual certification of compliance, the permittee shall be considered to meet the monitoring and related recordkeeping and reporting requirements of TAPCR 1200-03-09-.02(11)(e)3.(i). The permittee shall submit annually a compliance certification for nitrogen oxides from source 28-0025-33.

E18-7. Visible emissions from this source (28-0025-33) shall not exhibit greater than ten percent opacity, except for one six-minute period in any one hour period, and for no more than four six-minute periods in any 24 hour period. Visible emissions from this source shall be determined by EPA Method 9, as published in the current 40 CFR 60, Appendix A (six-minute average).

TAPCR 1200-03-05-.01(3), Agreement letter dated March 18, 1999.

Compliance Method: The permittee shall assure compliance with the opacity standard by utilizing the opacity matrix dated June 18, 1996 and amended September 11, 2013 **(Attachment 5)**.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

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28-0025-36. No-Bake Mixer. Conditions E19-1 through E19-5 apply to source 28-0025-36.
The source consists of pneumatically filled silica sand bin, and sand mixer discharge into molds. This operation adds a phenolic no-bake resin and acid catalyst to the sand for mold formation. This source also includes particulate emissions from the green sand breaker drum (formerly part of source 02). This process uses a 21,500 cfm baghouse to control particulate emissions. All VOCs generated from this process are fugitive emissions.

E19-1. The process material input rate (charge rate) for this source (28-0025-36) shall not exceed 22.5 tons per hour in total.

TAPCR 1200-03-09-.01(1)(d)

Compliance Method: This condition is a statement of the design input capacity for this source. If the permittee wants to increase the design input capacity, the permittee shall apply for a construction permit in accordance with TAPCR 1200-03-09-.01(1) or a Title V modification in accordance with TAPCR 1200-03-09-.02(11).

E19-2. Operating time for this source (28-0025-36) shall not exceed 7,488 hours during all intervals of twelve consecutive months.

TAPCR 1200-03-09-.01(4), and the information contained in the application dated February 13, 1997. The limitation was set based on a PSD netting analysis for several sources that were permitted for the first time in 1996/1997 or that received a substantial increase in allowable particulate emission in 1996/1997. Source 36, no bake mixer, was not part of the project that initiated the PSD analysis.

Compliance Method: Compliance shall be assured through recording monthly the information shown in Log 19-1.

LOG 19-1 FOR SOURCE 28-0025-36, NO BAKE MIXER

Month/Year	Hours of Operation (hours per month)	Hours of Operation (hours per any consecutive 12 month period)
July/Year		
June/Year		

E19-3. Particulate matter emitted from the baghouse serving this source (28-0025-36) shall not exceed 0.017 grains per dry standard cubic foot (3.14 lb./hr).

TAPCR 1200-03-07-.01(5) and the information contained in the application March 14, 1997. The limitation was set based on a PSD netting analysis for several sources that were permitted for the first time in 1996/1997 or that received a substantial increase in allowable particulate emission in 1996/1997. Source 36, no bake mixer, was not part of the project that initiated the PSD analysis.

Compliance Method: Compliance with this requirement shall be assured by maintaining a minimum pressure drop of 0.2 inches of water across the baghouse for the no-bake mixer. The pressure drop for the baghouse shall be recorded once daily while the source is operating. The days when the source does not operate shall be noted.

For lower pressure drop reading(s) resulting from replacement of bags, the permittee shall record the deviation(s) as such in their daily records. Due allowance will be made for lower pressure drop reading(s) which follow replacement of bags provided the permittee establishes to the satisfaction of the Technical Secretary that these lower readings resulted from the replacement of bags.

The permittee shall certify with each semiannual report that each baghouse was in proper operation during all times this process was operational.

Log 19-2 shall be used to certify compliance with this condition and in the reporting requirements of **E2** of this permit, and must be must be retained for a period of not less than five years. Reports and certifications shall be submitted in accordance with Condition **E2** of this permit.

LOG 19-2 - DAILY PARTICULATE COMPLIANCE LOG FOR SOURCE 28-0025-36

Date	Time	Daily Pressure Drop Across the Bag House (inches of water)
		36-S1

DRAFT

E19-4. Volatile Organic Compound (VOCs) emitted from this source (28-0025-36) shall not exceed 3.5 tons per month and 28.41 tons during all intervals of twelve consecutive months.

TAPCR 1200-03-07-.07(2)

Compliance Method: Compliance shall be assured through recording monthly the information shown in Log 19-3.

LOG 19-3 FOR SOURCE 28-0025-36, NO BAKE MIXER

Month/ Year	Resin Used (tons / month)	Acid Catalyst Used (tons / month)	Percent Ethyl Alcohol		Acid Catalyst Ethyl Alcohol		Resin Ethyl Alcohol		Total Ethyl Alcohol		Formaldehyde			Total VOCs	
			Resin	Acid Catalyst	ton/ month	ton/ per any consec utive 12 month period	ton/ month	Ton per any consec utive 12 month period	ton/ month	ton per any consec utive 12 month period	Percent in Resin	ton/ month	ton per any consecut ive 12 month period /	ton/ month	ton/ per any consec utive 12 month period
July/ Year															
etc.															
June /Year															

To calculate emission in tons/month use the equation: *EF x Material Input x Percent Content* where
Material Input is the amount of Resin or Acid Catalyst Used,
Percent Content is the percent of ethyl Alcohol or Formaldehyde in the resin or acid catalysts, and
EF is the assumed percentage of the compound to evaporate as shown below.
VOC emissions are equal to the sum of phenol, formaldehyde, and ethyl alcohol.

Pollutant	Compound	Percent to Evaporate
Ethyl Alcohol	Acid Catalyst	50
Ethyl Alcohol	Resin	50
Formaldehyde	Resin	10

The emission information is from American Foundrymen's Society and Casting Industry Suppliers Association, "Information Tables: Binder Phenolic No-Bake – Acid Catalyzed", Form R: Reporting of Binder Used in Foundries p. 16, 1992.

E19-5. Visible emissions from the baghouse stack shall not exhibit greater than ten percent opacity, except for one six-minute period in any one hour period, and for no more than four six-minute periods in any 24 hour period. Visible emissions from the baghouse stack shall be determined by EPA Method 9, as published in the current 40 CFR 60, Appendix A (six-minute average).

TAPCR 1200-03-05-.01(3), Agreement letter dated July 14, 2020 .

Compliance Method: The permittee shall assure compliance with the opacity standard by utilizing the opacity matrix dated June 18, 1996 and amended September 11, 2013 **(Attachment 5)**.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

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28-0025-37. Wheelabrator. Conditions E20-1 and E20-2 apply to source 28-0025-37.
This source consists of shot blast cleaning of steel castings. The process uses a 7,000 cfm baghouse to control particulate emissions.

E20-1. Operating time for this source (28-0025-37) shall not exceed 7,488 hours during all intervals of twelve consecutive months.

TAPCR 1200-03-09-.01(4), and the agreement in the application dated July 1, 1996, to avoid PSD.

Compliance Method: Compliance shall be assured through recording monthly the information shown in Log 20-1.

LOG 20-1 FOR SOURCE 28-0025-37, WHEELABRATOR

Month/Year	Hours of Operation (hours per month)	Hours of Operation (hours per per any consecutive 12 month period)
July/Year		
June/Year		

E20-2. Particulate Matter emissions from this source (28-0025-37) shall not exceed 0.02 grains per dry standard cubic foot (1.2 pounds per hour).

TAPCR 1200-03-07-.01(5), 1200-03-09-.01(4) and the agreement in the application dated July 1, 1996, to avoid PSD.

Compliance Method: Compliance with this requirement shall be assured by maintaining a minimum pressure drop of 1.1 inches of water across the baghouse for the spinner hanger wheelabrator. The pressure drop for the baghouse shall be recorded once daily while the source is operating. The days when the source does not operate shall be noted.

For lower pressure drop reading(s) resulting from replacement of bags, the permittee shall record the deviation(s) as such in their daily records. Due allowance will be made for lower pressure drop reading(s) which follow replacement of bags provided the permittee establishes to the satisfaction of the Technical Secretary that these lower readings resulted from the replacement of bags.

The permittee shall certify with each semiannual report that each baghouse was in proper operation during all times this process was operational.

Log 20-2 shall be used to certify compliance with this condition and in the reporting requirements of **E2** of this permit, and must be must be retained for a period of not less than five years. Reports and certifications shall be submitted in accordance with Condition **E2** of this permit.

LOG 20-2 - DAILY PARTICULATE COMPLIANCE LOG FOR SOURCE 28-0025-37

Date	Time	Daily Pressure Drop Across the Bag House (inches of water)
		37-S1

DRAFT

28-0025-40. Didion Ball Mill. Conditions E21-1 through E21-5 apply to source 28-0025-40.
Reconditioned mill balls and recyclable metal are recovered from the processing of used mill balls and slag in a rotary drum. The process uses a 17,000 cfm baghouse to control particulate emissions.

E21-1. The process material input rate for this source (28-0025-40) shall not exceed 40,000 pounds of used mill balls and slag per hour. This limitation is established pursuant to Rule 1200-03-09-.02(11)(f)5.(ii) of the Tennessee Air Pollution Control Regulation.

Compliance Method: This condition is a statement of the design input capacity for this source. If the permittee wants to increase the design input capacity, the permittee shall apply for a construction permit in accordance with TAPCR 1200-03-09-.01(1) or a Title V modification in accordance with TAPCR 1200-03-09-.02(11).

E21-2. Operating time for this source (28-0025-40) shall not exceed 4,800 hours during all intervals of twelve consecutive months.

TAPCR 1200-03-09-.01(4) and the agreement letter dated July 14, 2020 from the permittee to avoid PSD.

Compliance Method: Compliance shall be assured through recording monthly the information shown in Log 21-1.

LOG 21-1 FOR SOURCE 28-0025-40, DIDION BALL MILL

Month/Year	Hours of Operation (hours per month)	Hours of Operation (hours per any consecutive 12 month period)
July/Year		
etc.		
June/Year		

E21-3. Particulate matter emissions from this source (28-0025-40) shall not exceed 1.74 pounds per hour.

TAPCR 1200-03-07-.01(5), 1200-03-09-.01(4) and the agreement letter dated July 14, 2020 , from the permittee to avoid PSD.

Compliance Method: Compliance with this requirement shall be assured by maintaining a minimum pressure drop of 2.0 inches of water across the baghouse for the ball cleaner. The pressure drop for the baghouse shall be recorded once daily while the source is operating. The days when the source does not operate shall be noted.

For lower pressure drop reading(s) resulting from replacement of bags, the permittee shall record the deviation(s) as such in their daily records. Due allowance will be made for lower pressure drop reading(s) which follow replacement of bags provided the permittee establishes to the satisfaction of the Technical Secretary that these lower readings resulted from the replacement of bags. The permittee shall certify with each semiannual report that each baghouse was in proper operation during all times this process was operational.

Log 21-2 shall be used to certify compliance with this condition and in the reporting requirements of **E2** of this permit, and must be retained for a period of not less than five years. Reports and certifications shall be submitted in accordance with Condition **E2** of this permit.

LOG 21-2 - DAILY PARTICULATE COMPLIANCE LOG FOR SOURCE 28-0025-40

Date	Time	Daily Pressure Drop Across the Bag House (inches of water)
		40-S1

E21-4. Fugitive emissions from this source (28-0025-40) shall not produce a visible emission in excess of five minutes per hour or 20 minutes per day beyond the property line as determined by Tennessee Visible Emissions Evaluation Method 4, excluding malfunction of equipment as provided in TAPCR 1200-03-20.

Compliance Method: Tennessee Visible Emissions Evaluation Method 4 shall be performed if requested by a Representative of the Division.

E21-5. Visible emissions from the baghouse stack shall not exhibit greater than ten percent opacity, except for one six-minute period in any one hour period, and for no more than four six-minute periods in any 24 hour period. Visible emissions from the baghouse stack shall be determined by EPA Method 9, as published in the current 40 CFR 60, Appendix A (six-minute average).

TAPCR 1200-03-05-.01(3), Agreement letter dated July 14, 2020 .

Compliance Method: The permittee shall assure compliance with the opacity standard by utilizing the opacity matrix dated June 18, 1996 and amended September 11, 2013 **(Attachment 5)**.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

28-0025-44. Pangborn Shot Blast Operation. Conditions E22-1 and E22-2 apply to source 28-0025-44
Steel castings are cleaned using shot blasting. The process uses a 11,400 cfm baghouse, to control particulate emissions that emits into the building. The baghouse exhausts into a building, reducing those emissions by 50%.

E22-1. Particulate matter emissions from this source (28-0025-44) shall not exceed 0.975 pounds per hour.

TAPCR 1200-03-07-.01(5), 1200-03-09-.01(4) and the information in the agreement letter dated March 14, 1997 from the permittee to avoid PSD.

Compliance Method: Compliance with this requirement shall be assured by maintaining a minimum pressure drop of 2.3 inches of water across the baghouse for the pangborn. The pressure drop for the baghouse shall be recorded once daily while the source is operating. The days when the source does not operate shall be noted.

For lower pressure drop reading(s) resulting from replacement of bags, the permittee shall record the deviation(s) as such in their daily records. Due allowance will be made for lower pressure drop reading(s) which follow replacement of bags provided the permittee establishes to the satisfaction of the Technical Secretary that these lower readings resulted from the replacement of bags

The permittee shall certify with each semiannual report that each baghouse was in proper operation during all times this process was operational.

Log 22-1 shall be used to certify compliance with this condition and in the reporting requirements of **E2** of this permit, and must be must be retained for a period of not less than five years. Reports and certifications shall be submitted in accordance with Condition **E2** of this permit.

LOG 22-1 - DAILY PARTICULATE COMPLIANCE LOG FOR SOURCE 28-0025-44

Date	Time	Daily Pressure Drop Across the Bag House (inches of water)
		44-S1

E22-2. Visible emissions from this source (28-0025-44) shall not exhibit greater than ten percent opacity, except for one six-minute period in any one hour period, and for no more than four six-minute periods in any 24 hour period. Visible emissions from this source shall be determined by EPA Method 9, as published in the current 40 CFR 60, Appendix A (six-minute average).

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TAPCR 1200-03-05-.01(3), 1200-03-09-.01(4), Agreement letter dated March 14, 1997 from permittee to avoid PSD.

Compliance Method: The permittee shall assure compliance with the opacity standard by utilizing the opacity matrix dated June 18, 1996 and amended September 11, 2013 **(Attachment 5)**.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

28-0025-45. Core Room Pep-Set Mixer. Conditions E23-1 through E23-4 apply to source 28-0025-45.
The source consists of pneumatically filled silica sand bin, and sand mixer discharge into molds. The source uses a 3 part pep-set resin/binder system. This process uses a 5,000 cfm baghouse to control particulate emissions. All VOCs generated from this process are fugitive emissions.

E23-1. The process material input rate for this source (28-0025-45) shall not exceed 2,300 pounds per hour of sand, iron oxide(s), binder(s) and catalyst(s).

Information contained in the agreement letter dated March 18, 1999 from the permittee

Compliance Method: This condition is a statement of the design input capacity for this source. If the permittee wants to increase the design input capacity, the permittee shall apply for a construction permit in accordance with TAPCR 1200-03-09-.01(1) or a Title V modification in accordance with TAPCR 1200-03-09-.02(11).

E23-2. Operating time for this source (28-0025-45) shall not exceed 7,200 hours during all intervals of twelve consecutive months.

TAPCR 1200-03-07-.01(5), 1200-03-09-.01(4), and information contained in the agreement letter dated March 14, 1997 from the permittee to avoid PSD.

Compliance Method: Compliance shall be assured through recording monthly the information shown in Log 23-1.

LOG 23-1 FOR SOURCE 28-0025-45, Core Room Pep-Set Mixer

Month/Year	Hours of Operation (hours per month)	Hours of Operation (hours per any consecutive 12 month period)
July/Year		
etc.		
June/Year		

E23-3. Particulate matter emissions from the baghouse serving this source (28-0025-45) shall not exceed 0.02 grains per dry standard cubic foot (0.86 lb/hr).

TAPCR 1200-03-07-.04(1) and information contained in the agreement letter dated March 14, 1997, set a limit of 0.02 gr/dscf (0.86 lbs/hr) to avoid PSD.

Compliance Method: Compliance with this requirement shall be assured by maintaining a minimum pressure drop of 1.9 inches of water across the baghouse for the core mixer. The pressure drop for the baghouse shall be recorded once daily while the source is operating. The days when the source does not operate shall be noted.

For lower pressure drop reading(s) resulting from replacement of bags, the permittee shall record the deviation(s) as such in their daily records. Due allowance will be made for lower pressure drop reading(s) which follow replacement of bags provided the permittee establishes to the satisfaction of the Technical Secretary that these lower readings resulted from the replacement of bags.

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The permittee shall certify with each semiannual report that each baghouse was in proper operation during all times this process was operational.

Log 23-2 shall be used to certify compliance with this condition and in the reporting requirements of **E2** of this permit, and must be must be retained for a period of not less than five years. Reports and certifications shall be submitted in accordance with Condition **E2** of this permit.

LOG 23-2 - DAILY PARTICULATE COMPLIANCE LOG FOR SOURCE 28-0025-45

Date	Time	Daily Pressure Drop Across the Bag House (inches of water)
		45-S1

E23-4. Volatile organic compounds emitted from this source (28-0025-45) shall not exceed 7.27 tons during all intervals of twelve consecutive months.

TAPCR 1200-03-07-.07(2)

Compliance Method: Compliance shall be assured by recording monthly the information required in Log 23-3. This log shall be maintained on site and shall be made available to the Technical Secretary upon request.

LOG 23-3 FOR SOURCE 28-0025-45, CORE ROOM PEP-SET MIXER

Month/ Year	Tons of Sand	VOC		Hours of Operation	
		ton/month	Tons per any consecutive 12 month period	hour/month	Hours per any consecutive 12 month period /
July/Year					
June/Year					

To calculate emissions use the equation: *EF x Material Input* where *EF* is 1.17 pounds VOC/ton of sand.

28-0025-59. Charge Weight Hoppers. Conditions E24-1 and E24-2 apply to source 28-0025-59.
EAF and induction furnace charges are made up in two weight hoppers. The fines from these weight hoppers are collected in a single cyclone. The fines separated in the cyclone are collected in a container and eventually landfilled.

E24-1. Particulate matter emitted from this source (28-0025-59) shall not exceed 1.75 pounds per hour.

TAPCR 1200-03-26-.02(6)(b), 1200-03-07-.01(5), and information contained in the agreement letter dated July 14, 2020 , from the permittee to reduce fees

Compliance Method: This process shall not operate without the use of cyclone control. Each cyclone shall be externally inspected daily to assure that abrasion holes and plugging problems have not developed. Any abrasion holes shall be promptly repaired. Any ductwork with plugging problems shall be remedied promptly. Reports and certifications shall be submitted in accordance with Condition E2 of this permit.

E24-2. Visible emissions from this source shall not exhibit greater 20% opacity, except for an aggregate of no more than five minutes in any one hour period, and no more than 20 minutes in any 24 hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2 (aggregate count).

TAPCR 1200-03-05-.01(1)

Compliance Method: The permittee shall assure compliance with the opacity standard by utilizing the opacity matrix dated June 18, 1996 and amended September 11, 2013 (Attachment 5).

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

28-0025-62. Sand and Bentonite Receiving. Condition E25-1 applies to source 28-0025-62.
This source conveys sand and bentonite clay from railcars and trucks to storage silos. This source does not include the silos themselves. In 1996 estimated emissions were 0.6 tons/year at the process limitation.

E25-1. Total sand and bentonite clay received at this source (28-0025-62) shall not exceed 2,500 tons per month and 20,000 tons per all consecutive 12 month intervals.

TAPCR 1200-03-26-.02(6)(b), and the agreement letter dated July 14, 2020 to reduce fees.

Compliance Method: Compliance shall be assured by recording monthly the information required in Log 25-1. This log shall be maintained on site and shall be made available to the Technical Secretary upon request.

LOG 25-1 FOR SOURCE 28-0025-62,
SAND AND BENTONITE RECEIVING

Month/ Year	Tons of Sand/Bentonite Received	
	ton/month	Tons per any consecutive 12 month period
July/Year		
etc.		
June/Year		

28-0025-66. Waste Sand Loadout. Conditions E26-1 through E26-3 apply to source 28-0025-66.
Fine waste sand from the waste sand baghouse (Included in Source 02) is mixed with water in an elevated pug mill and discharged onto the floor of the waste sand house. The wet sand is removed from the waste sand house with a loader and is either loaded onto a waiting truck or is transferred to a nearby sand pit. Coarse sand collected elsewhere in the plant is transferred directly to the sand pit. The material in the sand pit is loaded onto trucks for transport to a landfill.

E26-1. Waste sand loaded out at this source (28-0025-66) shall not exceed 2,500 tons per month and 26,000 tons per year.

TAPCR 1200-03-26-.02(6)(b), and the agreement letter dated July 14, 2020 , to reduce fees.

Compliance Method: Compliance shall be assured by recording monthly the information required in Log 26-1. This log shall be maintained on site and shall be made available to the Technical Secretary upon request.

LOG 26-1 FOR SOURCE 28-0025-66,
WASTE SAND LOADOUT

Month/ Year	Tons of Sand Loaded Out	
	ton/month	Tons per any consecutive 12 month period
July/Year		
etc.		
June/Year		

E26-2. Particulate matter emitted from this source (28-0025-66) shall not exceed 32.4 pounds per hour and 8.45 tons per year.

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TAPCR and 1200-03-26-.02(6)(b)

Compliance Method: Calculations to demonstrate compliance are based on the use of SCC Emission Factor Number 3-4-007-06: 0.65 pounds of particulate per ton of sand processed. Each water spray control device shall be inspected daily for proper operation. Any problems shall be promptly repaired. A log of the inspections and maintenance problems/repair actions and dates shall be kept and maintained on site for a period of not less than five years. A summary of this log in a format chosen by the permittee shall be kept and reported in accordance with Condition **E2**.

E26-3. Visible emissions from this source (28-0025-66) shall not exhibit greater than 20% opacity, except for an aggregate of no more than five minutes in any one hour period, and no more than 20 minutes in any 24 hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2 (aggregate count).

TAPCR 1200-03-05-.01(1)

Compliance Method: The permittee shall assure compliance with the opacity standard by utilizing the opacity matrix dated June 18, 1996 and amended September 11, 2013 **(Attachment 5)**.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

28-0025-67. Fugitive Emissions. Condition E27-1 applies to source 28-0025-67.
This incorporates all the fugitive emissions that occur during normal daily activities.

E27-1. Maximum fugitive particulate emissions facility-wide shall not exceed 13.6 pounds per hour and 30.6 tons per year.

TAPCR 1200-03-08-.03

Compliance Method: A monthly log of metal processed and operating hours shall be maintained onsite and the emissions shall be calculated using the emission factor of 0.68 pounds of fugitive particulate matter per ton of metal charged . Compliance shall be assured by recording monthly the information required in Log 27-1.

Log 27-1 FOR SOURCE 28-0025-67

Month/Year:_____

Date	Metal processed (tons) (W_{metal})	Total Operating Time (hours) (t)	PM Emissions* (lb./hr)
Monthly Total			
PM (ton/month)			
PM (tons per any consecutive 12 month period			

*Fugitive PM emissions (lb./hr) = W_{metal} x 0.68 /t

Where: W_{metal}: Total amount of metal processed during the production interval interest, tons;
0.68: Fugitive PM emission factor for this source, pounds of fugitive PM emitted per ton of metal ; and
t: Total operating time for this source during the production interval interested, hours

28-0025-68. Emergency RICE with Generator. Conditions E28-1 through E28-8 apply to source 28-0025-68.
A diesel fired emergency reciprocating internal combustion engine (RICE) with generator . Subject to NESHAP (40 CFR 63, subpart ZZZZ)

E28-1. The source shall not be operated more than 250 hours during all intervals of 12 consecutive months. (This limitation was set to reduce fees)

TAPCR 1200-03-09-.01(1)(d)

Compliance Method: Compliance shall be assured through recording monthly the information shown in Log 28-1.

Log 28-1 FOR SOURCE 28-0025-68; Emergency Generator

Month/Year	Hours Per Month	Hours per any consecutive 12 Month period
July/Year		
June/Year		

The "Hours per 12 Months" values are the sum of the hours in the 11 months preceding the month just completed + the hours in the month just completed. If data is not available for the 11 months preceding the initial use of this table, this value will be equal to the value for tons per month. For the second month it will be the sum of the first month and the second month. Indicate in parentheses the number of months summed [i.e., 6 (2) represents 6 tons emitted in 2 months].

E28-2. Particulate matter emitted from this source (28-0025-68) shall not exceed 0.6 pounds per million Btu (1.34 lbs/hr.).

TAPCR 1200-03-06-.02(2)

Compliance Method: Compliance shall be assured by the calculation that emissions on an hourly basis at maximum capacity are less than the stated allowable emissions limit for Particulate Matter. The calculation is performed by multiplying the maximum MMBtu rating of the generator of 4.3 MMBtu by the emission factor of 0.31 pounds per MMBtu for Particulate matter as published in Table 3.3-1, Section 3.3 for Gasoline and Diesel Industrial Engines of AP-42 dated 10/96.

E28-3. Sulfur dioxide emitted from this source (28-0025-68) shall not exceed 1.25 pounds per hour.

TAPCR 1200-03-14-.03(5)

Compliance Method: Compliance shall be assured by the calculation that emissions on an hourly basis at maximum capacity are less than the stated allowable emissions limit for sulfur dioxide. The calculation is performed by multiplying the maximum MMBtu rating of the generator of 4.3 MMBtu by the emission factor of 0.29 pounds per MMBtu for sulfur dioxide as published in Table 3.3-1, Section 3.3 for Gasoline and Diesel Industrial Engines of AP-42 dated 10/96.

E28-4. Volatile organic compounds emitted from this source (28-0025-68) shall not exceed 1.56 pounds per hour.

TAPCR 1200-03-06-.03(2)

Compliance Method: Compliance shall be assured by the calculation that emissions on an hourly basis at maximum capacity are less than the stated allowable emissions limit for VOCs. The calculation is performed by multiplying the maximum MMBtu rating of the generator of 4.3 MMBtu by the emission factor of 0.36 pounds per MMBtu for VOCs as published in Table 3.3-1, Section 3.3 for Gasoline and Diesel Industrial Engines of AP-42 dated 10/96.

E28-5. Nitrogen oxides emitted from this source (28-0025-68) shall not exceed 19.08 pounds per hour.

TAPCR 1200-03-06-.03(2)

Compliance Method: Compliance shall be assured by the calculation that emissions on an hourly basis at maximum capacity are less than the stated allowable emissions limit for NO_X. The calculation is performed by multiplying the maximum MMBtu rating of the generator of 4.3 MMBtu by the emission factor of 4.41 pounds per MMBtu for NO_X as published in Table 3.3-1, Section 3.3 for Gasoline and Diesel Industrial Engines of AP-42 dated 10/96.

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E28-6. Carbon monoxide emitted from this source (28-0025-68) shall not exceed 4.11 pounds per hour.

TAPCR 1200-03-06-.03(2)

Compliance Method: Compliance shall be assured by the calculation that emissions on an hourly basis at maximum capacity are less than the stated allowable emissions limit for CO. The calculation is performed by multiplying the maximum MMBtu rating of the generator of 4.3 MMBtu by the emission factor of 0.95 pounds per MMBtu for CO as published in Table 3.3-1, Section 3.3 for Gasoline and Diesel Industrial Engines of AP-42 dated 10/96.

E28-7. No. 2 fuel oil or diesel only shall be used as fuel for this source (28-0025-68).

TAPCR 1200-03-09-.01(1)(d)

Compliance Method: The permittee shall annually certify compliance under the provisions of E2(b)

E28-8. The sulfur content of the No. 2 fuel oil or diesel shall not exceed 0.5 percent by weight.

TAPCR 1200-03-14-.03(5)

Compliance Method: Certification from the fuel supplier of the sulfur content (by weight) for each shipment of fuel oil must be maintained at the source location and kept available for inspection by the Technical Secretary or his representative. Alternatively, the vendor may provide a statement to the effect that all shipments of fuel oil shall not exceed 0.5 percent sulfur by weight. All records shall be kept for a period of not less than five years.

E28-9. This source is subject to the National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (40 CFR Part 63, Subpart ZZZZ). For each existing stationary CI RICE located at an area source of HAP emissions, the permittee must comply with the applicable emission limitations and operating limitations no later than May 3, 2013.

Compliance Method: The permittee shall annually certify compliance under the provisions of E2(b)

E28-10. Pursuant to 40 CFR §63.6603(a), for each existing stationary RICE located at an area source of HAP emissions, the permittee must comply with the requirements in Table 2d to 40 CFR Part 63, Subpart ZZZZ that apply to each RICE. The permittee must maintain a record of the date and hour meter reading of each oil and filter change, air cleaner inspection, and hose and belt inspection.

Table 2d

For each . . .	The permittee must meet the following requirement, except during periods of startup . . .	During periods of startup the permittee must . . .
4. Emergency stationary CI RICE and black start stationary CI RICE.[2]	a. Change oil and filter every 500 hours of operation or annually, whichever comes first;[1] b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.[3]	Minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply.

[1]Sources have the option to utilize an oil analysis program as described in 40 CFR §63.6625(i) or (j) in order to extend the specified oil change requirement in Table 2d of this subpart.

[2]If an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the management practice requirements on the schedule required in Table 2d of this subpart, or if performing the management practice on the required schedule would otherwise pose an unacceptable risk under federal, state, or local law, the management practice can be delayed until the emergency is over or the unacceptable risk under federal, state, or local law has abated. The management practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under federal, state, or local law has abated. Sources must report any failure to perform the management practice on the schedule required and the federal, state or local law under which the risk was deemed unacceptable.

Compliance Method: The permittee shall keep records as required in the above condition

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E28-11. Pursuant to 40 CFR §63.6605(a), the permittee must be in compliance with the emission limitations and operating limitations in 40 CFR Part 63, Subpart ZZZZ that apply to the permittee at all times. Pursuant to 40 CFR §63.6605(b), at all times the permittee must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require the permittee to make any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Technical Secretary which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

Compliance Method: The permittee shall annually certify compliance under the provisions of E2(b)

E28-12. Pursuant to 40 CFR §63.6625(e) and 40 CFR §63.6640(a), for each existing emergency or black start stationary RICE located at an area source of HAP emissions, the permittee must operate and maintain the stationary RICE and after-treatment control device (if any) according to the manufacturer's emission-related written instructions or develop your own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.

Compliance Method: The permittee shall annually certify compliance under the provisions of E2(b)

E28-13. Pursuant to 40 CFR §63.6625(f), for each existing emergency stationary RICE located at an area source of HAP emissions, the permittee must install a non-resettable hour meter if one is not already installed.

Compliance Method: The permittee shall annually certify compliance under the provisions of E2(b)

E28-14. Pursuant to 40 CFR §63.6625(h), for each existing stationary engine, the permittee must minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the emission standards applicable to all times other than startup in Table 2d to 40 CFR Part 63, Subpart ZZZZ apply.

Compliance Method: The permittee shall annually certify compliance under the provisions of E2(b)

E28-15. Pursuant to 40 CFR §63.6640(b), the permittee must report each instance in which the permittee did not meet each emission limitation or operating limitation in Table 2c to 40 CFR Part 63, Subpart ZZZZ that apply to the permittee. These instances are deviations from the emission and operating limitations in 40 CFR Part 63, Subpart ZZZZ. These deviations must be reported according to the requirements in 40 CFR §63.6650.

Compliance Method: The permittee shall report deviations in accordance with 40 CFR §63.6650.

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E28-16. Pursuant to 40 CFR §63.6640(f), for each emergency stationary RICE, the permittee must operate the emergency stationary RICE according to the requirements in paragraphs (1) through (3) of this condition. In order for the engine to be considered an emergency stationary RICE under 40 CFR Part 63, Subpart ZZZZ, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (1) through (3) of this condition, is prohibited. If the permittee does not operate the engine according to the requirements in paragraphs (1) through (3) of this condition, the engine will not be considered an emergency engine under 40 CFR Part 63, Subpart ZZZZ and must meet all requirements for non-emergency engines.

(1) There is no time limit on the use of emergency stationary RICE in emergency situations.

(2) The permittee may operate each emergency stationary RICE for any combination of the purposes specified in paragraphs (2)(i) through (iii) of this condtion for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraphs (3) and (4) of this condition counts as part of the 100 hours per calendar year allowed by this paragraph (2).

(i) Emergency stationary RICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Technical Secretary for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency RICE beyond 100 hours per calendar year.

(ii) Emergency stationary RICE may be operated for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §63.14), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.

(iii) Emergency stationary RICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.

(3) Emergency stationary RICE located at area sources of HAP may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph (2) of this condition. Except as provided in paragraphs (3)(i) and (ii) of this condition, the 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

(i) Prior to May 3, 2014, the 50 hours per year for non-emergency situations can be used for peak shaving or non-emergency demand response to generate income for a facility, or to otherwise supply power as part of a financial arrangement with another entity if the engine is operated as part of a peak shaving (load management program) with the local distribution system operator and the power is provided only to the facility itself or to support the local distribution system.

(ii) The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:

(A) The engine is dispatched by the local balancing authority or local transmission and distribution system operator.

(B) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.

(C) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.

(D) The power is provided only to the facility itself or to support the local transmission and distribution system.

(E) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.

Compliance Method: The permittee shall maintain records in accordance with condition E28-17

E28-17. Pursuant to 40 CFR §63.6655(f), for each existing emergency stationary RICE located at an area source of HAP emissions that does not meet the standards applicable to non-emergency engines, the permittee must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. If the engine is used for the purposes specified in 40 CFR §63.6640(f)(2)(ii) or (iii) or 40 CFR §63.6640(f)(4)(ii), the permittee must keep records of the notification of the emergency situation, and the date, start time, and end time of engine operation for these purposes. The permittee must keep monthly records of the hours of operation of each engine that is recorded through the non-resettable hour meter. The permittee must document how many hours are spent for the following categories: (a) emergency operation, as specified in Condition E28-16, Paragraph (1), including what classified the operation as emergency; (b) maintenance checks and readiness testing, demand response, as specified in Condition E28-16, Paragraph (2); and (c) non-emergency operation, as specified in Condition E28-16, Paragraph (3). The permittee shall calculate the operating hours during all intervals of twelve consecutive months. The permittee shall maintain the following log format in Logs 28-2, 28-3, and 28-4 or an alternative format which readily provides the same required information.

Logs for emergency stationary ICE

Log 28-2

Month, Year	Emergency Operation (hr/mon)	Emergency Operation (hr/12 consecutive months)	Maintenance Checks and Readiness Testing (hr/mon)	Maintenance Checks and Readiness Testing (hr/12 consecutive months)	Non-Emergency Operation (hr/mon)	Non-Emergency Operation (hr/12 consecutive month)
		Column A		Column B		Column C
January						
February						
Etc.						
December						

Log 28-3

	Add Columns B+C	Add Column C
Limit	100 hours	50 Hours
January		
February		
Etc.		
December		

Log 28-4

	Add Columns A+B+C	Add Columns B+C	Add Columns C
Limit	500 hours	100 hours	50 Hours
January			
February			
Etc.			
December			

Compliance Method: The permittee shall maintain records as specified in the above condition

E28-18. Pursuant to 40 CFR §63.6655(a), the permittee must keep the following records:

(1) A copy of each notification and report that the permittee submitted to comply with this 40 CFR 63, subpart ZZZZ, including all documentation supporting any Initial Notification or Notification of Compliance Status that you submitted, according to the requirement in 40 CFR §63.10(b)(2)(xiv).

(2) Records of the occurrence and duration of each malfunction of operation (*i.e.*, process equipment) or the air pollution control and monitoring equipment.

(3) Records of performance tests and performance evaluations as required in 40 CFR §63.10(b)(2)(viii).

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(4) Records of all required maintenance performed on the air pollution control and monitoring equipment.
(5) Records of actions taken during periods of malfunction to minimize emissions in accordance with 40 CFR §63.6605(b), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.

Compliance Method: The permittee shall maintain records as specified in the above condition

28-0025-69. Screening Operation. Conditions E29-1 and E29-2 apply to source 28-0025-69.
Screening operation used to separate valuable material from waste debris. Foundry sand and foundry slag are dumped on a vibrating screen. The sand drops through the screen and flows into a hopper. The slag remains on top and is transferred into another hopper. The screen is covered by a hood that exhausts to a 4,000 cfm baghouse.

E29-1. Particulate matter emitted from the baghouse serving this source (28-0025-69) shall not exceed 0.02 grains per dry standard cubic foot (0.69 lb/hr).

TAPCR 1200-03-07-.04(1)

Compliance Method: The baghouse/filter shall be maintained, kept in good operating condition, and inspected semiannually to assure compliance with the applicable particulate matter limits. Documentation of the semiannual inspections and any maintenance performed will be kept on site for a period of not less than five years. A summary of these logs in a format chosen by the permittee shall be kept and reported in accordance with Condition **E2**.

E29-2. Visible emissions from this source (28-0025-69) shall not exhibit greater than ten percent opacity, except for one six-minute period in any one hour period, and for no more than four six-minute periods in any 24 hour period. Visible emissions from this source shall be determined by EPA Method 9, as published in the current 40 CFR 60, Appendix A (six-minute average).

TAPCR 1200-03-05-.01(3), Agreement letter dated April 14, 2005.

Compliance Method: The permittee shall assure compliance with the opacity standard by utilizing the opacity matrix dated June 18, 1996 and amended September 11, 2013 (Attachment 1).

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

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28-0025-70. Mold Release System. Conditions E30-1 through E30-6 apply to source 28-0025-70.
With the mold release system (Mold Wash), sand molds will be hand brushed when necessary and/or flow coated with a mixture of coating and solvent. The mold wash will be applied to the sand mold via a low pressure applicator, much like a low pressure garden hose. Since the solution will be contained and recirculated, the application efficiency would be 100% according to the permittee. The solution the permittee proposes to use contains no HAPs. Following the application of the coating and solvent, the volatile vapors are ignited (flashed off) to combust VOC and speed the drying process.

E30-1. Volatile Organic Compounds emitted from this source (28-0025-70) shall not exceed 52.6 tons during all intervals of twelve consecutive months.

TAPCR 1200-03-07-.01(5) and 1200-03-09-.01(5) and the application dated May 6, 2019

Compliance Method: The permittee shall calculate the actual quantities of VOC emitted from this facility during each calendar month and maintain records of these emissions in a form that readily shows compliance with this condition. (See example below) This log must be maintained at the source location and kept available for inspection by the Technical Secretary or Division representative. This log must be retained for a period of not less than five years.

Log 30-1 Monthly and 12-month VOC emissions

Coating/Solvent Name	Usage (gal/mo)	VOC Content (lb/gal)	(*) VOC Emissions (ton/mo)	(**)VOC Emissions tons per any consecutive 12-month period
Totals:				

(*)Based on a pilot study in an American Foundry Society article entitled, *"Measurement of Emissions Associated With Application of Flammable Solvent-Based Core and Mold Coating".* The permittee and the Division believe it is a very conservative estimate to assume that at least 35% of the total VOCs would be destroyed during the flashing of the material. This is exactly half of the total VOCs destroyed during flashing of the material as described in the pilot study. Factors from Application dated May 6, 2019

(**) The Tons per 12 Month value is the sum of the VOC emissions in the 11 months preceding the month just completed + the VOC emissions in the month just completed. If data is not available for the 11 months preceding the initial use of this Table, this value will be equal to the value for tons per month. For the second month it will be the sum of the first month and the second month. Indicate, in parentheses, the number of months summed [i.e., 6 (2) represents 6 tons emitted in 2 months]. This log is the total amount of VOCs emitted to the air on a 12 month consecutive basis.

E30-2. Visible emissions from this source (28-0025-70) shall not exhibit greater than 20% opacity, except for one six-minute period in any one hour period, and for no more than four six-minute periods in any 24 hour period. Visible emissions from this source shall be determined by EPA Method 9, as published in the current 40 CFR 60, Appendix A (six-minute average).

TAPCR 1200-03-05-.03(6) and TAPCR 1200-03-05-.01(1)

Compliance Method: The permittee shall assure compliance with the opacity standard by utilizing the opacity matrix dated June 18, 1996, and amended September 11, 2013 (Attachment 5).

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

E30-3. Purchase orders and/or invoices for all VOC containing materials along with current material safety data sheets (MSDS) must be maintained and kept available for inspection by a Division representative These records must explicitly list the VOC content by weight for all VOC containing materials. If MSDS are not available with this information, vendor formulation data containing the required information for those materials must also be maintained. These records must be retained for a period of not less than five years.

TAPCR 1200-03-09-.01(1)(d)

Compliance Method: Maintain the required recordkeeping as noted.

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28-0025-71. Rotating Drum. Conditions E31-1 and E32-2 apply to source 28-0025-71.
The source consists of a rotating drum and a baghouse.

E31-1. Particulate matter emitted from this source (28-0025-71) shall not exceed 2.26 pounds per hour.

TAPCR 1200-03-07-.01(5); Agreement letter dated February 5, 2015

Compliance Method: Compliance with the above specified particulate emission limit shall be assured by maintaining a minimum pressure drop value of at least 0.7 inches of water for the baghouse. The pressure drop for the baghouse shall be recorded once daily when the source is in operation. Days when the source is not operating shall be noted. For lower pressure drop reading(s) resulting from replacement of bags, the permittee shall record the deviation(s) as such in their daily records. Due allowance will be made for lower pressure drop readings which follow replacement of bags, provided the permittee establishes to the satisfaction of the Technical Secretary that these lower readings resulted from the replacement of bags.

The permittee shall certify with each semiannual report that each baghouse was in proper operation during all times this process was operational.

Log 31-1 shall be used to certify compliance with this condition and in the reporting requirements of **E2** of this permit, and must be must be retained for a period of not less than five years. Reports and certifications shall be submitted in accordance with Condition **E2** of this permit.

LOG 31-1 - DAILY PARTICULATE COMPLIANCE LOG FOR SOURCE 28-0025-71

Date	Time	Daily Pressure Drop Across the Bag House (inches of water)

E31-2. Visible emissions from this source (28-0025-71) shall not exhibit greater than ten percent opacity, except for one six-minute period in any one hour period, and for no more than four six-minute periods in any twenty-four24hour period. Visible emissions from this source shall be determined by EPA Method 9, as published in the current 40 CFR 60, Appendix A (six-minute average).

TAPCR 1200-03-05-.01(3), Agreement letter dated February 5, 2015.

Compliance Method: The permittee shall assure compliance with the opacity standard by utilizing the opacity matrix dated June 18, 1996 and amended September 11, 2013 (Attachment 1).

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

Source Specific Conditions for Sources 28-0025-72 and 73 **Conditions E32-1 through E32-4 apply to this source**
Sources 72 and 73 are two induction furnaces, Induction Furnace #7 (IF #7) and Induction Furnace #8 (IF #8). These furnaces melt scrap metal for use in forming finished products. A Baghouse is used for pollution control for each source. 40 CFR 63 Subpart ZZZZZ

E32-1. The process material input rate (charge rate) of scrap metal used for Induction Furnace #7 (IF #7) and Induction Furnace #8 (IF #8) shall not exceed 20,400 pounds per hour each, on a daily average basis.

TAPCR 1200-03-09-.01(1)(d)

Compliance Method: Compliance shall be assured through recording daily the information shown in Logs 32-1 and 32- 2 below. The logs below are for Induction Furnaces IF #7 and IF #8.

LOG 32-1 FOR SOURCE 28-0025-72 — (IF #7)

Month_____Year_____

Date	Material Input (pounds)	Hours of Operation	Input Rate (pounds per hour)
Sum for month			

LOG 32-2 FOR SOURCE 28-0025-73 — (IF #8)

Month_____Year_____

Date	Material Input (pounds)	Hours of Operation	Input Rate (pounds per hour)
Sum for month			

TAPCR 1200-03-09-.03(8) and the application dated August 14, 2018.

E32-2. Emissions of lead from Induction Furnace #7 (IF #7) shall not exceed 0.0028 pounds per hour, on a three-hour average basis. Emissions of lead from Induction Furnace #8 (IF #8) shall not exceed 0.0032 pounds per hour, on a three-hour average basis.

TAPCR 1200-03-22-.04(3) and 1200-03-09-.03(8)

Compliance Method: A compliance test for lead emission was conducted on June 20, 2019. During the testing period, the average lead emission rate was 0.00005 pounds per hour of operation, which demonstrates compliance with the above stated allowable emission limit.

During the testing period, the average particulate emission rate from Electric Induction Furnace #7 was 0.065 pounds of particulate matter per ton of metal charged. This value demonstrates compliance with the allowable particulate emission limit of 0.8 pounds of particulate matter per ton of metal and additives charged set forth in Conditions F9 and E32-3 of this permit and Conditions S1-3 of permit #974767 and in 40 CFR 63.10895(c)(1).

Sources 28-0025- 72 and 73 consist of two identical electric induction furnaces identified as Electric Induction Furnace #7 (also referred to as Induction Furnace 72) and Electric Induction Furnace #8 (also referred to as Induction Furnace 73). Each furnace began production on February 11, 2019, and each furnace is controlled by an identical dedicated baghouse. Consistent with the provisions of 40 CFR 63.10898(a)(3) the test results from an identical electric induction furnace may be utilized in lieu of conducting testing on both electric induction furnaces. Magotteaux elected to test Electric Induction Furnace #7 for the compliance demonstration. Therefore, the compliance test results for Electric Induction Furnace #7 serve to demonstrate compliance for Electric Induction Furnace #8. The charge rate for Furnace #7 during testing was a relatively low rate of 5.3 tons per hour, as compared with the allowable charging rate (for each furnace) of 10.2 tons per hour.

In the future as Magotteaux approaches the maximum charging rate of 10.2 tons per hour (per furnace) the Division will review (within 60 days of achieving maximum production) the foundry operations to confirm compliance with the fugitive emissions allowable.

Ongoing compliance with these emission limits shall be demonstrated by calculating emissions of lead from each furnace on a monthly basis. The permittee shall test the dust collected by the control device(s) associated with the melting furnaces at least once per calendar year. Representative samples shall be tested for, at a minimum, the following HAP: antimony, arsenic, cadmium, chromium, cobalt, lead, manganese, nickel, and phosphorus. Sample testing shall be performed by an accredited

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laboratory using an approved method. The results of the HAP content dust testing will be used to calculate a five-year rolling average concentration for lead. This average, with the throughput recorded in **Condition E32-1**, will be used to calculate lead emissions. Lead emissions will be calculated in Logs 32-3 and 32-4. Records of the dust analyses shall be retained onsite and made available for inspection by the Technical Secretary or a Division representative. The lead monthly emissions shall be included in the semiannual report submittals required by **Condition E2(a)** of this permit .

Lead emissions shall be calculated and recorded as follows in Log E32-3:

Log 32-3 Hourly Lead Emissions for Furnaces #7 (28-0025-72) and #8 (28-0025-73)
Month and year _____ Furnace ID _____

Date	Hourly Material Input rate, Tons per Hour per Furnace (from Log E32-1 or E32-2)	Particulate Emission Factor, Pounds Particulate Matter per ton Material Charged	Particulate Emissions, pounds per hour	Lead emission Factor , Five-year average concentration of lead in particulate collected material	Lead Emissions, Pounds per hour per furnace
		0.065*			

* Use of this controlled particulate emission factor above is based on the particulate matter emission factor determined from the testing of the #7 Induction Furnace on June 20, 2019 of 0.065 pounds of particulate matter per ton of metal charged. and the use of baghouse filtration and maintaining the minimum pressure drop as specified in condition E32-3 of this permit.
The hourly lead emissions are determined from multiplying the Particulate emissions in pounds per hour by the Lead emission factor which is a weight fraction of lead in particulate emissions from a study of collected particulate matter. See Condition E3-1.

TAPCR 1200-03-10-.02(1)(a) and TAPCR 1200-03-10-.02(2)(a)

Log 32-4 Monthly Lead Emissions for Furnaces #7 (28-0025-72) and #8 (28-0025-73)
Month and year _____ Furnace ID _____

Month	Monthly Material Input rate, Tons per Month per Furnace (from Log E32-1 or E32-2)	Particulate Emission Factor, Pounds Particulate Matter per ton Material Charged	Particulate Emissions, pounds per month	Lead emission Factor , Five-year average concentration of lead in particulate collected material	Lead Emissions, Pounds per month per furnace
		0.065*			

E32-3. The permittee must not discharge to the atmosphere emissions from any metal melting furnace or group of all metal melting furnaces that exceed 0.8 pounds of particulate matter (PM) per ton of metal charged or 0.06 pounds of total metal HAP per ton of metal charged.

40 CFR §63.10895(c)(1), TAPCR 1200-03-09-.03(8), Conditions F9 of this permit and S1-3 of Permit 974767.

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Compliance Method: Compliance with the above emission limits shall be assured from the Particulate matter testing conducted on June 20, 2019 which indicated an emission factor of 0.065 pounds of particulate matter per ton of metal charged and by daily pressure drop monitoring after a minimum pressure drop has been established for each baghouse as specified below. See Condition E32-2 for further review of testing. The permittee elected to test for particulate matter for compliance with this limit.

The permittee shall monitor and record the pressure differential (inches of water column) across the baghouses on each day of operation. Days when the source is not operating shall be noted. Within 45 days of issuance of this permit, the Permittee shall compile 30 consecutive operating days of pressure differential readings for the baghouses. The designated person(s) shall note any relevant baghouse conditions, problems, or concerns when recording the values. This data shall be submitted to the Division (see address below) along with a proposed minimum pressure differential, no later than 15 days following the 45 days of readings.

Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, Tennessee 37243

Or by email to: Air.Pollution.Control@tn.gov

The minimum pressure drop shall be incorporated into the permit by Administrative Amendment.

After incorporation of the minimum pressure differential into the permit, the permittee shall maintain the required minimum pressure differential for the baghouses. The pressure differential shall be recorded once daily when each source is in operation. Days when the sources are not operating shall be noted.

For lower pressure differential reading(s) resulting from replacement of bags, the permittee shall record the deviation(s) as such in their daily records. Due allowance will be made for lower pressure differential reading(s) which follow replacement of bags provided the Permittee establishes to the satisfaction of the Technical Secretary that these lower readings resulted from the replacement of bags.

Each baghouse shall be operating at any time that the associated Furnace is operating.

E32-4. The exhaust gases from Induction Furnace #7 (IF #7) shall be discharged unobstructed vertically upwards to the ambient air from a stack with an exit diameter of 4.0 feet, not less than 29.0 feet above ground level. The exhaust gases from Induction Furnace #8 (IF #8) shall be discharged unobstructed vertically upwards to the ambient air from a stack with an exit diameter of 3.0 feet, not less than 11.3 feet above ground level.

TAPCR 1200-03-22-.04(3) and 1200-03-09-.02(7)(b)

Compliance Method: This is a statement of parameters utilized in the source impact analysis dated November 9, 2018, provided by the permittee. The permittee must notify the Technical Secretary at least 30 days before changing any of these parameters. The permittee shall annually certify compliance as required by condition E2(b)

END OF PERMIT NUMBER: 576847

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ATTACHMENT 1

Table 1 to Subpart ZZZZZ of Part 63 – Performance Test Requirements for New and Existing Affected Sources Classified as Large Foundries

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As required in 40 CFR §63.10898(c) and (h), the permittee must conduct performance tests according to the test methods and procedures in the following table:

For. . .	You must. . .	According to the following requirements. . .
1. Each metal melting furnace subject to a PM or total metal HAP limit in §63.10895(c)	a. Select sampling port locations and the number of traverse points in each stack or duct using EPA Method 1 or 1A (40 CFR part 60, appendix A) b. Determine volumetric flow rate of the stack gas using Method 2, 2A, 2C, 2D, 2F, or 2G (40 CFR part 60, appendix A) c. Determine dry molecular weight of the stack gas using EPA Method 3, 3A, or 3B (40 CFR part 60, appendix A).[1] d. Measure moisture content of the stack gas using EPA Method 4 (40 CFR part 60, A) e. Determine PM concentration using EPA Method 5, 5B, 5D, 5F, or 5I, as applicable or total metal HAP concentration using EPA Method 29 (40 CFR part 60, appendix A)	Sampling sites must be located at the outlet of the control device (or at the outlet of the emissions source if no control device is present) prior to any releases to the atmosphere. i. Collect a minimum sample volume of 60 dscf of gas during each PM sampling run. The PM concentration is determined using only the front-half (probe rinse and filter) of the PM catch. ii. For Method 29, only the measured concentration of the listed metal HAP analytes that are present at concentrations exceeding one-half the quantification limit of the analytical method are to be used in the sum. If any of the analytes are not detected or are detected at concentrations less than one-half the quantification limit of the analytical method, the concentration of those analytes is assumed to be zero for the purposes of calculating the total metal HAP.
		iii. A minimum of three valid test runs are needed to comprise a PM or total metal HAP performance test.
		iv. For cupola metal melting furnaces, sample PM or total metal HAP only during times when the cupola is on blast.
		v. For electric arc and electric induction metal melting furnaces, sample PM or total metal HAP only during normal melt production conditions, which may include, but are not limited to the following operations: Charging, melting, alloying, refining, slagging, and tapping.
		vi. Determine and record the total combined weight of tons of metal charged during the duration of each test run. You must compute the process-weighted mass emissions of PM according to Equation 1 of §63.10898(d) for an individual furnace or Equation 2 of §63.10898(e) for the group of all metal melting furnaces at the foundry.

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For. . .	You must. . .	According to the following requirements. . .
2. Fugitive emissions from buildings or structures housing any iron and steel foundry emissions sources subject to opacity limit in §63.10895(e)	a. Using a certified observer, conduct each opacity test according to EPA Method 9 (40 CFR part 60, appendix A-4) and 40 CFR 63.6(h)(5)	i. The certified observer may identify a limited number of openings or vents that appear to have the highest opacities and perform opacity observations on the identified openings or vents in lieu of performing observations for each opening or vent from the building or structure. Alternatively, a single opacity observation for the entire building or structure may be performed, if the fugitive release points afford such an observation.
		ii. During testing intervals when PM or total metal HAP performance tests, if applicable, are being conducted, conduct the opacity test such that the opacity observations are recorded during the PM or total metal HAP performance tests.
	b. As alternative to Method 9 performance test, conduct visible emissions test by Method 22 (40 CFR part 60, appendix A-7). The test is successful if no visible emissions are observed for 90 percent of the readings over 1 hour. If VE is observed greater than 10 percent of the time over 1 hour, then the facility must conduct another performance test as soon as possible, but no later than 15 calendar days after the Method 22 test, using Method 9 (40 CFR part 60, appendix A-4)	i. The observer may identify a limited number of openings or vents that appear to have the highest visible emissions and perform observations on the identified openings or vents in lieu of performing observations for each opening or vent from the building or structure. Alternatively, a single observation for the entire building or structure may be performed, if the fugitive release points afford such an observation. ii. During testing intervals when PM or total metal HAP performance tests, if applicable, are being conducted, conduct the visible emissions test such that the observations are recorded during the PM or total metal HAP performance tests.

[1]You may also use as an alternative to EPA Method 3B (40 CFR part 60, appendix A), the manual method for measuring the oxygen, carbon dioxide, and carbon monoxide content of exhaust gas, ANSI/ASME PTC 19.10-1981, “Flue and Exhaust Gas Analyses” (incorporated by reference—see §63.14).

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ATTACHMENT 2

Table 2 to Subpart ZZZZZ of Part 63 – Procedures for Establishing Operating Limits for New Affected Sources Classified as Large Foundries

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As required in 40 CFR §63.10898(k), the permittee must establish operating limits using the procedures in the following table:

For . . .	**You must . . .**
1. Each wet scrubber subject to the operating limits in §63.10895(d)(1) for pressure drop and scrubber water flow rate.	Using the CPMS required in §63.10897(b), measure and record the pressure drop and scrubber water flow rate in intervals of no more than 15 minutes during each PM or total metal HAP test run. Compute and record the average pressure drop and average scrubber water flow rate for all the valid sampling runs in which the applicable emissions limit is met.
2. Each electrostatic precipitator subject to operating limits in §63.10895(d)(2) for voltage and secondary current (or total power input).	Using the CPMS required in §63.10897(c), measure and record voltage and secondary current (or total power input) in intervals of no more than 15 minutes during each PM or total metal HAP test run. Compute and record the minimum hourly average voltage and secondary current (or total power input) from all the readings for each valid sampling run in which the applicable emissions limit is met.

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ATTACHMENT 3

Table 3 to Subpart ZZZZZ of Part 63 – Applicability of General Provisions to New and Existing Affected Sources Classified as Large Foundries

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As required in 40 CFR §63.10900(a), the permittee must meet each requirement in the following table that applies to you:

Citation	Subject	Applies to large foundry?	Explanation
63.1	Applicability	Yes.	
63.2	Definitions	Yes.	
63.3	Units and abbreviations	Yes.	
63.4	Prohibited activities	Yes.	
63.5	Construction/reconstruction	Yes.	
63.6(a)-(g)	Compliance with standards and maintenance requirements	Yes.	
63.6(h)	Opacity and visible emissions standards	Yes.	
63.6(i)(i)-(j)	Compliance extension and Presidential compliance exemption	Yes.	
63.7(a)(3), (b)-(h)	Performance testing requirements	Yes.	
63.7(a)(1)-(a)(2)	Applicability and performance test dates	No	Subpart ZZZZZ specifies applicability and performance test dates.
63.8(a)(1)-(a)(3), (b), (c)(1)-(c)(3), (c)(6)-(c)(8), (d), (e), (f)(1)-(f)(6), (g)(1)-(g)(4)	Monitoring requirements	Yes.	
63.8(a)(4)	Additional monitoring requirements for control devices in §63.11	No.	
63.8(c)(4)	Continuous monitoring system (CMS) requirements	No.	
63.8(c)(5)	Continuous opacity monitoring system (COMS) minimum procedures	No.	
63.8(g)(5)	Data reduction	No.	
63.9	Notification requirements	Yes.	
63.10(a), (b)(1)-(b)(2)(xii) - (b)(2)(xiv), (b)(3), (d)(1)-(2), (e)(1)-(2), (f)	Recordkeeping and reporting requirements	Yes.	
63.10(c)(1)-(6), (c)(9)-(15)	Additional records for continuous monitoring systems	No.	
63.10(c)(7)-(8)	Records of excess emissions and parameter monitoring exceedances for CMS	Yes.	
63.10(d)(3)	Reporting opacity or visible emissions observations	Yes.	
63.10(e)(3)	Excess emissions reports	Yes.	
63.10(e)(4)	Reporting COMS data	No.	
63.11	Control device requirements	No.	
63.12	State authority and delegations	Yes.	
63.13-63.16	Addresses of State air pollution control agencies and EPA regional offices. Incorporation by reference. Availability of information and confidentiality. Performance track provisions	Yes.	

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ATTACHMENT 4

Table 4 to Subpart ZZZZZ of Part 63 – Compliance Certifications for New and Existing Affected Sources Classified as Large Iron and Steel Foundries

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As required by 40 CFR §63.10900(b), the permittee's notification of compliance status must include certifications of compliance according to the following table:

For. . .	The permittee's notification of compliance status required by §63.9(h) must include this certification of compliance, signed by a responsible official:
Each new or existing affected source classified as a large foundry and subject to scrap management requirements in §63.10885(a)(1) and/or (2)	"This facility has prepared, and will operate by, written material specifications for metallic scrap according to §63.10885(a)(1)" and/or "This facility has prepared, and will operate by, written material specifications for general iron and steel scrap according to §63.10885(a)(2)."
Each new or existing affected source classified as a large foundry and subject to mercury switch removal requirements in §63.10885(b)	"This facility has prepared, and will operate by, written material specifications for the removal of mercury switches and a site-specific plan implementing the material specifications according to §63.10885(b)(1)" and/or "This facility participates in and purchases motor vehicles scrap only from scrap providers who participate in a program for removal of mercury switches that has been approved by the EPA Administrator according to §63.10885(b)(2) and have prepared a plan for participation in the EPA approved program according to §63.10885(b)(2)(iv)" and/or "The only materials from motor vehicles in the scrap charged to a metal melting furnace at this facility are materials recovered for their specialty alloy content in accordance with §63.10885(b)(3) which are not reasonably expected to contain mercury switches" and/or "This facility complies with the requirements for scrap that does not contain motor vehicle scrap in accordance with §63.10885(b)(4)."
Each new or existing affected source classified as a large foundry and subject to §63.10886	"This facility complies with the no methanol requirement for the catalyst portion of each binder chemical formulation for a furfuryl alcohol warm box mold or core making line according to §63.10886."
Each new or existing affected source classified as a large foundry and subject to §63.10895(b)	"This facility operates a capture and collection system for each emissions source subject to this subpart according to §63.10895(b)."
Each existing affected source classified as a large foundry and subject to §63.10895(c)(1)	"This facility complies with the PM or total metal HAP emissions limit in §63.10895(c) for each metal melting furnace or group of all metal melting furnaces based on a previous performance test in accordance with §63.10898(a)(1)."
Each new or existing affected source classified as a large foundry and subject to §63.10896(a)	"This facility has prepared and will operate by an operation and maintenance plan according to §63.10896(a)."
Each new or existing (if applicable) affected source classified as a large foundry and subject to §63.10897(d)	"This facility has prepared and will operate by a site-specific monitoring plan for each bag leak detection system and submitted the plan to the Administrator for approval according to §63.10897(d)(2)."

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ATTACHMENT 5

OPACITY MATRIX DECISION TREE for VISIBLE EMISSION EVALUATION METHODS 2 and 9 dated June 18, 1996, Amended September 11, 2013

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Permit Number: 576847

Decision Tree PM for Opacity for Sources Subject to Rule 1200-03-05-.01 Utilizing TVEE Method 2

Expiration Date: ***, 2025

Notes:

PM = Periodic Monitoring required by 1200-03-09-.02(11)(e)(iii).

This Decision Tree outlines the criteria by which major sources can meet the periodic monitoring and testing requirements of Title V for demonstrating compliance with the visible emission standard in Rule 1200-03-05-.01. It is not intended to determine compliance requirements for EPA's Compliance Assurance Monitoring (CAM) Rule (formerly referred to as Enhanced Monitoring – Proposed 40 CFR 64).

Examine each emission unit using this Decision Tree to determine the PMT required.

Use of continuous emission monitoring systems eliminates the need to do any additional periodic monitoring.

Visible Emission Evaluations (VEEs) are to be conducted utilizing Tennessee Visible Emission Evaluation Method 2. The observer must be properly certified according to the criteria specified in EPA Method 9 to conduct TVEE Method 2 evaluations.

Typical Pollutants
Particulates, VOC, CO, SO_2, NO_x, HCl, HF, HBr, Ammonia, and Methane.

Initial observations are to be repeated within 90 days of startup of a modified source, if a new construction permit is issued for modification of the source.

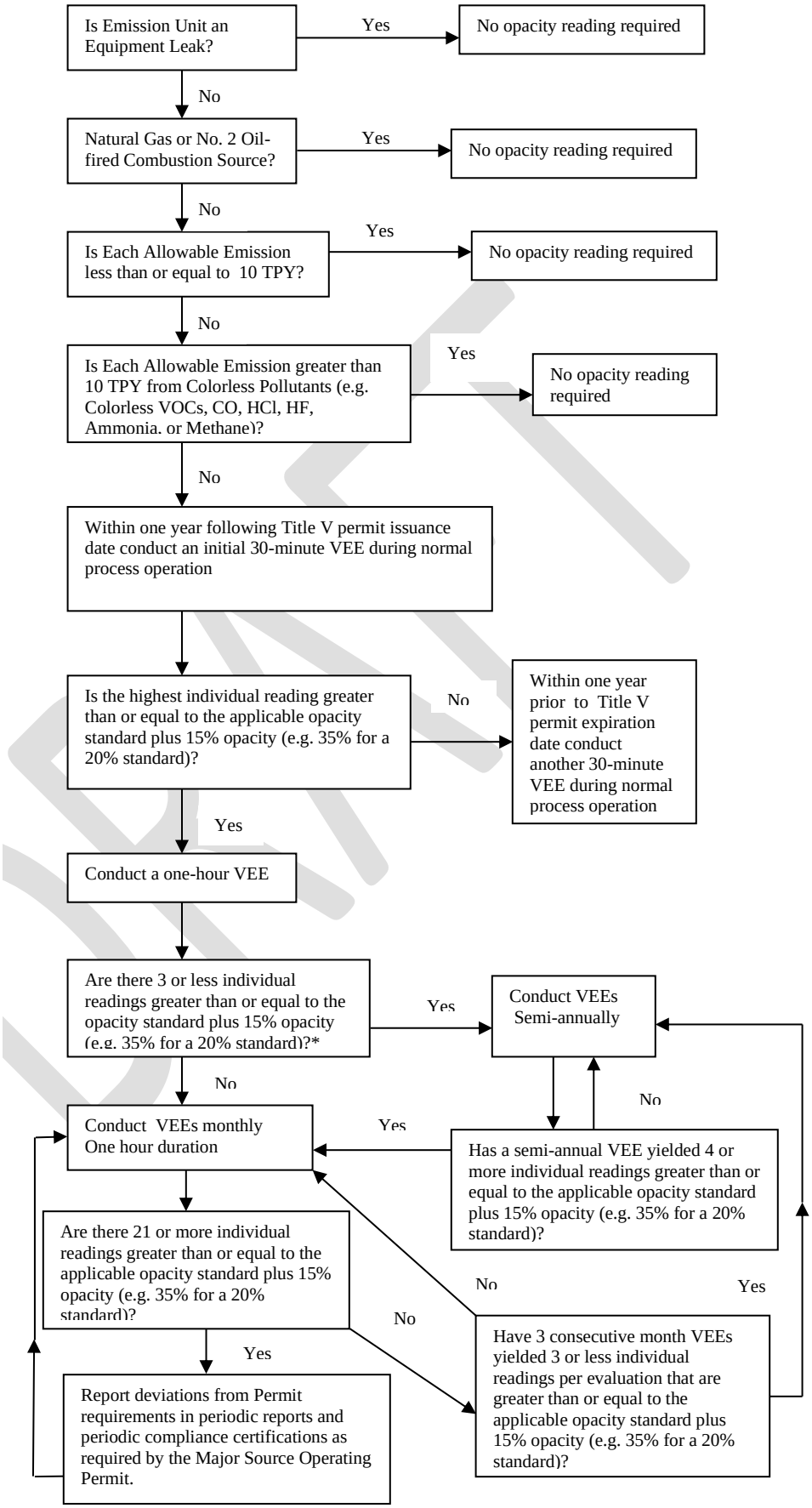
A VEE conducted by TAPCD personnel after the Title V permit is issued will also constitute an initial reading.

Reader Error
TVEE Method 2: The TAPCD declares non-compliance when 21 observations are read at the standard plus 15% opacity (e.g. 35% for a 20% standard).

*The rationale for this is the fact that Rule 1200-03-05-.01 allows for an exemption of 5 minutes (20 readings) per hour and up to 20 minutes (80 readings) per day. With 4 or more excessive individual readings per hour the possibility of a daily exceedance exists.

Note: A company could mutually agree to have all of its sources regulated by EPA Method 9. Caution: Agreement to use Method 9 could potentially place some sources in non-compliance with visible emission standards. Please be sure before you agree.

Dated June 18, 1996
Amended September 11, 2013



Decision Tree PM for Opacity for Sources Utilizing EPA Method 9*

Notes:

PM = Periodic Monitoring required by 1200-03-09-.02(11)(e)(iii).

This Decision Tree outlines the criteria by which major sources can meet the periodic monitoring and testing requirements of Title V for demonstrating compliance with the visible emission standards set forth in the permit. It is not intended to determine compliance requirements for EPA's Compliance Assurance Monitoring (CAM) Rule (formerly referred to as Enhanced Monitoring – Proposed 40 CFR 64).

Examine each emission unit using this Decision Tree to determine the PM required.*

Use of continuous emission monitoring systems eliminates the need to do any additional periodic monitoring.

Visible Emission Evaluations (VEEs) are to be conducted utilizing EPA Method 9. The observer must be properly certified to conduct valid evaluations.

Typical Pollutants
Particulates, VOC, CO, SO_2, NO_x, HCl, HF, HBr, Ammonia, and Methane.

Initial observations are to be repeated within 90 days of startup of a modified source, if a new construction permit is issued for modification of the source.

A VEE conducted by TAPCD personnel after the Title V permit is issued will also constitute an initial reading.

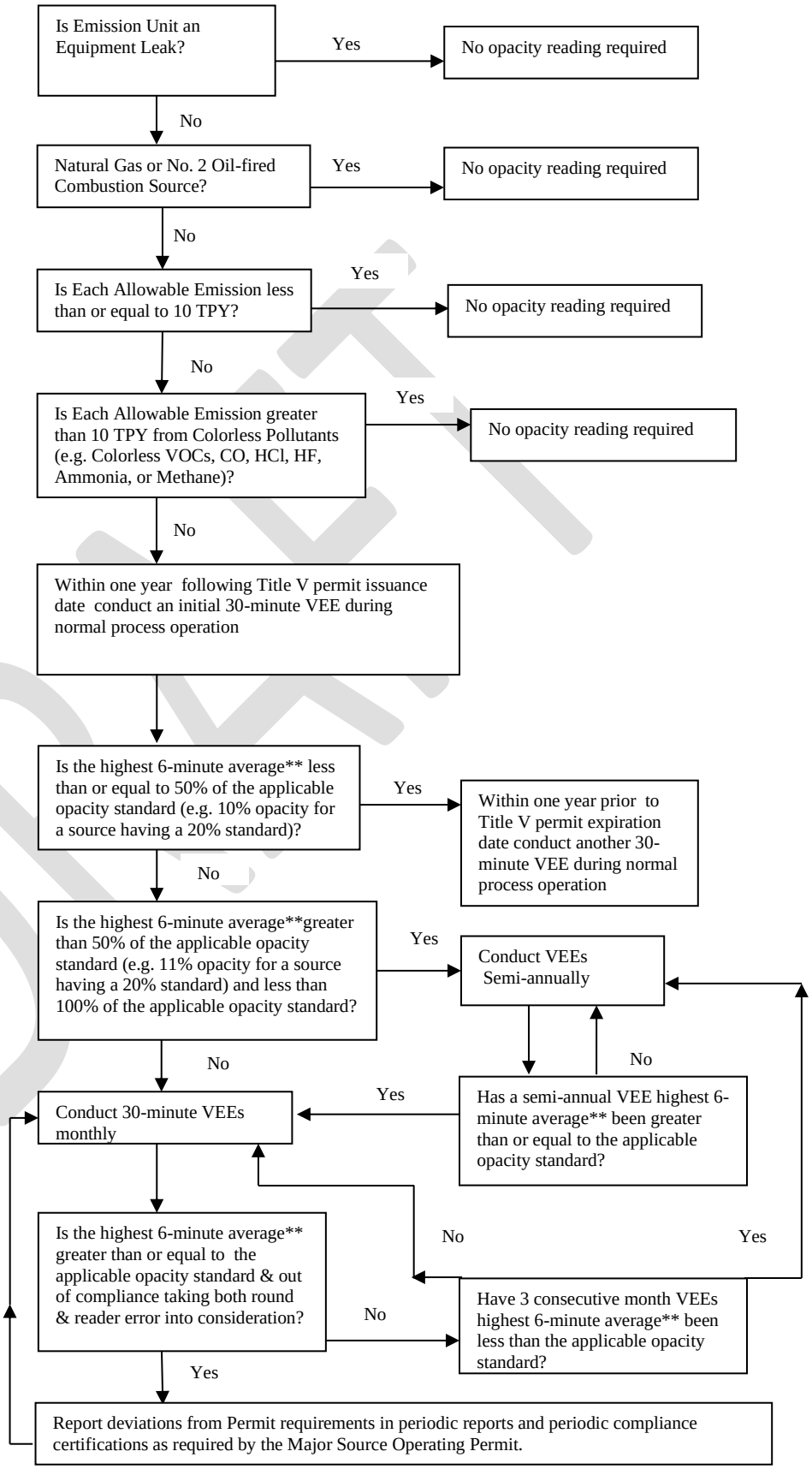
Reader Error
EPA Method 9, Non-NSPS or NESHAPS stipulated opacity standards:
The TAPCD guidance is to declares non-compliance when the highest six-minute average** exceeds the standard plus 6.8% opacity (e.g. 26.8% for a 20% standard).

EPA Method 9, NSPS or NESHAPS stipulate opacity standards:
EPA guidance is to allow only engineering round. No allowance for reader error is given.

*Not applicable to Asbestos manufacturing subject to 40 CFR 61.142

**Or second highest six-minute average, if the source has an exemption period stipulated in either the regulations or in the permit.

Dated June 18, 1996
Amended September 11, 2013



ATTACHMENT 6

AP-42 Tables

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TABLE 1.4-2. EMISSION FACTORS FOR CRITERIA POLLUTANTS AND GREENHOUSE GASES FROM NATURAL GAS COMBUSTION[a]

Pollutant	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating
CO_2[b]	120,000	A
Lead	0.0005	D
N_2O (Uncontrolled)	2.2	E
N_2O (Controlled-low-NO_X burner)	0.64	E
PM (Total)[c]	7.6	D
PM (Condensable)[c]	5.7	D
PM (Filterable)[c]	1.9	B
SO_2[d]	0.6	A
TOC	11	B
Methane	2.3	B
VOC	5.5	C

[a] Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. Data are for all natural gas combustion sources. To convert from $lb/10^6$ scf to $kg/10^6$ m^3, multiply by 16. To convert from $lb/10^6$ scf to 1b/MMBtu, divide by 1,020. The emission factors in this table may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value. TOC = Total Organic Compounds. VOC = Volatile Organic Compounds.

[b] Based on approximately 100% conversion of fuel carbon to CO_2. $CO_2[lb/10^6 scf] = (3.67)(CON)(C)(D)$, where CON = fractional conversion of fuel carbon to CO_2, C = carbon content of fuel by weight (0.76), and D = density of fuel, $4.2x10^4$ $lb/10^6$ scf.

[c] All PM (total, condensible, and filterable) is assumed to be less than 1.0 micrometer in diameter. Therefore, the PM emission factors presented here may be used to estimate PM_{10}, $PM_{2.5}$ or PM_1 emissions. Total PM is the sum of the filterable PM and condensible PM. Condensible PM is the particulate matter collected using EPA Method 202 (or equivalent). Filterable PM is the particulate matter collected on, or prior to, the filter of an EPA Method 5 (or equivalent) sampling train.

[d] Based on 100% conversion of fuel sulfur to SO_2.
Assumes sulfur content is natural gas of 2,000 grains/10^6 scf. The SO_2 emission factor in this table can be converted to other natural gas sulfur contents by multiplying the SO_2 emission factor by the ratio of the site-specific sulfur content (grains/10^6 scf) to 2,000 grains/10^6 scf.

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Table 1.4-1. EMISSION FACTORS FOR NITROGEN OXIDES (NO_x) AND CARBON MONOXIDE (CO) FROM NATURAL GAS COMBUSTION[a]

Combustor Type (MMBtu/hr Heat Input) [SCC]	NO_x[b]		CO	
	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating
Large Wall-Fired Boilers (>100) [1-01-006-01, 1-02-006-01, 1-03-006-01]				
Uncontrolled (Pre-NSPS)[c]	280	A	84	B
Uncontrolled (Post-NSPS)[c]	190	A	84	B
Controlled - Low NO_x burners	140	A	84	B
Controlled - Flue gas recirculation	100	D	84	B
Small Boilers (<100) [1-01-006-02, 1-02-006-02, 1-03-006-02, 1-03-006-03]				
Uncontrolled	100	B	84	B
Controlled - Low NO_x burners	50	D	84	B
Controlled - Low NO_x burners/Flue gas recirculation	32	C	84	B
Tangential-Fired Boilers (All Sizes) [1-01-006-04]				
Uncontrolled	170	A	24	C
Controlled - Flue gas recirculation	76	D	98	D
Residential Furnaces (<0.3) [No SCC]				
Uncontrolled	94	B	40	B

[a] Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. To convert from $lb/10^6$ scf to $kg/10^6$ m^3, multiply by 16. Emission factors are based on an average natural gas higher heating value of 1,020 Btu/scf. To convert from $1b/10^6$ scf to lb/MMBtu, divide by 1,020. The emission factors in this table may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value. SCC = Source Classification Code. ND = no data. NA = not applicable.

[b] Expressed as NO_2. For large and small wall fired boilers with SNCR control, apply a 24 percent reduction to the appropriate NO_X emission factor. For tangential-fired boilers with SNCR control, apply a 13 percent reduction to the appropriate NO_X emission factor.

[c] NSPS=New Source Performance Standard as defined in 40 CFR 60 Subparts D and Db. Post-NSPS units are boilers with greater than 250 MMBtu/hr of heat input that commenced construction modification, or reconstruction after August 17, 1971, and units with heat input capacities between 100 and 250 MMBtu/hr that commenced construction modification, or reconstruction after June 19, 1984.

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Table 12.13-2 (English Units). EMISSION FACTORS FOR STEEL FOUNDRIES

Process	Filterable Particulate[a]	EMISSION FACTOR RATING	Nitrogen Oxides	EMISSION FACTOR RATING	Filterable PM-10	EMISSION FACTOR RATING
Melting						
Electric arc[b,c] (SCC 3-04-007-01)	13 (4- to 40)	E	0.2	E	ND	NA
Open hearth[b,c] (SCC 3-04-007-02)	11 (2 to 20)	E	0.01	E	ND	NA
Open hearth oxygen lanced[b,c] (SCC 3-04-007-03)	10 (8 to 11)	E	ND	NA	ND	NA
Electric induction[h] (SCC 3-04-007-05)	0.1	E	ND	NA	0.09	E
Sand grinding/handling in mold and core making[j] (SCC 3-04-007-06)	ND	NA	NA	NA	0.54[k] 6.0	E
Core ovens[j] (SCC 3-04-007-07)	ND	NA	ND	NA	2.22 [k] 0.90	E
Pouring and casting[j] (SCC 3-04-007-08)	ND	NA	ND	NA	2.8	E
Casting cleaning[j] (SCC 3-04-007-08)	ND	NA	NA	NA	1.7	E
Charge handling[j] (SCC 3-04-007-08)	ND	NA	NA	NA	0.36	E
Casting and cooling[j] (SCC 3-04-007-08)	ND	NA	NA	NA	1.4	E

[a] Expressed as lb/ton of metal processed. If the scrap metal is very dirty or oily, or if increased oxygen lancing is employed, the emission factor should be chosen from the high side of the factor range. SCC = Source Classification Code.
[b] Electrostatic precipitator, 92 to 98% control efficiency; baghouse (fabric filter), 98 to 99% control efficiency; venturi scrubber, 94 to 98% control efficiency.
[c] References 2-7.
[d] Electrostatic precipitator, 95 to 98% control efficiency; baghouse , 99.9% control efficiency; venturi scrubber, 96 to 99% control efficiency.
e References 2,8-10.
f Electrostatic precipitator, 95 to 98% control efficiency; baghouse, 99% control efficiency; venturi scrubber, 96 to 98% control efficiency.
g Refrences 5,11.
h Usually not controlled.
j Reference 13.
k Emission factor expressed as lb of pollutant/ton of sand handled.

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ATTACHMENT 7

Modern Casting Emission Factors and Emissions from Flammable Core and Mold Coatings

DRAFT

Calculating Emission Factors for Pouring, Cooling and Shakeout

This simple step to calculate the quantity of emissions in foundries aids in their drive to obtain Title V Operating Permits.

Gary E. Mosher
Director of Environmental Affairs
American Foundrymen's Society

Do you know how much benzene is emitted from your foundry each year? What about quantities of formaldehyde, phenol or any of the other 189 hazardous air pollutants (HAPs) that Congress added to the list of regulated chemicals in the Clean Air Act Amendments (CAAA) of 1990?

If you can't answer these questions, get prepared. In the near future, state air pollution control agencies will require this type of information before your foundry can receive a CAAA Title V Operating Permit.

So where does a foundry find information on the HAPs that may be emitted from their operations? Foundries really have only two options—stack tests and EPA emission factors.

Stack Tests

The most accurate information can be obtained by performing an air emission inventory. During the course of this survey, stack tests are taken and the samples are analyzed for their chemical content. Process information is matched with the results of the stack test to calculate the amount of air pollution generated per unit of production.

For example, stack tests done on a melting operation will generate an emission factor of X lb of airborne pollutant released per ton of metal charged into the furnace.

The drawback to this type of inventory is that it can be expensive—depending on the size of the foundry, number of sources tested, amount of samples analyzed, and on how much of the work is done by a consultant.

EPA Emission Factors

An alternative is to use the EPA's emission factors for foundry operations.

Fig. 1. This formula is used to calculate HAP emission factors.

(average measured air concentration for a chemical) x (air volume sampled)
(((sand to metal ratio) x (metal in mold) x (resin level in mold)) x 0.95)

These emission factors are less accurate then those derived from site specific stack tests, but are still valuable because they provide sufficient information to estimate the amounts and types of air pollutants. For many companies, these estimated values may be the only source of information available to complete their operating permit application.

Emission factors for the criteria pollutants (CO, Pb, NO_X, particulate, PM10, SO_X, VOCs) can be found in EPA publications *Compilation of Air Pollutant Emission Factors: Stationary Point and Area Sources* (generally referred to as AP-42) or *Airs Facility Subsystem Source Classification Codes and Emission Factor Listing for Criteria Air Pollutants* (generally referred to as the Airs SCC book).

Information on HAP emissions can be found in *Air Emissions Species Manual, Volume I, Volatile Organic Compound Species Profiles* or in special reports commissioned by EPA, *Environmental Assessment of Iron Casting* (1980) or *Emission Factors for Iron Foundries—Criteria and Toxic Pollutants, Prepared for Hamilton County, Chattanooga, Tennessee* (1990).

The gray iron pouring/casting profile, #1089 in the *Air Emissions Species Manual*, is the reference most frequently used to estimate HAP emissions. This profile is based on AFS-sponsored research conducted at Southern Research Institute (SRI) in the mid-1970s ("Chemical Emissions from Foundry Molds" *AFS Transactions*, paper 77–98).

It differs from traditional emission factors, since it isn't a process rate-based factor (lb of pollutant per lb of production), but simply a percent distribution of 11 chemicals in the decomposition gases from molds. To calculate this distribution, EPA combined 132 different air concentrations values (11 chemical concentrations from each of 12 binders) from the SRI research.

Profile #1089 only works for the theoretical mold that contains cores made from each of 12 different binders. The SRI data can be used, however, to calculate binder-chemical-specific emission factors.

How to Calculate

For each binder system, the report provides information on: resin level in the sand, sand-to-metal ratio, amount of metal poured into the mold, average airborne concentration of each chemical and air volume sampled. The emission factor for each airborne chemical within each binder can be calculated by dividing the amount of an airborne chemical collected by the amount of resin in the mold.

Since the SRI tests collected 95% of all of the emissions that would come off a mold from the time of pouring to what would be considered a cold shakeout, a simple step can be taken to calculate the 100% quantity of emissions. Adding this step produces factors that represent HAP emissions—from pouring through shakeout.

The formula to calculate the emission factor is

Fig. 2. Using a furan hotbox binder system as an example, determining emission factors is simple using the calculation showed in Fig. 1.

Binder system:	Furan hotbox
Binder Level:	2% resin, based on weight of sand
Sand to Metal Ratio:	2.5
Metal in Mold:	40 kilograms (kg)
Resin in Sand:	0.02 x 2.5 x 40 kg = 2.0 kg or 2000 grams (gm)
Chemical:	Benzene
Chemical Concentration:	17 milligrams per cubic meter (mg/m³)
Air Volume:	60 m³ (1 m³ per minute times 60 minutes)
Chemical Collected:	17 mg/m³ x 60 m³ = 1020 mg = 1.02 gm
Calculated Emission Factor:	1.02 gm benzene/2000 gm resin = 0.00051
Emission Factor:	0.00051/.95 = 0.000537

(all information taken from data tables and text of SRI report)

shown in Fig. 1. The emission factor is easily calculated by multiplying the average measured air concentration for a chemical by the air volume sampled, and then dividing it by the product of the sand to metal ratio, metal in the mold, the resin level in the mold and 0.95.

Figure 2 shows how to use this calculation to determine the emission factor for benzene in a furan hotbox binder system. The emission factor ends up being a ratio of the mass of chemical emitted per mass of resin (mass is expressed in the same units). Therefore, if pounds of resin are used in the calculation, the result will be in pounds of airborne chemical.

Using the formula given above, emission factors were calculated for 16 different chemicals or chemical families emitted from each of 11 binder systems. These emission factors are listed in Tables 1–11.

To calculate the total hydrocarbons emission factor, an additional step must be taken to determine the measured concentrations for this family of chemicals. SRI only reported the total hydrocarbons concentration expected when the carbon monoxide (CO) level in the decomposition products was diluted down to a level where it would be below the OSHA standard of 50 ppm.

The average measured concentration for total hydrocarbons was calculated by taking the diluted (SRI called these extrapolated concentrations) total hydrocarbon concentration for a binder system and multiplying it by the dilution factor listed for that binder system.

Emission factors weren't calculated for the dry sand system. Because of multiple sources of organics and their independence from each other together with the amount mixed in the sand, it's difficult to select the parameter (such as resin quantity for the other binders) for use as an index.

Fig. 3. This figure illustrates the benzene emissions for a foundry using green sand molds and furan hotbox cores.

Binder system:	Green Sand
Index:	Seacoal
Index use rate:	2,000,000 lb per year
Benzene emission factor:	0.000611 lb per lb of index
Annual benzene emissions:	0.000611 x 2,000,000 lb = 1222 lb
Binder system:	Furan hotbox
Index:	Resin
Index use rate:	100,000 lb of resin per year
Benzene emission factor:	0.000537 lb per lb of index
Annual benzene emissions:	0.000537 x 100,000 lb = 54 lb

How to Use Emission Factors

To calculate the emissions of a chemical from pouring, cooling and shakeout, multiply the emission factor given in Tables 1–11 for that chemical for a particular binder by the amount of the index material listed for that binder system.

If the index material is in pounds, the quantity of the chemical emission will be in pounds. If the quantity of the index is for one day, the amount of the chemical emitted will be a daily amount. If the quantity of the index material is that used or purchased in a y[illegible]e amount of the chemical will be the annual emission.

To illustrate how to u[illegible] sion factors, XYZ foundry m[illegible] castings in green sand [illegible] using furan hotbox cores. Using data from Tables 4 and 9, Fig. 3 shows its estimat[illegible] nual benzene emission from pouring, cooling and shakeout. The annual benzene emissions from pouring, cooling and shakeout is estimated to be 1276 lb (54 lb from furan hotbox plus 1222 lb from seacoal).

Logical, Easy to Use

These factors make sense, sin[illegible] they are based on the material that is the source of the pouring, cooling and shakeout HAP emissions. The development of the factors follows the same logic that says the amount of particulate emissions from a sand system will be a function of the amount of sand processed, or the amount of metal emissions from a furnace will be a function of how much metal is melted.

The factors are also easy to use because they are based on materials whose rates are known by a foundry. For example, to get the information needed to fill out the annual SARA 313 Form R Toxic Release Inventory report, many foundries have set up systems to record their annual purchases of binders. This is the same information that can be used to calculate HAP emissions.

Table 1. Phenolic Nobake Binder

Pouring-Cooling-Shakeout	
Binder System Phenolic Nobake Index: Resin	Pounds of Chemical Released to Air per Pound of Index
Ammonia	0.000039
Hydrogen Sulfide	0.001462
Nitrogen Oxides	0.000029
Sulfur Dioxide	0.015107
Total Hydrocarbons [4]	0.012159
Acrolein	0.000005
Benzene	0.011209
Formaldehyde	0.000010
Hydrogen Cyanide	0.000029
M-Xylene	0.000097
Naphthalene [1]	0.000049
O-Xylene [1]	0.000049
Phenol [2]	0.000975
Toluene	0.000634
Total Aromatic Amines [1]	0.000049
Total C_2 to C_5 Aldehydes	0.003070
Total HAPs [5]	0.016174

Table 2. Phenolic Urethane Binder

Pouring-Cooling-Shakeout	
Binder System Phenolic Urethane Index: Resin	Pounds of Chemical Released to Air per Pound of Index
Ammonia	0.000083
Hydrogen Sulfide	0.000057
Nitrogen Oxides	0.000044
Sulfur Dioxide	0.000061
Total Hydrocarbons [4]	0.023377
Acrolein	0.000031
Benzene	0.005351
Formaldehyde [2]	0.000022
Hydrogen Cyanide	0.001053
M-Xylene	0.000439
Naphthalene [3]	0.000022
O-Xylene	0.000132
Phenol	0.003904
Toluene	0.000833
Total Aromatic Amines	0.000351
Total C_2 to C_5 Aldehydes [1]	0.000219
Total HAPs [5]	0.012355

Table 3. Phenolic Hotbox Binder

Pouring-Cooling-Shakeout	
Binder System Phenolic Hotbox Index: Resin	Pounds of Chemical Released to Air per Pound of Index
Ammonia	0.010931
Hydrogen Sulfide	0.000009
Nitrogen Oxides	0.000638
Sulfur Dioxide	0.000036
Total Hydrocarbons [4]	0.005165
Acrolein	0.000009
Benzene	0.001002
Formaldehyde	0.000006
Hydrogen Cyanide	0.001184
M-Xylene	0.000121
Naphthalene [1]	0.000030
O-Xylene [1]	0.000030
Phenol [2]	0.000203
Toluene	0.000182
Total Aromatic Amines	0.001275
Total C_2 to C_5 Aldehydes	0.000273
Total HAPs [5]	0.004318

[1] SRI reported the concentration of this chemical as a less than value (< "X"). The concentration used for this calculation was the "X" value.
[2] SRI only reported the highest time-average concentration for this chemical. That value was used for the calculation.
[3] SRI reported the concentration as a much less than value(<< "Z"). The concentration used for this calculation was one-half of the "Z" value.
[4] SRI reported this as a 30-minute average concentration. For this calculation it was assumed that the 60-minute average concentration was the same.
[5] Total HAPs is the sum of acrolein, benzene, formaldehyde, hydrogen cyanide, M-xylene, naphthalene, O-xylene, phenol, toluene, total aromatic amines, and total C_2 to C_5 aldehydes.
[6] This is the amount of resin on the sand, not the combined weight of resin and sand.

Table 4. Green Sand Binder

Pouring-Cooling-Shakeout	
Binder System: Green Sand Index: Seacoal	Pounds of Chemical Released to Air per Pound of Index
Ammonia	0.000065
Hydrogen Sulfide	0.000832
Nitrogen Oxides	0.000562
Sulfur Dioxide	0.000253
Total Hydrocarbons [4]	0.011941
Acrolein	0.000002
Benzene	0.000611
Formaldehyde	0.000004
Hydrogen Cyanide	0.000118
M-Xylene [1]	0.000021
Naphthalene [1]	0.000021
O-Xylene [1]	0.000021
Phenol	0.000131
Toluene	0.000063
Total Aromatic Amine	0.000021
Total C_2 to C_5 Aldehydes	0.000063
Total HAPs [5]	0.001076

Table 5. Core Oil Binder

Pouring-Cooling-Shakeout	
Binder System: Core Oil Index: Core Oil	Pounds of Chemical Released to Air per Pound of Index
Ammonia	0.000038
Hydrogen Sulfide	0.000057
Nitrogen Oxides	0.000081
Sulfur Dioxide	0.000115
Total Hydrocarbons [4]	0.028737
Acrolein	0.000077
Benzene	0.002344
Formaldehyde	0.000096
Hydrogen Cyanide	0.000086
M-Xylene	0.000239
Naphthalene [1]	0.000048
O-Xylene	0.000287
Phenol [2]	0.000057
Toluene	0.000478
Total Aromatic Amines	0.000096
Total C_2 to C_5 Aldehydes [1]	0.000766
Total HAPs [5]	0.004574

Table 6. Shell Binder

Pouring-Cooling-Shakeout	
Binder System: Shell Index: Resin [6]	Pounds c Chemica Released to Air per Pound of Index
Ammonia	0.003860
Hydrogen Sulfide	0.000094
Nitrogen Oxides	0.000994
Sulfur Dioxide	0.003509
Total Hydrocarbons [4]	0.022421
Acrolein	0.000047
Benzene	0.006667
Formaldehyde	0.000035
Hydrogen Cyanide [2]	0.010526
M-Xylene	0.000585
Naphthalene [3]	0.000058
O-Xylene [1]	0.000117
Phenol	0.002456
Toluene	0.002807
Total Aromatic Amines	0.002339
Total C_2 to C_5 Aldehydes [1]	0.000585
Total HAPs [5]	0.026222

Table 10. Alkyd Isocyanate Binder

Pouring-Cooling-Shakeout	
Binder System: Alkyd Isocyanate Index: Resin + Isocyanate	Pounds of Chemical Released to Air per Pound of Index
Ammonia	0.000037
Hydrogen Sulfide	0.000007
Nitrogen Oxides	0.000355
Sulfur Dioxide	0.000040
Total Hydrocarbons [4]	0.035567
Acrolein	0.000088
Benzene	0.005336
Formaldehyde	0.000106
Hydrogen Cyanide	0.000175
M-Xylene	0.002522
Naphthalene	0.000037
O-Xylene	0.003838
Phenol [2]	0.000110
Toluene	0.001535
Total Aromatic Amines [1]	0.000037
Total C_2 to C_5 Aldehydes	0.002156
Total HAPs [5]	0.015939

Table 11. Sodium Silicate-Ester Binder

Pouring-Cooling-Shakeout	
Binder System: Sodium Silicate - Ester Index: Sugar + Ester	Pounds of Chemical Released to Air per Pound of Index
Ammonia	0.000038
Hydrogen Sulfide	0.000197
Nitrogen Oxides	0.000028
Sulfur Dioxide	0.000244
Total Hydrocarbons [4]	0.022782
Acrolein	0.000028
Benzene	0.001410
Formaldehyde	0.000169
Hydrogen Cyanide	0.000179
M-Xylene	0.000094
Naphthalene [3]	0.000005
O-Xylene [1]	0.000094
Phenol [2]	0.000273
Toluene	0.000282
Total Aromatic Amines	0.000094
Total C_2 to C_5 Aldehydes	0.001316
Total HAPs [5]	0.003943

Foundries that don't keep track of the amounts of materials they use in production records may find the information in their purchasing or accounting departments. The binder system sales representatives may also have this information as part of their records.

Conservatism in Factors

These factors are conservative and most likely will overestimate HAP emissions. Where decisions had to be made in the selection of the data applicable to each calculation, the choice taken was the one that led to the larger emission factor. For more details, see the footnotes to the emission factor tables and the discussion below.

Low sand to metal ratio means high emissions—When SRI tested more than one sand-to-metal ratio for a particular binder system, the lowest of these values was used to derive the amount of resin (or other index parameter) in the mold. This is conservative, since it assumes that the average measured air concentration for the emissions came from the lowest amount of source material in the mold.

For example, the low nitrogen furan binder molds had sand-to-metal ratios of 2.6:1 and 2.9:1. Using a sand to metal ratio of 2.9:1 gives an emission rate for formaldehyde of 0.00024 lb per lb of resin. Using the 2.6:1 sand to metal ratio formaldehyde emission rate is 0.000267 lb per lb of resin. The 2.6:1 sand to metal ratio was the one chosen to calculate this factor.

Lower purity in the 1970s—Except for green sand and core oils, the organic binder systems tested at SRI have been refined since the late 1970s, when the decomposition research was completed. These reformulations—while not affecting the base chemical reactions—were to remove excess chem cals and impurities from the binder (carrier solvents, catalysts, etc.). I creased environmental awareness an regulations of the 1980s drove thes changes.

When concerns were raised abou occupational exposures to benzene i the early 1980s, the "free" (excess) ben zene content of the furan nobake cata lyst (benzene sulfonic acid) droppe from a nominal 1% to 0.01%. Therefore the lower purity of the binders used i the 1970s means that the per unit emis sions most likely were higher than thei 1990s counterparts.

This means that the factors presente here further overestimate emission because they were calculated using a concentration data from source mater als—the 1970s versions of the binders— that weren't as clean as the formula tions on the market today.

Total versus individual aromati amines and aldehydes—The SRI test used a broad net and captured all arc matic amines and C_2 to C_5 aldehydes i the decomposition gases. Many mor aromatic amines and aldehydes tha those that are regulated by the CAA are inherent in these factors. The inclu sion of these "families" of chemicals i the total HAP emission factor mean that when you use this factor, *all* arc matic amines and aldehydes are bein counted as HAPs, not just the ones i the CAAA.

All resin purchased is exposed t molten metal—When using the abov procedure to calculate either individua or total HAP emissions based on th total amount of resin purchased or usec it is assumed that all of the binder chem cal is exposed to molten metal. This i

Table 7. Low Nitrogen Furan Binder

Pouring-Cooling-Shakeout	
Binder System Low Nitrogen Furan Index: Resin	Pounds of Chemical Released to Air per Pound of Index
Ammonia	0.000040
Hydrogen Sulfide	0.000405
Nitrogen Oxides	0.000012
Sulfur Dioxide	0.000607
Total Hydrocarbons [4]	0.007814
Acrolein	0.000028
Benzene	0.000648
Formaldehyde	0.000267
Hydrogen Cyanide	0.000368
M-Xylene	0.002227
Naphthalene [1]	0.000040
O-Xylene	0.000729
Phenol [2]	0.000024
Toluene	0.000121
Total Aromatic Amines	0.000081
Total C_2 to C_5 Aldehydes	0.000243
Total HAPs [5]	0.004777

Table 8. Medium Nitrogen Furan TSA Catalyst Binder

Pouring-Cooling-Shakeout	
Binder System Medium Nitrogen Furan TSA Catalyst Index: Resin	Pounds of Chemical Released to Air per Pound of Index
Ammonia	0.000202
Hydrogen Sulfide	0.000486
Nitrogen Oxides	0.000312
Sulfur Dioxide	0.004858
Total Hydrocarbons [4]	0.017178
Acrolein	0.000016
Benzene	0.004534
Formaldehyde	0.000065
Hydrogen Cyanide	0.000607
M-Xylene	0.000243
Naphthalene	0.000040
O-Xylene	0.000040
Phenol [2]	0.000101
Toluene	0.008826
Total Aromatic Amines	0.000364
Total C_2 to C_5 Aldehydes	0.017004
Total HAPs [5]	0.031842

Table 9. Furan Hotbox Binder

Pouring-Cooling-Shakeout	
Binder System Furan Hotbox Index: Resin	Pounds of Chemical Released to Air per Pound of Index
Ammonia	0.019579
Hydrogen Sulfide	0.000060
Nitrogen Oxides	0.000411
Sulfur Dioxide	0.000088
Total Hydrocarbons [4]	0.006259
Acrolein	0.000013
Benzene	0.000537
Formaldehyde	0.000009
Hydrogen Cyanide [2]	0.003474
M-Xylene [1]	0.000032
Naphthalene [1]	0.000032
O-Xylene [1]	0.000032
Phenol	0.000016
Toluene [1]	0.000032
Total Aromatic Amines	0.003032
Total C_2 to C_5 Aldehydes [1]	0.000158
Total HAPs [5]	0.007364

conservative because a certain amount of resin in scrap molds and cores will never make it to pouring, yet will still be counted in the pouring, cooling and shakeout emission calculation.

Total HAP estimation—A conservative approach would be to use the total HAP factor, which is the sum of the specific CAAA HAPs that SRI listed in its report. This factor will tend to be on the high side, since it includes all aldehydes and all aromatic amines.

After using these factors to calculate the amount of HAPs generated from pouring, cooling and shakeout, a foundry may find that its emissions might exceed regulatory thresholds. In this case, the foundry should look at some of the assumptions inherent in these factors and determine how relevant they are to its operations. Depending on the economic impact and regulatory burden triggered by crossing the threshold, the foundry may want to do stack testing to get more accurate emission estimates. ▼

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Measurement of Emissions Associated With Application of Flammable Solvent-Based Core and Mold Coating

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ABSTRACT

This paper describes a study performed by Foseco, Inc. and the Casting Development Centre (U.K.) on behalf of a major steel foundry in North America. The intent of this study was to measure the emissions to the air from a typical solvent-based core and mold coating during application by brush. The measurements took place within certain waiting time periods: prior to light-off, during coating light-off and over a duration of time immediately following light-off after the flame has been extinguished. It should be understood that this series was conducted under laboratory conditions that, within the limits of practicality, attempted to simulate the conditions in an operating foundry environment.

Among the research findings was the observation that there is substantial solvent "destruction" during light-off, but there are measurable volatile organic compound emissions, as well. Resultant emissions will be counted against strict limits imposed by government regulations, notably, the Clean Air Act Amendments (Title V, permitting requirements).

Based on the research findings, the safest environmental compliance strategy remains the conversion to the use of water-based coatings.

INTRODUCTION

Flammable solvent-based refractory core and mold coatings are used by foundries to reduce the incidence of certain casting defects and to improve as-cast surface finish. The benefits sought through the application of coatings are improved casting quality and the reduction of casting cleaning operations and related costs.

Prior to casting metal against a coated sand mold or core, the liquid carrier contained in the coating must be removed (i.e., the coating must be dried). Liquid coatings containing flammable organic solvents have been chosen by many foundries because these coatings provide the capability to remove the liquid solvent, either by air-drying or by simply igniting the coating and allowing solvent drying to occur as the result of combustion (light-off). Coatings containing water as the carrier are also used, but many foundries have chosen, in the past, not to use these products, since removal of the water from the coating, after application, requires more attention to the drying stage (time, equipment, energy).

Despite the challenges a foundry may encounter in using water-based coatings, there is more than ample incentive to make this conversion. The Clean Air Acts Amendments (Title V, permitting requirements) pose one example of air quality legislation soon to be in full effect in the USA. Foundries will be faced with increasingly stringent environmental auditing requirements in their plants. VOC (volatile organic compound) and HAP (hazardous air pollutant) emissions associated with all materials used in the metalcasting process will have to be tracked and reported. These emissions will be subject to strict limits—limits that may prevent a foundry from continuing to operate at the required production levels.

This paper describes a studyperformed on behalf of a major steel foundry in North America. The intent of this study was to measure the emissions to the air from a typical solvent-based core and mold coating, during application by brush, within certain waiting time periods—prior to light-off, during coating light-off, and over a duration of time immediately following light-off after the flame has been extinguished. It should be understood that this series was conducted under laboratory conditions that, within the limits of practicality, attempted to simulate the conditions in an operating foundry environment.

PROCEDURAL OVERVIEW

The laboratory procedure attempted to simulate how a flammable light-off coating is typically applied in a jobbing foundry. In foundries, coatings are applied to cores and molds by a variety of different methods (e.g., brush, spray, dip, overpour). The method deemed to be the least complex and, therefore, best suited for this laboratory investigation was chosen: application by brushing.

A known amount of a flammable solvent-based coating was brushed onto a test core specimen and the coating was air-dried for a brief period. The coating was then ignited and allowed to burn until the flame extinguished. Following this, the coated core was allowed to cool and stand for an additional period of time. From start to finish of this procedure, compounds emitted were sampled to provide useful information as to their quantity and nature.

Based upon the coating's known composition, the following emission categories were expected and measured:

- VOCs (volatile organic compounds)
- CO_2 (carbon dioxide)
- IPA (isopropyl alcohol)
- Hydrocarbon solvents

During the actual emission test series, carbon monoxide (CO) was not measured. However, recognizing that this information would be useful later (for carbon balance calculations), a brief supplementary exercise was performed. CO sampling for a limited number of test runs was carried out using a MIRAN analyzer. On average, a CO emission that was approximately 5% of the CO_2 emission was measured.

TEST MATERIALS/EQUIPMENT

Test Core Specimens

Test core specimens (37x82x120 mm, typical uncoated weight 500 g) were prepared on the day prior to the test series, using Chelford 60 AFS silica sand bonded with 3% sodium silicate binder, based on weight of sand. Specimens were gas-cured with CO_2, then placed into a drying oven at 110C, overnight, to remove free moisture. Following drying, test core specimens were allowed to cool to

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ambient temperature and were weighed. To determine the level of *free* residual H_2O in the core specimens (from the silicate binder and from possible atmospheric rehydration during conduct of the testing), following emission tests of coated specimens, uncoated standard *(control)* specimens were placed back into the drying oven for one additional hour. These were cooled and reweighed. Based on data obtained, a value of 0.6 g of residual*free* H_2O was assigned to test core specimens. This moisture level was taken into account in the analysis of test data.

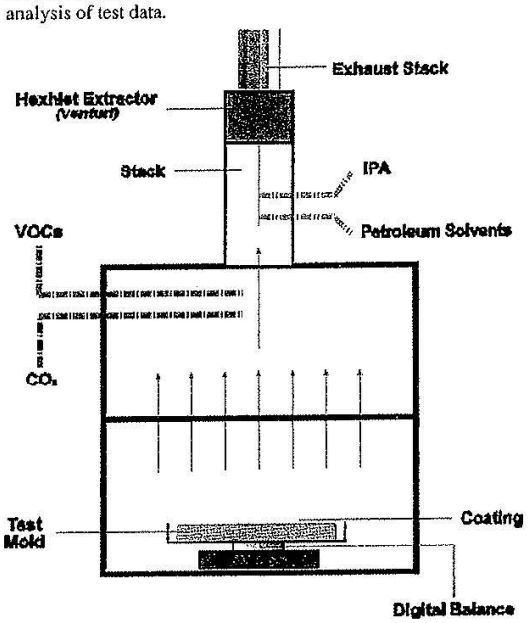

Fig. 1. Sampling chamber layout (not drawn to scale).

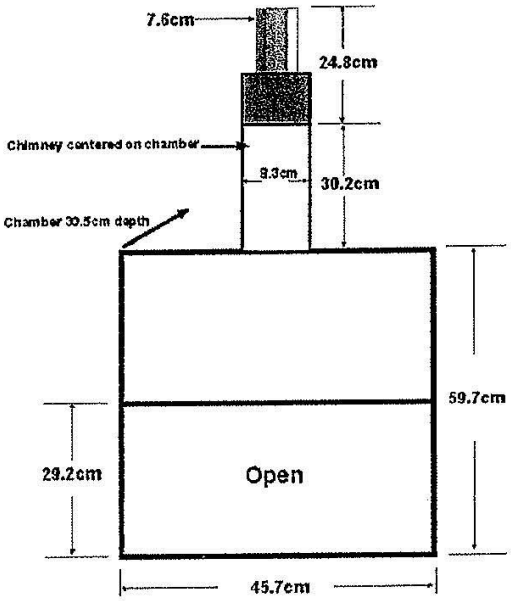

Fig. 2. Sampling chamber layout, front view with dimensions (not drawn to scale).

Test Coating

The flammable solvent-based test coating contained a refractory blend of olivine and calcined magnesite. The solvent system was a mixture of isopropyl alcohol and hydrocarbon solvent, with minor fractions of methanol and water. Coating properties and typical composition at application are shown in Table 1.

Sampling Chamber

A sheet metal construction sampling chamber (Figs. 1–3) and a special hexhlet venturi extraction/exhaust head (Fig. 4) were used to contain and extract emissions. The hexhlet device extracted at the rate of 50 L/minute. Sampling ports located on the chamber-box chimney were used to collect samples to be analyzed for IPA and emissions associated with the hydrocarbon solvent (Fig. 5). Probes for sampling of CO_2 and VOCs were inserted through the side of the hood and positioned immediately above the test core.

Air velocity (via portable anemometer) measurements taken in several positions across the front opening of the chamber verified that there was a *slight* inward airflow to the chamber (Fig. 6). On average, an inward air velocity of 0.02 m/sec was measured during

Table 1.
Test Coating Properties, As-Supplied

Property		As Supplied
Baumé		*44º*
Specific Gravity		*1.277*
Solvent (by weight of coating):	*IPA (99%)*	*34.4%*
	Hydrocarbon Solvent	*9.0%*
	Methanol	*0.4%*
	Water	*0.8%*
% Solids (refractories, organic resin binder, other)		*55.4%*

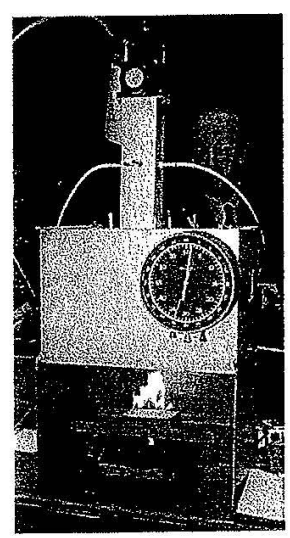

Fig. 3. Sampling chamber, photo of front, test in progress.

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sampling, when the coating was not burning. When the coating was ignited and burning, an air velocity 0.15 m/sec into the chamber, during sampling, was observed. This inflow of air prevented any of the evolved compounds being sampled from accidentally exiting the chamber through the front face opening, escaping detection.

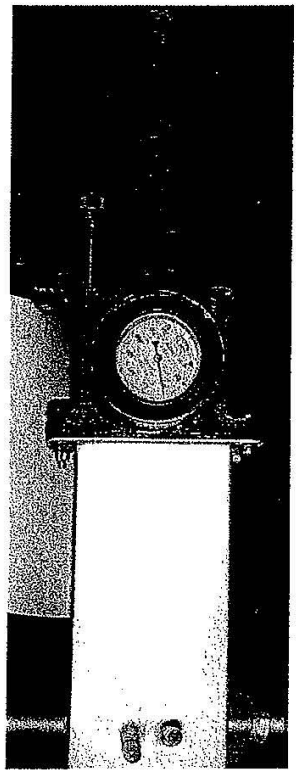

Fig. 4. Close-up view of hexhlet venturi extraction/exhaust head.

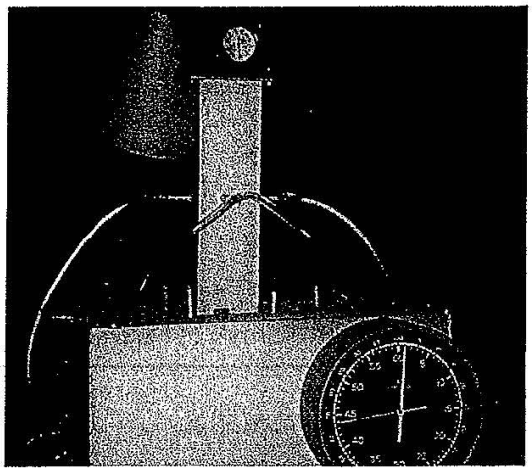

Fig. 5. Close-up view of chamber, sampling ports on chimney.

Emission Measurements

Digital Balance—For critical weight measurements at various points in each test, a METTLER PC 4400 digital balance (±0.01 g) was used. The balance was fitted with a special aluminum pan to support the test cores.

CO_2 Measurement—This emission was measured using a Foxboro MIRAN infra-red analyzer (Fig. 7). Extraction to this device was done in the continuous analysis mode, with a sampling flow rate of 7 L/min.

VOC Measurement—VOCs were extracted, *en masse*, during each phase of testing at the rate of 1 L/min. into a Research Engineers GASTEC flame ionization detector (FID) based on a methane/carbon equivalent standard (Fig. 8). Data were obtained every two seconds from the commencement of each trial to completion. The FID was coupled to a PSION datalogger with a DIGITRON interface (Fig. 9), providing converted readings in millivolts (mV). The mV output from the FID was converted to parts per million (ppm) by thePSION datalogger. These ppm readings, in turn, were converted into VOCs evolved in mg (carbon equivalent).

IPA Measurement—IPA vapors were sampled during each phase of testing at the rate of 1 L/min through aCASELLA AFC 123 pump (Fig. 10). Sampled air was passed through a silica gel adsorption tube. Adsorption tubes were later desorbed and analyzed using gas chromatography (quantification) and mass spectrometry (identification) methods. Fresh PVC tubing was used for each test, to reduce potential risk of sample contamination and problems that might be caused by condensation of water.

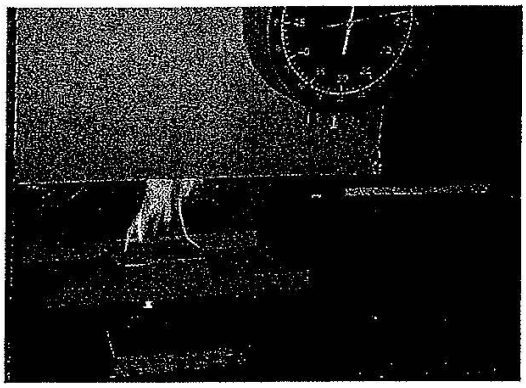

Fig. 6. Air velocity measurement with portable anemometer.

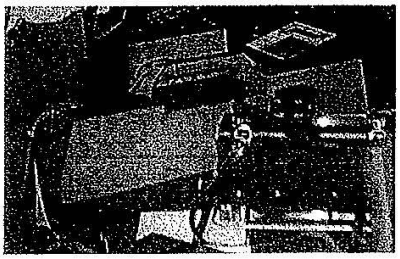

Fig. 7. Infra-red analyzer.

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Emissions Related to Hydrocarbon Solvent—These emissions were sampled using a CASELLA AFC 123 pump at the rate of 1 L/min. Sampled air was directed through a charcoal adsorption tube. Tubes were later desorbed and analyzed using methods similar to those described for IPA measurement. Fresh PVC tubing was used for each test to reduce any risk of sample contamination and problems that might be caused by condensation of water.

TEST PROCEDURE

Coating Application

At the start of each trial, the test core was placed onto the digital balance, and the initial weight of the uncoated test core was recorded. The digital balance was then tared, after which a cardboard "mask" was set around the test core (6 mm clearance between mask and edges of test core) to prevent splashing of coating onto the digital balance during the tests to be conducted. At this point, the coating was applied by brush (Fig. 11) and the cardboard mask was removed.

Prior to the start of the emission testing, several *trial-run* specimen cores were brush-coated to determine the average wet thickness that could be applied consistently. On average, the immediate wet thickness achieved was 500 microns, with a wet thickness of 230 microns after one minute. Wet thickness data were obtained only for reference and were not deemed critical to the conduct of this test series. Coating weight pickup measurements, however *were* critical, since emission data obtained were based on the applied coating weight.

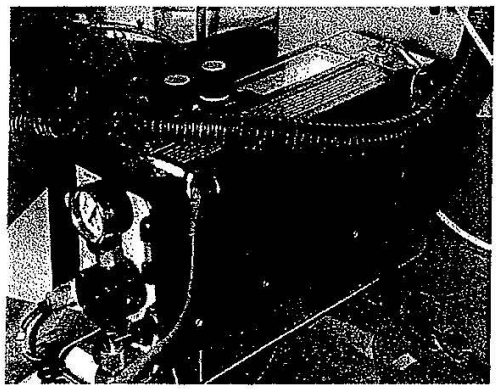

Fig. 8. Flame ionization detector.

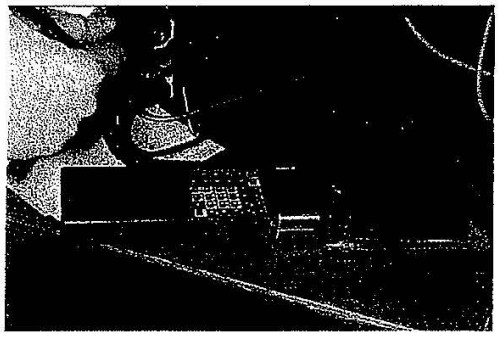

Fig. 9. Datalogger with digitron interface.

Testing/Sampling

Listed in Table 2 are the tests that were conducted. For each of tests 1A through 4B, the following procedure was used:

1. The uncoated test core was placed onto the digital balance, and the cell was tared to zero.
2. The coating mask was applied. Simultaneously, all emission sampling instruments were activated. For each test, three sets of CASELLA sampling pumps were used so that changeovers required during successive stages of the test could be made quickly. Each set consisted of one pump for IPA emission sampling and one pump for sampling of hydrocarbon solvent emissions. For this phase of the test, the #1 set of CASELLAS was turned *on*. Note that the MIRAN and GASTECH instruments remained *on* from this point through completion of the test.
3. The test coating was applied by brush and the mask was immediately removed. From the digital balance, the weight reading was recorded ("Wet Weight" shown in Table 3).
4. The coating was allowed to air-dry for the prescribed period of time (i.e., one minute or five min), after which the #1 set of CASELLA sampling pumps was switched *off*. The weight was again recorded (net weight of applied coating after air-dry period).
5. The coating was ignited (Fig. 12), while simultaneously switching *on* the #2 set CASELLA pumps. At the end of the coating burn (typically, one min), the #2 set of CASELLA pumps was turned *off* and the weight displayed on the digital balance was recorded (net weight of coating after light-off).
6. The #3 set of CASELLA pumps was switched *on* and sampling continued for a further 10 minutes. At the expiration of this period, all sampling instruments were turned *off*. The weight was recorded at this time ("Dry Weight" shown in Table 3).

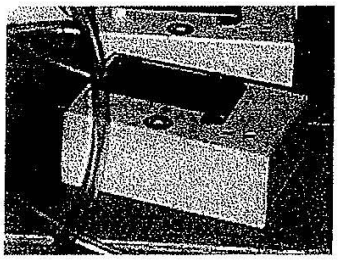

Fig. 10. Sampling pump.

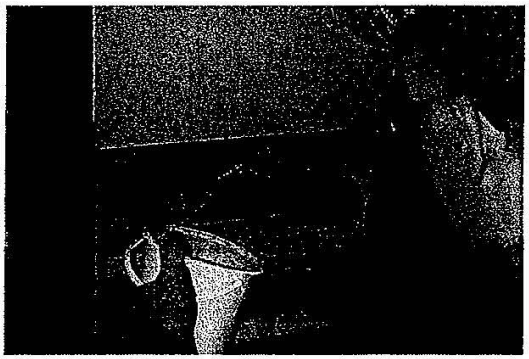

Fig. 11. Brush application of test coating to sample core.

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Table 2.
Test Series Description

Test ID	Coating	Air-drying period (min)	Flame-off period (min) to flame-out	Standing time (min) after flame-out
1A	Standard	1	1	10
1B	Standard	1	1	10
2A	Standard	5	1	10
2B	Standard	5	1	10
3A*	Standard + H_2O	1	1	10
3B*	Standard + H_2O	1	1	10
4A*	Standard + H_2O	5	1	10
4B*	Standard + H_2O	5	1	10

*Added 15% H_2O by weight of original coating (as-supplied).

Using this sampling procedure, the total extraction flow rate through the chamber for each test was 60 L/min (i.e., for the hexhlet extractor plus all other sampling devices). Therefore, the measurement obtained from each instrument was corrected, based upon that instrument's fraction of the total sampled air extracted from the chamber. For example, since the CASELLA pump sampling IPA had a flow rate of 1 L/min, the level of emissions extracted by that pump was assumed to be 1/60 of the total IPA emission, and the measured value, therefore, was multiplied by 60 to obtain the actual emission value.

Over the duration of the testing (approximately five hours), ambient temperature averaged 12–13°C, with relative humidity of 45%.

Table 3.
Weight Changes During Sampling

Test No.	Coating Applied: Wet Weight (g)	Dry Weight (g)	Solvent* Weight (g)	Measured Weight Losses: Loss During Air-dry Period (g)	Loss During Flame-off (g)	Loss After 10-minute Stand (g)	Overall Weight Loss (g)
1A	7.12	3.80	3.32	0.10	2.59	0.15	2.84
1B	8.29	4.20	4.09	0.30	2.88	0.21	3.39
2A	6.61	3.30	3.31	0.69	1.92	0.15	2.76
2B	7.78	3.60	4.18	0.74	2.27	0.15	3.16
3A	7.24	3.20	4.04	0.17	2.91	0.19	3.27
3B	7.06	3.30	3.76	0.13	2.74	0.21	3.08
4A	6.90	3.00	3.90	0.54	2.26	0.18	2.96
4B	7.31	3.00	4.31	0.56	2.41	0.20	3.17

* In all tests, "solvent" includes organic solvents + H_2O contained. In the case of 3A, 3B, 4A, 4B there is 15% extra H_2O added to the coating (by weight), over and above the small percentage already in the "as-supplied" coating.

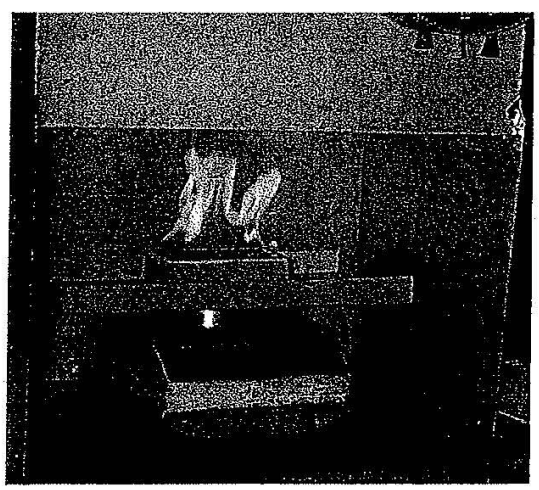

Fig. 12. Coating ignition and burn.

TEST DATA ACQUIRED

The weight changes at various points in each test are shown in Table 3.

Shown in Table 4 are weights of solvent used, corrected for water content, together with the release of CO_2, IPA, aliphatics and toluene.

Table 5 shows IPA releases and material balance. While recovery values show that much of the IPA is accounted for, the residual is presumed to be held in the test cores (beneath surface), even after the completion of the testing. Weight measurements of the coated test cores, after a further one-hour oven-dry, after the expiration of the emission test, showed additional weight loss. Allowing for the known residual H_2O content in the test core, a major portion of this weight loss was attributed to further evaporation of volatile solvents still held in the test core substrate. This observation suggests that a foundry core or mold that "appears" to be dry after light-off of a flammable coating may, in fact, still contain amounts of wet solvent that could lead to deleterious casting results.

Table 6 details releases associated with the hydrocarbon solvent contained in the test coating. These appear to be consistent with IPA

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Table 4.
Quantities of Solvents in Tests and of Emissions From Coated Cores

	Material (g)			Releases of gases / vapors (g)			
Sample	Liquid	H_2O	Solvent	CO_2*	IPA	Aliphatics	Toluene
1A	3.32	0.14	3.18	5.00	0.23	0.049	0.002
1B	4.09	0.17	3.92	5.40	0.25	0.025	0.002
2A	3.31	0.13	3.18	3.40	0.44	0.096	0.004
2B	4.18	0.16	4.02	3.90	0.40	0.101	0.005
3A	4.04	1.07	2.97	4.10	0.20	0.057	0.001
3B	3.76	1.04	2.72	3.90	0.17	0.055	0.002
4A	3.90	1.02	2.88	2.80	0.28	0.074	0.002
4B	4.31	1.08	3.23	3.10	0.28	0.088	0.003

* Corrected for ambient CO level.

Table 5.
IPA Releases

		IPA Released (g)					%
Sample	IPA (g)	Air-dry	Flame-off	Standing	Burned	Total	Recovered
1A	2.53	0.05	0.03	0.15	1.99	2.22	88
1B	3.12	0.03	0.02	0.19	2.18	2.42	78
2A	2.53	0.25	0.02	0.17	1.45	1.89	75
2B	3.20	0.23	0.03	0.14	1.72	2.12	66
3A	2.36	0.03	0.02	0.15	1.96	2.16	92
3B	2.16	0.01	0.02	0.15	1.85	2.03	94
4A	2.29	0.13	0.02	0.14	1.52	1.80	79
4B	2.57	0.12	0.00	0.16	1.64	1.92	75

Table 6.
Hydrocarbon Releases (mg)

	Aliphatics (mg)				Toluene (mg)			
Test	Air-dry	Flame-off	Stand	Total	Air-dry	Flame-off	Stand	Total
1A	23.82	6.06	19.44	49.32	0.78	—	1.02	1.80
1B	21.72	2.88	39.66	64.26	0.66	—	1.80	2.46
2A	75.96	2.28	18.18	96.42	3.30	—	0.96	4.26
2B	69.96	3.24	28.20	101.40	3.06	—	1.44	4.50
3A	28.32	5.04	23.22	56.68	0.60	—	0.66	1.26
3B	26.52	3.24	24.84	54.60	0.72	—	0.90	1.62
4A	57.54	1.44	15.18	74.16	1.92	—	—	1.92
4B	59.94	2.64	25.74	88.32	2.46	—	1.02	3.48

Table 7.
VOCs Evolved (Carbon Equivalent, Methane Calibration)

Test	VOC emission (mg)
1A	51.3
1B	47.4
2A	90.9
2B	88.8
3A	40.5
3B	33.6
4A	60.6
4B	68.1

Table 8.
Percentage of Total Coating Solvent Burned

Test	Solvent (g)	Burned (g)	%
1A	3.32	2.59	78
1B	4.09	2.88	70
2A	3.31	1.92	58
2B	4.18	2.27	54
3A	4.04	2.91	72
3B	3.76	2.74	73
4A	3.90	2.26	58
4B	4.31	2.41	56

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release data, showing the same basic trends. For example, the amount of aliphatic hydrocarbons released during the flame-off period is much lower than in the initial air-dry period and subsequent standing period following flame extinguishing, following the same pattern observed in the IPA release results.

The aliphatic hydrocarbons referred to in Table 6 are, typically, C7 and C8 paraffins and cycloparaffins. The major components are methylhexanes, heptane and methylcyclohexane. These numerical results account for approximately 90–95% of the total aliphatic hydrocarbon emission. The balance, which is not quantified, was made up of 30–40 type C6 CH hydrocarbons.

VOC results are shown in Table 7. Note that, in every test, these data show less than 100 mg of VOCs evolved, which does not appear to be consistent with data shown in Table 4. This is because the figures in Table 7 relate to VOCs in mg carbon equivalent, which are calculated on the basis of methane calibration. This is the standard procedure accepted for expressing VOC results in the U.K., to meet national environmental reporting requirements. In *absolute* terms, the *actual* levels of the VOCs listed in Table 7 would be higher than shown. For example, if the VOC results were expressed as "IPA equivalent" (rather than methane, carbon equivalent), one would need to actually *double* the VOC figures contained in Table 7—the IPA results obtained via gas chromatography are, in fact, correct as shown (Tables 4 and 5).

The results in Table 8 show that, overall, if the coating is ignited after a one-minute air-dry, most of the IPA and hydrocarbon solvent (70–80%) is "destroyed" in the resultant light-off. Where a longer air-dry period is used (five min), the proportion of solvent destroyed in the flame-off diminishes (< 60%), with a greater fraction being released during the air-drying period. An increasing percentage of solvent penetrates the test core substrate, to be released slowly to the atmosphere on long-term drying of the core specimen. If these cores are used after only a short storage period, much of this residual solvent in the test core is likely to be destroyed during the casting process.

KEY OBSERVATIONS AND CONCLUSIONS

Based on the work completed in this study, the following key observations were made:

1. As long as IPA-based core and mold coatings are ignited soon after the coating is applied, at least 70% of the volatile organic solvents contained in the coating are destroyed in the flame-off combustion.

2. Increased standing (air-drying) times, prior to light-off, lead to a reduction in the amounts of solvents destroyed.

3. Extremely small amounts of volatile solvents (< 1% of original content) are released during flame-off.

4. Typically, for relatively short air-drying periods (one min), only 7–10% of the solvents contained in the coating are released to atmosphere during the process of air-drying, light-off and standing after light-off. For longer air-drying periods (5 min), this figure increases to approximately 15–20%.

5. Approximately 10–20% of the solvent contained in the coating is absorbed by the core and remains there after preliminary the air-dry, flame-off and a 10-minute standing period. This residual solvent could be very slowly released to atmosphere upon further standing.

6. The addition of 15% water to the coating appeared to have relatively little overall effect on the test results. Flame colors were observed to have changed somewhat, with an increase in the blue tint of flames compared with the yellow flames present when no water was added.

These findings lead to certain important conclusions:

- Destruction of volatile solvents during the combustion of light-off (and the resultant conversion of a significant percentage of these to CO_2, which is not currently classified as a VOC) has been demonstrated and should provide ample evidence that, in normal, foundry application, the total volatile solvent content of the coating should not be considered 100% as a potential VOC emission. Rather, some lesser percentage, perhaps 30% of the solvent contained in the coating, should be considered as a potential VOC emission, provided that the foundry applies the coating by brush, air-dries the coating for a minimal period, and lights off the coated surface soon after application.

- The observation that as much as 10–20% of the contained solvent in the applied coating actually remains in the coated core substrate is a viable explanation for burn-in, burn-on, penetration and gas defects experienced. The cause of these defects is often assigned to chemically-cured binder practices. This assumption may not always be correct and can lead a foundry to look in the wrong place to resolve a problematic defect. In most foundries, solvent-based coatings are chosen for convenience, with the perception that the user need only to light off the coating and the resultant surface is completely dried. This assumption can be deleterious. On the other hand, a foundry committed to using a water-based coating accepts that water is less volatile than a flammable solvent and, as such, foundry personnel will probably exercise greater care to remove the water before casting. As a consequence, casting defects related to "wet" coatings are less likely.

- Despite the significant destruction of volatile solvent to CO_2 as a result of light-off combustion, one must remember that approximately 30% of the solvent contained in the coating remains and is considered a potential VOC emission. The best environmental compliance strategy for the foundry is, wherever possible, to eliminate VOC sources altogether. Conversion to today's high-performance water-based coatings offers foundries the opportunity to eliminate solvent-related VOCs and gain a greater likelihood of meeting the stringent emission limits that will be a part of Clean Air Acts Amendments compliance.

ACKNOWLEDGMENTS

The author expresses appreciation to the Castings Development Centre, Alvechurch, England, and to Foseco International Ltd., Tamworth, England, for their significant technical contributions to this research.

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From: Jen Smith <jsmith@triadenv.com>
Sent: Friday, June 12, 2020 2:42 PM
To: Greg Forte <Greg.Forte@tn.gov>
Cc: Danny Kermicle <Danny.Kermicle@magotteaux.com>; Scott Kinnear <scott.kinnear@magotteaux.com>
Subject: [EXTERNAL] RE: Title V Application

***** This is an EXTERNAL email. Please exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email - STS-Security. *****

Greg,
Below is a summary table of how 0.061 lb/lb was determined (all factors were converted to lb, and CO was corrected at 5% CO2 (as stated in the article).

Solvent Weight	CO2 Release	Corrected CO Release (5% of CO2)	lb/lb
lb	lb	lb	
0.007004405	0.011013216	0.000550661	0.078616
0.008634361	0.011894273	0.000594714	0.068878
0.007004405	0.007488987	0.000374449	0.053459
0.008854626	0.008590308	0.000429515	0.048507
0.00654185	0.009030837	0.000451542	0.069024
0.005991189	0.008590308	0.000429515	0.071691
0.006343612	0.006167401	0.00030837	0.048611
0.007114537	0.006828194	0.00034141	0.047988
		AVG	**0.061**

Jen Smith
Air Quality Scientist/Project Manager

TriAD Environmental Consultants, Inc.
207 Donelson Pike
Nashville, Tennessee 37214
Phone: 615-889-6888
Mobile: 615-495-8755
www.TriADenv.com

ATTACHMENT 8

NSPS Applicability Determinations

DRAFT

Permit Number: 576847 Expiration Date: ***, 2025

Control Number: 0100015

Category: NSPS
Region: Region 3
Date: 02/27/2001
Title: Applicability of Subpart AA to EAF at a Foundry
Recipient: Dennis Lencioni
Author: Chris Pilla
Comments:
Subparts: Part 60 AA Steel Plants-Electric Arc Furnaces
References: 60.270

Abstract:

Q: Is a specific furnace at a foundry plant subject to NSPS Subpart AA?

A: No. At the time of installation of the "C" furnace there was an exemption provided for Electric Arc Furnaces located in foundries.

Letter:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

In Reply Refer To: 3AP12

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Dennis Lencioni
Corporate Environmental Director
Trinity Industries, Inc.
2525 Stemmons Freeway
Dallas, Texas 75207

Re: McConway and Torley Corporation NSPS Issue

Dear Mr. Lencioni:

The Philadelphia Regional Office of the U.S. Environmental Protection Agency (EPA- Region III) has received and reviewed the permittee'sr letter, dated January 18, 2001, regarding the New Source Performance Standard (NSPS) regulations pertaining to Electric Arc Furnaces (EAFs) and their applicability to the McConway and Torley Furnace "C" operations. After a review of the information contained in the permittee'sr letter and several conference calls with both Research Triangle Park and other EPA personnel most knowledgeable in this matter, EPA agrees with Trinity Industries that the NSPS Subpart AA regulations do not apply to the McConway and Torley "C" furnace because of the foundry exemption contained in the original final rulemaking notice of September 23, 1975. Based on our research, it has been determined that EPA did not intend to regulate foundry EAFs with that rulemaking due to the low production output attributable to this industry in the United States.

Please understand that, although the NSPS Subpart AA regulations do not apply in this instance, EPA, nonetheless, has the authority under Section 114 of the Clean Air Act to require any owner or operator of an air emission source to test for the magnitude of

DRAFT

pollutant emission rates for the purpose of determining the source compliance with any applicable regulations including permit and/or State Implementation Plan emission limits. EPA is no longer requiring the emission test program which was previously ordered by earlier cooorespondence. However, the testing may be reinstituted at some point in the future if determined to be necessary.

Thank the permittee's for the permittee'sr cooperation in this matter and do not hesitate to contact James W. Hagedorn, of my staff, at (215) 814-2161 if the permittee's should have any further comments or questions.

Sincerely,

Christopher Pilla, Chief
Air Enforcement Branch

cc: Sandra Etzel, ACHD
Judy Hykel, Region III ORC

==========

Control Number: NS01

Category: NSPS
Region: ESED
Date: 11/12/1985
Title: NSPS Applicability - Electronic Arc Furnace Vessels
Recipient: Kee, David
Author: Farmer, Jack R.
Comments:
Subparts: Part 60 AA Steel Plants-Electric Arc Furnaces
Part 60 AAa Steel Plants-EAFs, Argon-Oxygen Decarb. Vess. (PT 8/17/83)

References: 60.270
60.270a

Abstract:

Under Subpart AA and Subpart AAa, how is electric arc furnace (EAF) defined?

The definition of EAF no longer includes the wording that exempts furnaces from which the molten steel is cast into the shape of finished products, such as in a foundry; however, it is not the intent of the regulation to now apply to EAF's in all foundries. The exemption continues for foundries that cast into finished products. The affected facility is any EAF that produces molten carbon, alloy, or specialty steel and heats the charge materials with electric arcs from carbon electrodes, whether the EAF is in a steel plant or in a "foundry." Foundry EAF's cast molten iron or steel into the shape of FINISHED products; steel plant EAF's cast molten steel into the shape of INTERMEDIATE products.

Letter:

Control Number: NS01

November 12, 1985
MEMORANDUM
SUBJECT: Applicability of 40 CFR Part 60, Subparts AA and AAa

DRAFT

FROM: Jack R. Farmer, Director
Emission Standards and Engineering Division (MD-13)

TO: David Kee, Director
Air Management Division (5AR-26)
Region V

This memo is written in response to the permittee’sr memo of October 18, 1985, in which the permittee’s requested assistance in the permittee’sr understanding of the applicability of Subpart AA and AAa promulgated October 31, 1984. Subpart AA is applicable to electric arc furnace (EAF) vessels constructed after October 21, 1974, and on and before August 17, 1983. Subpart AAa is applicable to EAF and argon oxygen decarburization (AOD) vessels constructed after August 17, 1983.

The permittee’s are correct that the definition of EAF no longer includes the wording that exempts furnaces from which molten steel is cast into the shape of finished products, such as in a foundry; however, it is not the intent of the regulation to now apply to EAF's in all foundries. The exemption continues for foundries that cast into finished products. The wording was deleted because it created the impression that any EAF located in a "foundry" would not be regulated by this NSPS. The affected facility is any EAF that produces molten carbon, alloy, or specialty steel and heats the charge materials with electric arcs from carbon electrodes, whether the EAF is in a steel plant or in a "foundry."

Some companies perform both foundry and steel mill operations at the same plant, therefore, the title of the company may not be descriptive of the function of the furnace. In determining the applicability of Subparts AA and AAa, the permittee’s must consider the intended function of the furnace to determine whether it is a foundry or steel plant EAF. Foundry EAF's cast molten iron or steel into the shape of finished products; steel plant EAF's cast molten steel into the shape of intermediate products.

In response to the permittee’sr request, we have begun to develop a definition of "steel plant" that will be included in Subparts AA and Aaa. We will of course send the permittee’s a copy of the draft definition for the permittee’sr review prior to proposal. Hopefully, the addition of the steel plant definition will eliminate the confusion and misunderstanding of the intent of the regulations concerning foundry EAF's.

We hope this response has clarified the permittee’sr understanding of the intent of this regulation. Please do not hesitate to contact Ms. Laura S. Butler (telephone FTS 629-5624) of my staff if the permittee’s have additional comments or questions.

DRAFT

ATTACHMENT 9

FEE SELECTION APC 36

DRAFT

DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF AIR POLLUTION CONTROL
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor, Nashville, TN 37243
Telephone: (615) 532-0554, Email: Air.Pollution.Control@TN.gov

TITLE V FEE SELECTION

Type or print and submit to the email address above.

FACILITY INFORMATION

1. **Organization's legal name and SOS control number** [as registered with the TN Secretary of State (SOS)]

2. **Site name** (if different from legal name)

3. **Site address** (St./Rd./Hwy.) | County name

City | Zip code

4. Emission source reference number | 5. Title V permit number

FEE SELECTION

This fee selection is effective beginning January 1, _____. When approved, this selection will be effective until a new Fee Selection form is submitted. Fee Selection forms must be submitted on or before December 31 of the annual accounting period.

6. **Payment Schedule (choose one):**

Calendar Year Basis (January 1 – December 31) ☐ Fiscal Year Basis (July 1 – June 30) ☐

7. **Payment Basis (choose one):**

Actual Emissions Basis ☐ Allowable Emissions Basis ☐ Combination of Actual and Allowable Emissions Basis ☐

8. If Payment Basis is "Actual Emissions" or "Combination of Actual and Allowable Emissions", complete the following table for each permitted source and each pollutant for which fees are due for that source. See instructions for further details.

Source ID	Pollutant	Allowable or Actual Emissions	If allowable emissions: Specify condition number and limit. If actual emissions: Describe calculation method and provide example. Provide condition number that specifies method, if applicable.

8. (Continued)

Source ID	Pollutant	Allowable or Actual Emissions	If allowable emissions: Specify condition number and limit. If actual emissions: Describe calculation method and provide example. Provide condition number that specifies method, if applicable.

CONTACT INFORMATION (BILLING)

9. Billing contact			Phone number with area code
Mailing address (St./Rd./Hwy.)			Fax number with area code
City	State	Zip code	**Email address**

SIGNATURE BY RESPONSIBLE OFFICIAL

Based upon information and belief formed after reasonable inquiry, I, as the responsible person of the above mentioned facility, certify that the information contained in the submittal is accurate and true to the best of my knowledge. As specified in TCA Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

10. Signature		Date
Signer's name (type or print)	**Title**	Phone number with area code

ATTACHMENT 10
AGREEMENT LETTERS

Magotteaux - Pulaski

Tennessee Air Pollution Control Division
9th Floor, L & C Annex
401 Church Street
Nashville, TN 37243-1531

March 18, 1999

Subject: Magotteaux - Pulaski
Source 28-0025-33

To Whom it May Concern:

Magotteaux - Pulaski, will agree to a limit on hours of operation of the No-Bake Pouring, Cooling, and Shakeout Operation to 7,200 hours per year.

The particulate emissions from this source are controlled by baghouses. For purposes of estimating the particulate emissions, Magotteaux proposes a grain loading limit of 0.015 grains per dry standard cubic feet and an opacity limit of 10%.

Gaseous pollutant emissions are uncontrolled. Emission estimates are based on resin usage and content. Please see the emission calculation attached to the application.

In order to simplify record keeping, Magotteaux proposes to base the calculation of the sulfur dioxide emissions based on the worst case scenario of processing only molds produced with the No-Bake Mold resin system (Source 36). Compliance will be demonstrated based on a daily log of hours of operation of the vibra-mill, which has a capacity limitation of 10.25 tons per hour.

Magotteaux requests that the limits on NO_x, CO, and VOCs be based on 12 consecutive months with a higher single monthly limit. The requested limits are as follows;

Nitrogen Oxides: 0.08 tons per 12 consecutive months and 0.01 tons per any single month.

Carbon Monoxide: 65.71 tons per 12 consecutive months and 8.21 tons per any single month.

VOCs: 16.79 tons per 12 consecutive months and 2.10 tons per any single month.

Magotteaux proposes to show compliance for these pollutants based on monthly record keeping and emission factors.

Sincerely,

Darrin Dodge

Darrin Dodge, Environmental Engineer
Magotteaux - Pulaski

95006/agregas

MAGOTTEAUX

SHAPING A WORLD OF PERFORMANCE

TN. DIV. OF AIR POLLUTION CONTROL

2005 APR 18 PM 12:45

RECEIVED

28-0025
48583 | 1865

Mr. Barry Stephens, Technical Secretary
Tennessee Air Pollution Control Division
9th Floor, L & C Annex
401 Church Street
Nashville, Tennessee 37243-1531

Subject: Magotteaux Pulaski Corporation (28-0025)
Screening Operation

Dear Mr. Stephens:

Magotteaux Pulaski Corporation plans to install a new Screening Operation with baghouse control. Magotteaux hereby agrees to a particulate emission limit of less than the maximum allowed by Process Weight Table 2 per 1200-3-7-.03(1) of the Tennessee Air Pollution Control Regulations.

Therefore, Magotteaux agrees to the following for the Screening Operation:

1. Particulate emissions from the Screening Operation shall not exceed 0.02 grains per dry standard cubic foot (0.69 pounds per hour).
2. Visible emissions from the Screening Operation shall not exceed 10 percent opacity as determined by EPA Method 9 (6-minute average).

Magotteaux Pulaski considers this letter a formal agreement letter for the above limitations.

Sincerely,

Tom Grosko

Tom Grosko
Plant Manager

Date: 4-14-05

MAGOTTEAUX - PULASKI
Production, Industrial park
P.O. Box 518
Pulaski, Tennessee 38478
USA
Phone 1/615/363 7471
Fax: 1/615/363 6918
E-mail info@magotteaux.com
http www.magotteaux.com
VAT
BANK ACC

MAGOTTEAUX

February 5, 2015

Mr. Mark Reynolds
Tennessee Department of Environment & Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue
Nashville, Tennessee 37243

Re: Magotteaux Inc.
Permit Number **567767**

Dear Mr. Reynolds:

Per our discussion concerning the Magotteaux Inc. (Magotteaux) minor modification for the proposed Rotating Drum, Magotteaux proposes that in order to keep emissions below 10 tons per year, Magotteaux is agreeable to maintain an emission limit of 2.26 lbs/hr. Please refer to the attached revised particulate emission calculations for the Rotating Drum, which is based on a grain loading of 0.009 gr/dscfm. Also, as with past sources, in order to avoid conducting stack testing, Magotteaux agrees to a visible emission limitation of 10% opacity, except for one six minute period in any one hour period and for no more than four six minute periods in any 24-hour period.

Additionally, since the volume of material that may pass through this piece of equipment at any time is quite variable with no easy way to accurately monitor the throughput, we request that no production throughput limit be imposed on this piece of equipment. The only pollutant is particulate matter and the emission rate from the control device is much more dependent on proper operation than input loading. Such a limitation would not serve any purpose. In fact, it is believed that a higher grain loading on the bag house could actually serve a better filter cake and therefore decrease emissions.

Based on information and belief formed after reasonable inquiry, the statements and information in this document are true, accurate, and complete. Please let us know if you have any questions or need additional information.

Sincerely,
Magotteaux Inc.

Mr. Tim Carr
Plant Manager

Enclosures
cc: Danny Kermicle
Jennifer Smith, AECOM

MAGOTTEAUX, Inc. · 2360 Industrial Loop Road · PO Box 518 · Pulaski, TN 38478 (USA) · Phone: +1 931 363 7471 · Fax: +1 931 363 6918

MAGOTTEAUX

July 14, 2020

Mr. Greg Forte
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue
Nashville, Tennessee 37243

Subject: Magotteaux Inc. [28-0025]
Supplemental Information [Agreement Letter]

Dear Greg:

Following the review of Magotteaux Inc. Title V Renewal Application dated April 29, 2019, the Division of Air Pollution Control requested that Magotteaux provide an updated agreement statement for the various limits that are currently listed in the facility's existing permit [567767]. It should be noted that the agreed limits that were previously established will remain the same. The enclosed document contains a summary of the agreed limits to be included in the renewed Title V Permit.

I, the undersigned, am the responsible official as defined in TAPCR 1200-3-9-.02 (1 l)(b)21. of the Title V source for which this document is being submitted. I hereby certify, based on the information and belief formed after reasonable inquiry, that the statements made and data contained in this document are true, accurate, and complete.

Please let us know if you have any questions or need additional information.

Sincerely
Magotteaux Inc.

Mr. Rudi Jansen
Plant Manager

Enclosure
cc: Jen Smith – jsmith@triadenv.com

28-0025-06
Electric Arc Furnace #2

Condition E7-3. Operating time for this source (28-0025-06) shall not exceed 7,500 hours during all intervals of twelve consecutive months. This limitation was set based on a PSD netting analysis for several sources that were permitted for the first time in 1996/1997 or that received a substantial increase in allowable particulate emission in 1996/1997. The electric arc furnace number 2 was not part of the project that initiated the PSD analysis. [Previous Agreement letter dated May 16, 1997].

Condition E7-4. Particulate matter emitted from the baghouse serving this source (28-0025-06) shall not exceed 0.02 grains per dry standard cubic foot (5.14 pounds per hour). This limitation was set based on a PSD netting analysis for several sources that were permitted for the first time in 1996/1997 or that received a substantial increase in allowable particulate emission in 1996/1997. The electric arc furnace #2 was not part of the project that initiated the PSD analysis. [Previous agreement letter dated May 16, 1997].

28-0025-28
Electric Induction Furnace

Condition E15-1. The process weight rate of scrap metal and additives shall not exceed 19,200 pounds per hour and 40,000 tons per all intervals of twelve consecutive months. [Previous agreement letter dated October 26, 1998].

Condition E15-2. Particulate matter emissions from this source (28-0025-28) shall not exceed 0.1 pounds per ton of scrap metal and additives processed (0.96 pounds per hour). [Previous agreement letter dated October 26, 1998, from the permittee set a limit of 0.2 pounds per ton of steel. The agreements contained in the Title V application dated May 2001, adjusted the particulate limits for this source and source 30].

The permittee must not discharge to the atmosphere emissions from any metal melting furnace or group of all metal melting furnaces that exceed 0.8 pounds of particulate matter (PM) per ton of metal charged or 0.06 pounds of total metal HAP per ton of metal charged.

28-0025-30
No Bake Finishing and Grinding

Condition E16-1. Particulate matter emitted from this source (28-0025-30) shall not exceed 0.18 pounds per hour and 0.375 tons per year. [Previous agreement letter dated April 22, 1997, from the permittee placed a limit of 0.375 tons per year. The Title V application of May 2001, adjusted the particulate limits for this source and source 28, the Induction Furnace. The 1997 limitation was set based on a PSD netting analysis for several sources that were permitted for the first time in 1996/1997 or that received a substantial increase in allowable particulate emission in 1996/1997. Source 30, No Bake Finishing and Grinding, was not part of the project that initiated the PSD analysis.

Condition E16-2. Visible emissions from this source (28-0025-30) shall not exhibit greater than ten percent opacity, except for one six-minute period in any one-hour period, and for no more than four six-minute periods in any 24-hour period. Visible emissions from this source shall be determined by EPA Method 9, as published in the current 40 CFR 60, Appendix A (six-minute average). [Previous agreement letter dated April 22, 1997].

28-0025-36
No-Bake Mixer

Condition E19-5. Visible emissions from the baghouse stack shall not exhibit greater than ten percent opacity, except for one six-minute period in any one-hour period, and for no more than four six-minute periods in any 24 hour period. Visible emissions from the baghouse stack shall be determined by EPA Method 9, as published in the current 40 CFR 60, Appendix A (six-minute average). [Previous agreement letter dated December 16, 2008].

28-0025-40
Didion Ball Mill

Condition E21-2. Operating time for this source (28-0025-40) shall not exceed 4,800 hours during all intervals of twelve consecutive months. [Previous agreement letter dated August 28, 1997, from the permittee to avoid PSD].

Condition E21-3. Particulate matter emissions from this source (28-0025-40) shall not exceed 1.74 pounds per hour. [Previous agreement letter dated November 4, 1997, from the permittee to avoid PSD].

Condition E21-5. Visible emissions from the baghouse stack shall not exhibit greater than ten percent opacity, except for one six-minute period in any one hour period, and for no more than four six-minute periods in any 24 hour period. Visible emissions from the baghouse stack shall be determined by EPA Method 9, as published in the current 40 CFR 60, Appendix A (six-minute average). [Previous agreement letter dated December 16, 2008].

28-0025-59
Charge Weight Hoppers

Condition E24-1. Particulate matter emitted from this source (28-0025-59) shall not exceed 1.75 pounds per hour. [Previous agreement letter dated October 8, 1996, from the permittee to reduce fees].

28-0025-62
Sand and Bentonite Receiving

Condition E25-1. Total sand and bentonite clay received at this source (28-0025-62) shall not exceed 2,500 tons per month and 20,000 tons per all consecutive 12-month intervals. [Previous agreement letter dated October 8, 1996, to reduce fees].

28-0025-66

Waste Sand Loadout

Condition E26-1. Waste sand loaded out at this source (28-0025-66) shall not exceed 2,500 tons per month and 26,000 tons per year. [Previous agreement letter dated October 8, 1996, to reduce fees].

MAGOTTEAUX

SHAPING A WORLD OF PERFORMANCE

April 29, 2019

Mrs. Michelle Owenby
TN Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass TN Tower, 15th Floor
312 Rosa L. Parks Avenue
Nashville, TN 37243

RE: Magotteaux Inc., Source Reference No. 28-0025

Dear Mrs. Owenby:

Magotteaux Inc. [Source 28-0025] presents the following Title V Renewal Application for our Pulaski, Tennessee facility.

The enclosed Title V Renewal Application reflects the same equipment as it is currently listed in the facility's Permit No. 567769. At this time, Magotteaux request that no changes be made to the facility's Title V Permit; with the exception of an increase in mold wash solvent for Source 70 [Mold Wash], please refer to Source 70 forms and calculations for the proposed modification. Otherwise, Magotteaux is satisfied with all of the conditions and emissions limits as presented in the facility's current Title V Permit.

Based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate and complete.

Please let us know if you have any questions or require additional information.

Sincerely,
Magotteaux Inc.

Keith Kimbrough

Enclosures

cc: Ms. Jen Smith

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
FACILITY IDENTIFICATION

SITE INFORMATION				
1. Organization's legal name Magotteaux Inc.			For APC Use Only	APC company point no.
2. Site name (if different from legal name)				APC Log/Permit no.
3. Site address (St./Rd./Hwy.) 2360 Industrial Loop Road			NAICS or SIC Code 33	
City or distance to nearest town Pulaski	Zip code 38478		County name Giles	
4. Site location (in Lat./Long)	Latitude 35.216620°		Longitude -87.059103°	
CONTACT INFORMATION (RESPONSIBLE OFFICIAL)				
5. Responsible official contact Keith Kimbrough			Phone number with area code 931-363-7471	
6. Mailing address (St./Rd./Hwy.) 2360 Industrial Loop Road			Fax number with area code	
City Pulaski	State TN	Zip code 38478	Email address Keith.Kimbrough@magotteaux.com	
CONTACT INFORMATION (TECHNICAL)				
7. Principal technical contact Danny Kermicle			Phone number with area code 931-207-3207	
8. Mailing address (St./Rd./Hwy.) 2360 Industrial Loop Road			Fax number with area code	
City Pulaski	State TN	Zip code 38478	Email address Danny.Kermicle@magotteaux.com	
CONTACT INFORMATION (BILLING)				
11. Billing contact Jennifer Mcknight			Phone number with area code 931-363-7471	
12. Mailing address (St./Rd./Hwy.) 2360 Industrial Loop Road			Fax number with area code	
City Pulaski	State TN	Zip code 38478	Email address Jennifer.Mcknight@magotteaux.com	

TYPE OF PERMIT REQUESTED

13. Permit requested for:

Initial application to operate:		Minor permit modification:	
Permit renewal to operate:	✓	Significant modification:	
Administrative permit amendment:		Construction permit:	

(OVER)

HAZARDOUS AIR POLLUTANTS, DESIGNATIONS, AND OTHER PERMITS ASSOCIATED WITH FACILITY

14. Is this facility subject to the provisions governing prevention of accidental releases of hazardous air contaminants contained in Chapter 1200-03-32 of the Tennessee Air Pollution Control regulations?

    [ ] Yes [✓] No

    If the answer is Yes, are you in compliance with the provisions of Chapter 1200-03-32 of the Tennessee Air Pollution Control regulations?

    [ ] Yes [ ] No

15. If facility is located in an area designated as "Non-Attainment" or "Additional Control", indicate the pollutant(s) for the designation.

No

16. List all valid Air Pollution permits issued to the sources contained in this application [identify all permits with most recent permit numbers and emission source reference numbers listed on the permit(s)].

Permit Number: 567767

17. Page number: Ø Revision number: Date of revision:

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
INDEX OF AIR POLLUTION PERMIT APPLICATION FORMS

Section 1: Identification and Diagrams		
This application contains the following forms:	APC Form 1, Facility Identification	1
	APC Form 2, Operations and Flow Diagrams	1

Section 2: Emission Source Description Forms		Total number of this form
This application contains the following forms (one form for each incinerator, printing operation, fuel burning installation, etc.):	APC Form 3, Stack Identification	27
	APC Form 4, Fuel Burning Non-Process Equipment	3
	APC Form 5, Stationary Gas Turbines or Internal Combustion Engines	
	APC Form 6, Storage Tanks	
	APC Form 7, Incinerators	
	APC Form 8, Printing Operations	
	APC Form 9, Painting and Coating Operations	1
	APC Form 10, Miscellaneous Processes	23
	APC Form 33, Stage I and Stage II Vapor Recovery Equipment	
	APC Form 34, Open Burning	

Section 3: Air Pollution Control System Forms		Total number of this form
This application contains the following forms (one form for each control system in use at the facility):	APC Form 11, Control Equipment - Miscellaneous	
	APC Form 13, Adsorbers	
	APC Form 14, Catalytic or Thermal Oxidation Equipment	
	APC Form 15, Cyclones/Settling Chambers	2
	APC Form 17, Wet Collection Systems	
	APC Form 18, Baghouse/Fabric Filters	19

(OVER)

Section 4: Compliance Demonstration Forms

		Total number of this form
This application contains the following forms (one form for each incinerator, printing operation, fuel burning installation, etc.):	APC Form 19, Compliance Certification - Monitoring and Reporting - Description of Methods for Determining Compliance	27
	APC Form 20, Continuous Emissions Monitoring	
	APC Form 21, Portable Monitors	
	APC Form 22, Control System Parameters or Operating Parameters of a Process	26
	APC Form 23, Monitoring Maintenance Procedures	
	APC Form 24, Stack Testing	
	APC Form 25, Fuel Sampling and Analysis	
	APC Form 26, Record Keeping	26
	APC Form 27, Other Methods	2
	APC Form 28, Emissions from Process Emissions Sources / Fuel Burning Installations / Incinerators	27
	APC Form 29, Emissions Summary for the Facility or for the Source Contained in This Application	1
	APC Form 30, Current Emissions Requirements and Status	27
	APC Form 31, Compliance Plan and Compliance Certification	
	APC Form 32, Air Monitoring Network	

Section 5: Statement of Completeness and Certification of Compliance

I have reviewed this application in its entirety and to the best of my knowledge, and based on information and belief formed after reasonable inquiry, the statements and information contained in this application are true, accurate, and complete. I have provided all the information that is necessary for compliance purposes and this application consists of 275 pages and they are numbered from page 1 to 275. The status of this facility's compliance with all applicable air pollution control requirements, including the enhanced monitoring and compliance certification requirements of the Federal Clean Air Act, is reported in this application along with the methods to be used for compliance demonstration.

Name and Title of Responsible Official	Telephone Number with Area Code
Keith Kimbrough - Production Manager	(931) 363-7471
Signature of Responsible Official	Date of Application
	May 6 2019

(For definition of responsible official, see instructions for APC Form 1)

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
OPERATIONS AND FLOW DIAGRAMS

1. Please list, identify, and describe briefly process emission sources, fuel burning installations, and incinerators that are contained in this application. Please attach a flow diagram for this application.

Refer to Attachment to this form for a summary of the Emission Sources contained in this application.

2. List all insignificant activities which are exempted because of size or production rate and cite the applicable regulations.

Refer to Attachment to this form for a summary of insignificant activities which are exempt per applicable regulations.

3. Are there any storage piles?

YES _____ NO X

4. List the states that are within 50 miles of your facility.

Alabama

5. Page number: 1 Revision Number: Date of Revision:

Attachment to APC V.2
Operation and Flow Diagram, Item 2: List of Insignificant Activities

1. Scrap Metal Handling	Transport From Pile to Melting Operations	1200-3-9-.04(5)(a)4.(i)
2. Slag Storage Pile	Storage of Slag/Separation of Usable Material	1200-3-9-.04(5)(a)4.(i)
3. Slag Handling	Slag Collection/Transport to Storage	1200-3-9-.04(5)(a)4.(i)
4. Sand & Bentonite Receiving	Unloading of rail cars and trucks/converyors to silos	1200-3-9-.04(5)(a)4.(i)
5. Ladle Preheaters	Warming of Ladles with Natural Gas Burners	1200-3-9.04(4)(d)20
6. Green Sand Molding Dryers and Phenolic Mold Wash Dryer	Natural gas burners used to dry greensand and mold wash in the phenolic operation	1200-3-9.04(4)(d)20
7. Holding Furnace	Temporary holding of melted metal prior to pouring	1200-3-9-.04(5)(a)4.(i)
8. Green Sand Pattern Release Agent	Application mold release agent	1200-3-9-.04(5)(a)4.(i)
9. Finishing Equipment Exhausted Indoors	Saws, grinders, etc exhausted indoors	1200-3-9-.04(5)(a)4.(i)
10. Polymer & Salt Quench Operations	Polymer & Salt Storage and Quench Tanks	1200-3-9-.04(5)(a)4.(i)
11. Scrap Metal Storage Piles	Emissions from metal storage piles	1200-3-9-.04(5)(a)4.(i)
12. Auxillary Breaker Drum	Breaker Drum for separation of metal casting rafts	1200-3-9-.04(5)(a)4.(i)
13. Heat Treat Furnace Repair	Repair of Furnace Refractory	1200-3-9-.04(5)(f)55
14, Ladle, Melting, and Heat Treat Furnace Repair	Repair of Furnace and Ladle Refractory	1200-3-9-.04(5)(f)45
15. Quench and Heat Treat Furnaces	(< 10 MMBtu/hr max. heat input)	1200-3-9-.04(4)(d)20
16. Sand Muller	Mixing of Molding Sand	1200-3-9-.04(5)(g)2
17. Mold Wash Application	Application of mold wans to foundry molds	1200-3-9-.04(5)(a)4.(i)
18. Degate/Deriser	Rmoval of Casting Gates and Risers	1200-3-9-.04(5)(a)4.(i)
19. Pre-coated Sand Core Forming	Core forming with heat cured resin coated sand	1200-3-9-.04(5)(a)4.(i)
20. Pattern Shop	Pattern production with wood working and painting	1200-3-9.04(4)(d)15 1200-3-9-.04(5)(a)4.(i)
21. Hot Water Heater	Heater/Cooler/Classifier No Bake	1200-3-9-.04(5)(a)4.(i)
22. Laempe Core Machine	Core manufacturing	1200-3-9-.04(5)(a)4.(i)

Attachment to APC 2
Operation and Flow Diagrams, Item 1: Description of Process Emission Sources

Magotteaux Inc. is a secondary iron and steel foundry. The major production operations include raw material handling and preparation; metal melting; mold and core production; pouring, cooling, and shakeout; finishing; and heat treating. See the attached process flow diagram to clarify the following description of the processes.

Raw Material Handling and Preparation

Handling operations include the conveying of the raw materials used at the foundry including scrap metal, casting sand and binders, foundry returns, fluxes, and alloying additives. Sand is received by truck and rail and conveyed to the sand and bentonite silos (ESRNs 20-24 and 62). Scrap metal, scrap castings and metal containing slag are stored in piles outside the plant. Useable metal is recovered from the slag at regular intervals (ESRN 65). Magotteaux also recycles used mill balls by cleaning and sorting by size at the Didion (ESRN 40).

Metal Melting

Magotteaux operates one electric arc furnaces (ESRNs 06) and three induction furnaces (ESRN 28, 72 & 73). Electric arc furnaces are large, steel cylindrical vessels equipped with a removable roof through which three retractable carbon electrodes are inserted. The electrodes are lowered through the roof of the furnace and are energized by three phase alternating current, creating arcs that melt the metallic charge with their heat. Additional heat is produced by the resistance of the metal between the arc paths. Once the melting cycle is complete, the carbon electrodes are raised and the vessel can then be tilted to pour the molten metal. The induction furnace is a cup-shaped vessel surrounded by electrical coils. When these coils are energized with high frequency alternating current, they produce a fluctuating electromagnetic field which heats the metal charge. Charges of metal are added to the furnaces in furnace charge weight hoppers (ESRN 59). In order to impart the desired properties to the iron, additives such as chrome and manganese are mixed with the iron. Impurities are removed by the addition of oxygen using an oxygen lance in a process called "blowing". Slag is removed from the furnaces through a tapping hole or door. Since slag is lighter than molten iron, it remains on top of the molten iron and can be raked or poured out. After removal of the slag, the iron is transferred to ladles for pouring.

Mold and Core Production, and Pouring, Cooling, and Shakeout

Molds are forms used to shape the exterior of castings. Cores are molded sand shapes used to make internal voids in castings. Magotteaux uses two distinctly different systems to create its molds; green sand and no-bake. The green sand system uses seacoal. The movement of new and used sand is controlled in the sand plant (ESRN 09). Sand, water, and seacoal are mixed in the muller. Following mixing, molds are produced in an automated forming, pouring, and shakeout process (ESRN 02). After the molds are broken apart and the castings are removed, sand fines and any remaining metal are removed and the recovered sand is reused. The sand fines are loaded out (ESRN 66) and trucked to a landfill.

The no-bake process uses organic binders and catalysts. Casting patterns are produced from wood and auto body filler. The molding sand is mixed in the no-bake mixer (ESRN 36). No-bake cores are mixed (ESRN 45) and formed and inserted into the molds, at which point a new more efficient VOC-containing mold wash process (ESRN 70) has been added which has a VOC flash-off to more efficiently dry the mold release compound (for selected molds) then the mold is transferred to No-Bake Pouring, Cooling, and Shakeout (ESRN 33) where molten metal is poured into the molds, allowed to cool, and then broken free from the molds. Additionally, cores are manufactured by a Laempe Core Machine which has been determined to be an insignificant activity.

Finishing and Grinding, and Heat Treating

Castings are finished by grinding (ESRN 30) and are then heat treated in natural gas fired ovens and quenched to produce the final product (ESRNs 04, 10, 19 and 34). Following removal of the casting gates and risers, the no-bake castings are usually shot blasted in order to clean the castings and to remove surface stress (ESRNs 37, 33, & 44).

Plant wide fugitive particulate emissions (ESRN 67) are estimated using a factor determined by an internal plant-wide mass balance study. The facility has one emergency generator (ESRN 68).

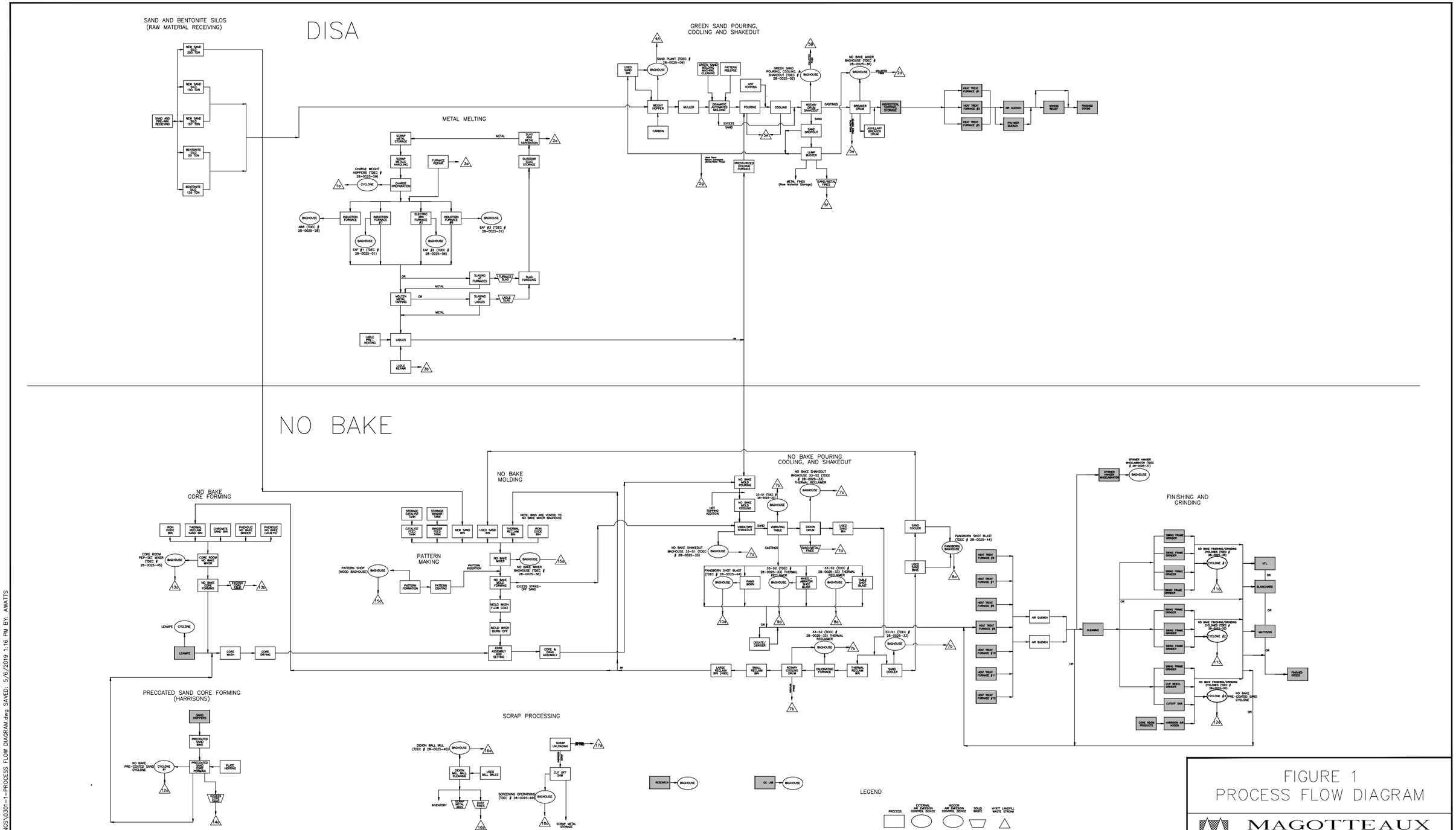

FIGURE 1
PROCESS FLOW DIAGRAM

MAGOTTEAUX
2360 INDUSTRIAL PARK ROAD , PO BOX 518
PULASKI , TENNESSEE 38478-0518

SCALE: N.T.S.	DR ALW	CHK JS	REV JS

PREPARED BY:

TriAD ENVIRONMENTAL CONSULTANTS, INC.
Suite 200, 207 Donelson Pike, Nashville, TN 37214
615-889-6888 fax 615-889-4004

PROJ: 97-MAG03-01	DATE: 05/06/19	SHEET 1 OF 1

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State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
EMISSION SUMMARY FOR THE FACILITY OR FOR THE SOURCES CONTAINED IN THIS APPLICATION

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.

EMISSIONS SUMMARY TABLE – CRITERIA AND SELECTED POLLUTANTS

2. Complete the following emissions summary for regulated air pollutants at this facility or for the sources contained in this application.

Air Pollutant	Summary of Maximum Allowable Emissions		Summary of Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour-Item 4, APC 28)	Tons per Year	Reserved for State use (Pounds per Hour-Item 4, APC 28)
Particulate Matter (TSP)	185.9			
Sulfur Dioxide	35.3			
Volatile Organic Compounds	121.2			
Carbon Monoxide	156.5			
Lead				
Nitrogen Oxides	16.8			
Total Reduced Sulfur				
Mercury				
Asbestos				
Beryllium				
Vinyl Chlorides				
Fluorides				
Gaseous Fluorides				
Greenhouse Gases in CO_2 Equivalents	63,547			

(Continued on next page)

(Continued from previous page)

EMISSIONS SUMMARY TABLE – HAZARDOUS AIR POLLUTANTS

3. Complete the following emissions summary for regulated air pollutants that are hazardous air pollutant(s) at this facility or for the sources contained in this application.

Air Pollutant & CAS	Summary of Maximum Allowable Emissions		Summary of Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour- Item 5, APC 28)	Tons per Year	Reserved for State use (Pounds per Hour- Item 5, APC 28)
Total HAPs	<24.9 T/yr			
Individual HAP	<9.9 T/yr			

4. Page number: 5 Revision number: Date of revision:

Attachment to APC V.29

Magotteaux Pulaski Inc. (28-0025)

Emissions Summary

	Pollutant:	**PM**	**SO2**	**VOC**	**CO**	**NOx**	**PM-HAP**	**VOC-HAP**	**Total HAP**	**Fugitive Particulate**
Source No.	Source Description	Allowable (tons/yr)	Allowable (tons/yr)	Allowable (tons/yr)	Allowable (tons/yr)	Allowable (tons/yr)	Allowable (tons/yr)	Allowable (tons/yr)		Allowable (tons/yr)
2	Green Sand Pouring, Cooling & Shakeout	20.2	0.83	15.79	51.02	0.75				
4	Heat Treat #1	0.40	0.04	0.31	4.56	5.43				
6	EAF #2	16.8	12.6	4.8	55.2	2.76	1.26		1.26	
9	Sand Plant	3.22								
10	Heat Treat #2	0.44	0.040	0.31	4.56	5.43				
20	Storage Silo - 200 Ton Capacity	0.03								
21	Storage Silo - 150 Ton Capacity	0.02								
22	Storage Silo - 157 Ton Capacity	0.02								
23	Storage Silo - 55 Ton Capacity	0.03								
24	Storage Silo - 135 Ton Capacity	0.06								
28	Induction Furnace	16.0					1.20		1.20	
30	Finishing & Grinding	0.375								
33	No-Bake Shakeout	31.0	21.6	11.50	40.6	0.064	13.3		13.3	
36	No Bake Mixer	11.8		28.41						
37	Wheelabrator	4.5								
40	Didion	4.2								
44	Pangborn	4.3								
45	Core Room No-Bake Mixer	3.1		7.27						
59	Charge Weight Hoppers	7.7								
62	Sand and Bentonite Receiving	0.6								
66	Waste Sand Loadout	8.45								
67	Particulate Fugitive Emissions	30.6								30.6
68	Emergency Generator	0.17	0.16	0.19	0.51	2.39				
69	Screening Operations	3.02								
70	Mold Wash			52.6						
71	Rotating Drum	9.9								
72	Induction Furnace_IF7	4.5					0.36		0.36	
73	Induction Furnace_IF8	4.5					0.36		0.36	
	TOTAL (Does Not Include Insignificant Sources or Pollutants w/o specific limitation)	185.9	35.3	121.2	156.5	16.8	16.5	0.0	16.5	30.6

6

GHG Potential Emissions
Magotteaux Inc.

Natural Gas Combustion Sources

Potential:	#2 South Meter	37.116	MMBTU/HR
	#1 North Meter	70.187	
	Pattern Shop	1.010	
	Return Scrap Bldg	2.256	
	Shipping Meter	1.160	
	Total	111.729	MMBTU/HR
		8760	hr/YR
		978,746.04	MMBTU/YR
	X	0.0534	mtCO2e/MMBTU
	Equals	52,265	Metric tons/year
	Equals	53,467	US tons/year

Potential:		126,000	Tons/Year
CO2e Emission Factor:	X	0.08	Tons/Ton of Metal
	Equals	10,080	US tons/year
Total Potential GHG Emissions:		**63,547**	**US tons/year**
		62,118	Metric tons/year

Note: CO2e emission factor from "Technical Support Document for the Iron
Sector: Proposed Rule for Mandatory Reporting of Greenhouse Gases" US E
August 28, 2009

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
STACK IDENTIFICATION

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Emission source (identify):**
(28-0025-02) Green Sand Pouring, Cooling and Shake-out

STACK DESCRIPTION

3. Stack ID (or flow diagram point identification):
02-S1

4. Stack height above grade in feet:
30 feet

5. Velocity (data at exit conditions):
85 (Actual feet per second)

6. Inside dimensions at outlet in feet:
5.0'

7. Exhaust flow rate at exit conditions (ACFM):
100,000 CFM

8. Flow rate at standard conditions (DSCFM):
100,000 CFM

9. Exhaust temperature:
ambient Degrees Fahrenheit (°F)

10. Moisture content (data at exit conditions):
Unknown Percent _____ Grains per dry standard cubic foot (gr./dscf.)

11. Exhaust temperature that is equaled or exceeded during ninety (90) percent or more of the operating time (for stacks subject to diffusion equation only):
N/A (°F)

12. If this stack is equipped with continuous pollutant monitoring equipment required for compliance, what pollutant(s) does this equipment monitor (e.g., Opacity, SO_2, NO_x, etc.)?
N/A

Complete the appropriate APC form(s) 4, 5, 7, 8, 9, or 10 for each source exhausting through this stack.

BYPASS STACK DESCRIPTION

13. Do you have a bypass stack?
_____ Yes X No

If yes, describe the conditions which require its use & complete APC form 4 for the bypass stack. Please identify the stack number(s) of flow diagram point number(s) exhausting through this bypass stack.

14. Page number: 8 Revision Number: Date of Revision: 04/05/19

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TITLE V PERMIT APPLICATION
MISCELLANEOUS PROCESSES

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Process emission source (identify):**
(28-0025) Green Sand Pouring, Cooling, & Shakeout

3. Stack ID or flowdiagram point identification(s):
02-S1

4. Year of construction or last modification:
2004 - Combined Sources 02 & 32 ; 2007 - Replaced Baghouse

If the emissions are controlled for compliance, attach an appropriate Air Pollution Control system form.

5. Normal operating schedule: 24 Hrs./Day 6 Days/Wk. 300 Days/Yr.

6. Location of this process emission source in UTM coordinates: UTM Vertical: 3896.88 N UTM Horizontal: 494.57 E

7. Describe this process (Please attach a flowdiagram of this process) and check one of the following:

[ ] Batch [✓] Continuous

PROCESS MATERIAL INPUT AND OUTPUT

8. List the types and amounts of raw materials input to this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Carbon	Pouring, Cooling, and Shakeout	468 lbs/hr	877.5 lbs/hr
Bentonite		1932 lbs/hr	3622.5 lbs/hr
Sand		58085 lbs/hr	66750 lbs/hr
Molten Metal/Castings	[ADD Material: Hot Topping 600lb/hr & 900lb/hr]	26600 lbs/hr	30000 lbs/hr

9. List the types and amounts of primary products produced by this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Processed Sand		61085 lbs/hr	72150 lbs/hr
Castings		26600 lbs/hr	30000 lbs/hr

10. Process fuel usage:

Type of fuel	Max heat input (10^6 BTU/Hr.)	Average usage (units)	Maximum usage (units)
N/A			

11. List any solvents, cleaners, etc., associated with this process:
N/A

If the emissions and/or operations of this process are monitored for compliance, please attach the appropriate Compliance Demonstration form.

12. Describe any fugitive emissions associated with this process, such as outdoor storage piles, open conveyors, open air sand blasting, material handling operations, etc. (please attach a separate sheet if necessary).
N/A

13. Page number: 9 Revision Number: Date of Revision: 04/08/19

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TITLE V PERMIT APPLICATION
CONTROL EQUIPMENT - BAGHOUSES/FABRIC FILTERS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Emission source (identify):
Magotteaux Inc.	(28-0025-02) Green Sand Pouring, Cooling, & Shakeout

3. Stack ID or flowdiagram point identification (s):
02-S1

BAGHOUSE/FABRIC FILTER DESCRIPTION

4. Describe the device in use. List the key operating parameters of this device and their normal operating range.

A 100,000 CFM pulse jet baghouse is used to control particulate emissions from the pouring, cooling and shakeout, including the breaker drum operation, several sand transfer points, and the sand cooler. The baghouse is to be operated within design operating ranges. A minimum pressure drop of 1.9 inches of water will be maintained.

5. Manufacturer and model number (if available):	6. Year of installation:
AMF Filtrex Size 10 1-800-9880 Model MS Pulse Jet	2007

7. List of pollutant(s) to be controlled and the expected control efficiency for each pollutant (see instructions).

Pollutant	Efficiency (%)	Source of data
Particulate	99 +	Engineering Estimate

8. Discuss how collected material is handled for reuse or disposal.

Captured particulate is trucked to landfill.

9. If the bags are coated, specify the material used for coating and frequency of coating
N/A

10. Does the baghouse collect asbestos containing material?

Yes [ ] No [✓]

If "Yes", provide data as outlined in Item 10, Instructions for this form.

11. If this control equipment is in series with some other control equipment, state and specify the overall efficiency.
N/A

12. Page number: 10	Revision Number:	Date of Revision: 04/08/19

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TITLE V PERMIT APPLICATION
CONTROL EQUIPMENT - BAGHOUSES/FABRIC FILTERS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Emission source (identify):
Magotteaux Inc.	(28-0025-02) Green Sand Pouring, Cooling, & Shakeout

3. Stack ID or flow diagram point identification (s):
02-S1

BAGHOUSE/FABRIC FILTER DESCRIPTION

4. Describe the device in use. List the key operating parameters of this device and their normal operating range.

A 100,000 CFM pulse jet baghouse is used to control particulate emissions from the pouring, cooing and shakeout, including the breaker drum operation, several sand transfer points, and the sand cooler. The baghouse is to be operated within design operating ranges. A minimum pressure drop of 1.9 inches of water will be maintained.

5. Manufacturer and model number (if available):	6. Year of installation:
AMF Filtrex Size 10 1-800-9880 Model MS Pulse Jet	2007

7. List of pollutant(s) to be controlled and the expected control efficiency for each pollutant (see instructions).

Pollutant	Efficiency (%)	Source of data
Particulate	99 +	Engineering Estimate

8. Discuss how collected material is handled for reuse or disposal.

Captured particulate is trucked to landfill.

9. If the bags are coated, specify the material used for coating and frequency of coating
N/A

10. Does the baghouse collect asbestos containing material?

Yes [ ] No [✓]

If "Yes", provide data as outlined in Item 10, Instructions for this form.

11. If this control equipment is in series with some other control equipment, state and specify the overall efficiency.
N/A

12. Page number:	Revision Number:	Date of Revision:
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TITLE V PERMIT APPLICATION
COMPLIANCE CERTIFICATION - MONITORING AND REPORTING
DESCRIPTION OF METHODS USED FOR DETERMINING COMPLIANCE

All sources that are subject to 1200-03-09-.02(11) of the Tennessee Air Pollution Control Regulations are required to certify compliance with all applicable requirements by including a statement within the permit application of the methods used for determining compliance. This statement must include a description of the monitoring, recordkeeping, and reporting requirements and test methods. In addition, the application must include a schedule for compliance certification submittals during the permit term. These submittals must be no less frequent than annually and may need to be more frequent if specified by the underlying applicable requirement or the Technical Secretary.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.
2. Process emission source, fuel burning installation, or incinerator (identify): (28-0025-02) Green Sand Pouring, Cooling and Shake-out
3. Stack ID or flowdiagram point identification(s): 02-S1

METHODS OF DETERMINING COMPLIANCE

4. This source as described under Item #2 of this application will use the following method(s) for determining compliance with applicable requirements (and special operating conditions from an existing permit). Check all that apply and attach the appropriate form(s)

[ ] Continuous Emission Monitoring (CEM) - APC 20
Pollutant(s):

[ ] Emission Monitoring Using Portable Monitors - APC 21
Pollutant(s):

[✓] Monitoring Control System Parameters or Operating Parameters of a Process - APC 22
Pollutant(s): Opacity

[ ] Monitoring Maintenance Procedures - APC 23
Pollutant(s):

[ ] Stack Testing - APC 24
Pollutant(s):

[ ] Fuel Sampling & Analysis (FSA) - APC 25
Pollutant(s):

[✓] Recordkeeping - APC 26
Pollutant(s): Particulates, VOCs, SO2, CO2, NOx, HAPs

[ ] Other (please describe) - APC 27
Pollutant(s):

5. Compliance certification reports will be submitted to the Division according to the following schedule:

Start date: Per the Title V permit

And every _____ days thereafter.

6. Compliance monitoring reports will be submitted to the Division according to the following schedule:

Start date: Per the Title V permit

And every _____ days thereafter.

7. Page number: 12 Revision number: Date of revision: 04/08/19

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TITLE V PERMIT APPLICATION - COMPLIANCE DEMONSTRATION BY MONITORING CONTROL SYSTEM PARAMETERS OR OPERATING PARAMETERS OF A PROCESS

The monitoring of a control system parameter or a process parameter shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value and the emission rate of a particular pollutant is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s)
02-S1 Green Sand Pouring, Cooling & Shakeout

3. Emission source:
(28-0025-02) Green Sand Pouring, Cooling & Shakeout

MONITORING DESCRIPTION

4. Pollutant(s) being monitored:
Opacity

5. Description of the method of monitoring and establishment of correlation between the parameter value and the emission rate of a particular pollutant:

As per the initial Title V Permit term, and based on the opacity matrix decision tree, an initial 30 minute visible emission evaluation will be made using EPA Method 9 within one year of issuance. The number of timing of subsequent observations will be based on the results of the initial readings.

6. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
The frequency of visible emission evaluations will be determined as indicated in the Method 9 opacity decision tree.

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TITLE V PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY RECORDKEEPING

Recordkeeping shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value recorded and the applicable requirement is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s):
02-S1

3. Emission source (identify):
(28-0025-02) Green Sand Pouring, Cooling, and Shakeout

MONITORING AND RECORDKEEPING DESCRIPTION

4. Pollutant(s) or parameter being monitored:
Particulate, VOCs, CO, NOx, SO2

5. Material or parameter being monitored and recorded:
Operator will maintain monthly records of the weight of carbon, bentonite and sand used in the process to estimate the gaseous emissions, and the hours of operation to estimate the particulate emissions. Daily differences across the baghouse.

6. Method of monitoring and recording:
Monthly records will be kept of operating time, the weight of carbon, bentonite and sand used in the process. A daily log of the differences across the baghouse and a log of the maintenance performed on the baghouse will be kept as part of the PM compliance demonstration. The emissions will be estimated using the method shown on the attachment to APC V.28.

7. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
Daily and Monthly

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TITLE V PERMIT APPLICATION
EMISSIONS FROM PROCESS EMISSION SOURCE / FUEL BURNING INSTALLATION / INCINERATOR

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.

2. Stack ID or flow diagram point identification(s): 02-S1 Green Sand Pouring, Cooling and Shakeout

3. Process emission source / Fuel burning installation / Incinerator (identify): (28-0025-02) Green Sand Pouring, Cooling, and Shakeout

EMISSIONS SUMMARY TABLE – CRITERIA AND FUGITIVE EMISSIONS

4. Complete the following emissions summary for regulated air pollutants. Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Particulate Matter (TSP)	20.2			
(Fugitive Emissions)				
Sulfur Dioxide	0.83			
(Fugitive Emissions)				
Volatile Organic Compounds	15.79			
(Fugitive Emissions)				
Carbon Monoxide	51.02			
(Fugitive Emissions)				
Lead				
(Fugitive Emissions)				
Nitrogen Oxides	0.75			
(Fugitive Emissions)				
Total Reduced Sulfur				
(Fugitive Emissions)				
Mercury				
(Fugitive Emissions)				

(Continued on next page)

(Continued from last page)

AIR POLLUTANT	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Asbestos				
(Fugitive Emissions)				
Beryllium				
(Fugitive Emissions)				
Vinyl Chloride				
(Fugitive Emissions)				
Fluorides				
(Fugitive Emissions)				
Gaseous Fluorides				
(Fugitive Emissions)				
Greenhouse Gases in CO_2 Equivalents				

EMISSIONS SUMMARY TABLE – FUGITIVE HAZARDOUS AIR POLLUTANTS

5. Complete the following emissions summary for regulated air pollutants that are hazardous air pollutant(s). Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant & CAS	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Gaseous HAPs	N/A		1.42	

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TITLE V PERMIT APPLICATION
CURRENT EMISSIONS REQUIREMENTS AND STATUS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Emission source number
Magotteaux Inc.	(28-0025-02) Green Sand Pouring, Cooling & Shakeout

3. Describe the process emission source / fuel burning installation / incinerator.
02, Green Sand Pouring, Cooling, and Shakeout

EMISSIONS AND REQUIREMENTS

4. Identify if only a part of the source is subject to this requirement	5. Pollutant	6. Applicable requirement(s): TN Air Pollution Control Regulations, 40 CFR, permit restrictions, air quality based standards	7. Limitation	8. Maximum actual emissions	9. Compliance status (In/Out)
	Particulate	Permit Conditions E5-1, E5-2 &E5-3	0.25 gr/dscf	< 0.25 gr/dscf	IN
	VOC	Permit Condition E5-5	15.79 tons/yr	< 15.79 tons/yr	IN
	Opacity	TN Rule 1200-3-5-.01(3)	10%	< 10 %	IN
	SO2	Permit Condition E5-4	0.23 lbs/hr	< 0.23 lbs/hr	IN
	NOx	Permit Condition E5-6	0.10 tons/month	< 0.10 tons/month	IN
	CO	Permit Condition E5-7	5.53 tons/month	< 5.53 tons/month	IN

10. Other applicable requirements (new requirements that apply to this source during the term of this permit)

11. Page number: 17 Revision number: Date of revision: 04/08/19

Attachment to APC V.28

Magotteaux Inc.
Calculations: Green Sand Pouring, Cooling, and Operation (28-0025-02)

Particulate Emissions Calculation

Allowable Particulate Emissions:

Operating Hours (hrs/yr) = 7200

Material Inputs (lbs/hr)

Seacoal	4500
Sand	66750
Castings	30000
Hot Topping	900

Magotteaux Pulaski Inc. has agreed to a maximum particulate emission rate of 5.62 lbs/hr, 7200 hours of operation per year, and an opacity limit of 10%.

Maximum Allowable Particulate Emissions (tons/yr) = 20.2

Attachment to APC V.28

Magotteaux Inc.
Calculations: Green Sand Pouring, Cooling, and Shakeout (28-0025-02)

Maximum Hourly SO_2 Emission Calculations:

Maximum Carbon usage (lbs/hr monthly avg) = 909
Maximum Operating Hours (hrs/yr) = 7200

Pollutant	Factor	Seacoal lbs/hr	Emissions lbs/hr	Emissions tons/yr
Sulfur Dioxide	0.000253	909	0.23	0.83

Monthly Emission Calculations for Gaseous Pollutants:

Maximum Carbon usage (tons/month) = 143.2
Maximum Carbon uage (tons/year) = 1335

Pollutant	Factor	Seacoal tons/month	Permit Limits tons/month	TPY
Nitrogen Oxides	0.000562	143.2	0.10	0.75
VOC	0.011941	143.2	1.71	15.79
Total HAPs	0.000991	143.2	0.14	1.68
Carbon Monoxide	0.03859	143.2	5.53	51.02

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TITLE V PERMIT APPLICATION
STACK IDENTIFICATION

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Emission source (identify):**
(28-0025-04) Heat Treat Furnace No. 1-12.4 MMBtu/hr Natural Gas Fired

STACK DESCRIPTION

3. Stack ID (or flowdiagram point identification):
04-S1

4. Stack height above grade in feet:
44 feet

5. Velocity (data at exit conditions):
6.05 (Actual feet per second)

6. Inside dimensions at outlet in feet:
2.083' dia

7. Exhaust flowrate at exit conditions (ACFM):
2560 cfm

8. Flow rate at standard conditions (DSCFM):
2190 cfm

9. Exhaust temperature:
160 Degrees Fahrenheit (°F)

10. Moisture content (data at exit conditions):
< 1% Percent _____ Grains per dry standard cubic foot (gr./dscf.)

11. Exhaust temperature that is equaled or exceeded during ninety (90) percent or more of the operating time (for stacks subject to diffusion equation only):
N/A (°F)

12. If this stack is equipped with continuous pollutant monitoring equipment required for compliance, what pollutant(s) does this equipment monitor (e.g., Opacity, SO_2, NO_x, etc.)?
N/A

Complete the appropriate APC form(s) 4, 5, 7, 8, 9, or 10 for each source exhausting through this stack.

BYPASS STACK DESCRIPTION

13. Do you have a bypass stack?
_____ Yes X No

If yes, describe the conditions which require its use & complete APC form 4 for the bypass stack. Please identify the stack number(s) of flowdiagram point number(s) exhausting through this bypass stack.

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TITLE V PERMIT APPLICATION
FUEL BURNING NON-PROCESS EQUIPMENT

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Stack ID or flow diagram point identification (s):**
04-S1

FUEL BURNING EQUIPMENT DESCRIPTION

3. List all fuel burning equipment that is at this fuel burning installation (please complete an APC 4 form for each piece of fuel burning equipment).
(28-0025-04) Heat Treat Furnace No. 1-12.4 MMBtu/hr Natural Gas Fired Heat Treatment Furnace for Castings

4. Fuel burning equipment identification number:
04-B1

5. Fuel burning equipment description:
Process consists of heat trating of castings. Castings are heated in a one row pusher tray furnace with a total burner capacity of 12.4 MMBtu/hr.

6. Year of installation or last modification of fuel burning equipment.
1972

7. Furnace type:
Direct Fired Natural Gas Burner

8. Manufacturer model number (if available):
Custom Fabricated Locally

9. Location of this fuel burning installation in UTM coordinates: UTM Vertical: 3896.88 N UTM Horizontal: 494.57 E

10. Normal operating schedule: 24 Hrs./Day 7 Days/Wk. 365 Days/Yr.

FUELS, CONTROLS, AND MONITORING DESCRIPTION

11. Maximum rated heat input capacity (in million BTU/Hour)
12.4 MMBtu/Hr

12. If wood is used as a fuel, specify the amount of wood used as a fraction of total heat input.
N/A

13. Fuels:	Primary fuel	Backup fuel #1	Backup fuel #2	Backup fuel #3
Fuel name	Natural Gas	N/A	N/A	N/A
Actual yearly consumption	29.06 MM cu. ft/yr			

14. If emissions from this fuel burning equipment are controlled for compliance, please specify the type of control:
N/A

15. If emissions from this fuel burning equipment are monitored for compliance, please specify the type of monitoring:
N/A

16. Describe any fugitive emissions associated with this process, such as outdoor storage piles, open conveyors, material handling operations, etc. (please attach a separate sheet if necessary).
N/A

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TITLE V PERMIT APPLICATION
COMPLIANCE CERTIFICATION - MONITORING AND REPORTING
DESCRIPTION OF METHODS USED FOR DETERMINING COMPLIANCE

All sources that are subject to 1200-03-09-.02(11) of the Tennessee Air Pollution Control Regulations are required to certify compliance with all applicable requirements by including a statement within the permit application of the methods used for determining compliance. This statement must include a description of the monitoring, recordkeeping, and reporting requirements and test methods. In addition, the application must include a schedule for compliance certification submittals during the permit term. These submittals must be no less frequent than annually and may need to be more frequent if specified by the underlying applicable requirement or the Technical Secretary.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.
2. Process emission source, fuel burning installation, or incinerator (identify): (28-0025-04) Heat Treat Furnace No. 1
3. Stack ID or flow diagram point identification(s): 04-S1

METHODS OF DETERMINING COMPLIANCE

4. This source as described under Item #2 of this application will use the following method(s) for determining compliance with applicable requirements (and special operating conditions from an existing permit). Check all that apply and attach the appropriate form(s)

- [ ] Continuous Emission Monitoring (CEM) - APC 20
  Pollutant(s):
- [ ] Emission Monitoring Using Portable Monitors - APC 21
  Pollutant(s):
- [✓] Monitoring Control System Parameters or Operating Parameters of a Process - APC 22
  Pollutant(s): Opacity
- [ ] Monitoring Maintenance Procedures - APC 23
  Pollutant(s):
- [ ] Stack Testing - APC 24
  Pollutant(s):
- [ ] Fuel Sampling & Analysis (FSA) - APC 25
  Pollutant(s):
- [✓] Recordkeeping - APC 26
  Pollutant(s): Particulate, Sulfur Dioxide, Nitrogen Oxides, VOCs, Carbon Monoxide
- [ ] Other (please describe) - APC 27
  Pollutant(s):

5. Compliance certification reports will be submitted to the Division according to the following schedule:
   Start date: Per the Title V permit.
   And every _____ days thereafter.
6. Compliance monitoring reports will be submitted to the Division according to the following schedule:
   Start date: Per the Title V permit.
   And every _____ days thereafter.
7. Page number: 22 Revision number: Date of revision: 04/08/19

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TITLE V PERMIT APPLICATION - COMPLIANCE DEMONSTRATION BY MONITORING CONTROL SYSTEM PARAMETERS OR OPERATING PARAMETERS OF A PROCESS

The monitoring of a control system parameter or a process parameter shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value and the emission rate of a particular pollutant is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Stack ID or flow diagram point identification(s)
Magotteaux Inc.	04-S1

3. Emission source:

(28-0025-04) Heat Treat Furnace No. 1

MONITORING DESCRIPTION

4. Pollutant(s) being monitored:

Opacity

5. Description of the method of monitoring and establishment of correlation between the parameter value and the emission rate of a particular pollutant:

Based on the opacity matrix decision tree for the EPA Method 9, no opacity readings are required for natural gas combustion sources.

6. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):

In accordance with the opacity matrix, no readings are required.

7. Page number:	Revision number:	Date of revision:
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TITLE V PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY RECORDKEEPING

Recordkeeping shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value recorded and the applicable requirement is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s):
04-S1

3. Emission source (identify):
(28-0025-04) Heat Treat Furnace No. 1

MONITORING AND RECORDKEEPING DESCRIPTION

4. Pollutant(s) or parameter being monitored:
Particulate, SOx, NOx, CO, VOC

5. Material or parameter being monitored and recorded:
Operator will maintain monthly records of the amount of natural gas consumed in MM cuft.

6. Method of monitoring and recording:
Monthly records will be kept of the amount of natural gas burned. The emissions will be estimated using AP-42 factors as shown on the attachment to APC V.28.

7. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
Monthly

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State of Tennessee
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Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
EMISSIONS FROM PROCESS EMISSION SOURCE / FUEL BURNING INSTALLATION / INCINERATOR

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Stack ID or flow diagram point identification(s):
Magotteaux Inc.	04-S1

3. Process emission source / Fuel burning installation / Incinerator (identify):
(28-0025-04) Heat Treat Furnace No. 1

EMISSIONS SUMMARY TABLE – CRITERIA AND FUGITIVE EMISSIONS

4. Complete the following emissions summary for regulated air pollutants. Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Particulate Matter (TSP)	0.40			
(Fugitive Emissions)				
Sulfur Dioxide	0.04			
(Fugitive Emissions)				
Volatile Organic Compounds	0.31			
(Fugitive Emissions)				
Carbon Monoxide	4.56			
(Fugitive Emissions)				
Lead				
(Fugitive Emissions)				
Nitrogen Oxides	5.43			
(Fugitive Emissions)				
Total Reduced Sulfur				
(Fugitive Emissions)				
Mercury				
(Fugitive Emissions)				

(Continued on next page)

(Continued from last page)

AIR POLLUTANT	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Asbestos				
(Fugitive Emissions)				
Beryllium				
(Fugitive Emissions)				
Vinyl Chloride				
(Fugitive Emissions)				
Fluorides				
(Fugitive Emissions)				
Gaseous Fluorides				
(Fugitive Emissions)				
Greenhouse Gases in CO_2 Equivalents				

EMISSIONS SUMMARY TABLE – FUGITIVE HAZARDOUS AIR POLLUTANTS

5. Complete the following emissions summary for regulated air pollutants that are hazardous air pollutant(s). Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant & CAS	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)

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TITLE V PERMIT APPLICATION
CURRENT EMISSIONS REQUIREMENTS AND STATUS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Emission source number
Magotteaux Inc.	28-0025-04

3. Describe the process emission source / fuel burning installation / incinerator.

Heat Treat Furnace No. 1-12.4 MMBtu/hr Natural Gas Fired Furnace used to heat castings.

EMISSIONS AND REQUIREMENTS

4. Identify if only a part of the source is subject to this requirement	5. Pollutant	6. Applicable requirement(s): TN Air Pollution Control Regulations, 40 CFR, permit restrictions, air quality based standards	7. Limitation	8. Maximum actual emissions	9. Compliance status (In/Out)
	Particulate	Permit Condition E6-2	0.09	< 0.69 lbs/hr	IN
	SO2	Permit Condition E6-2	0.01	< 0.01 lbs/hr	IN
	Opacity	Permit Condition E3-20	20%	< 20%	IN
	VOC	Permit Condition E6-2	0.07 lbs/hr	< 0.07 lb/hr	IN
	NOx	Permit Condition E6-2	1.24 lbs/hr	< 1.24 lb/hr	IN

10. Other applicable requirements (new requirements that apply to this source during the term of this permit)

11. Page number: 27 Revision number: Date of revision: 04/08/19

Attachment to APC V. 28, Emission from Fuel Burning Installation

Magotteaux Inc.
Emissions from Heat Treat Furnace No. 1 (28-0025-04)

ALLOWABLE EMISSIONS

Heat Cap. MM Btu/hr	Operation Hrs/yr	Total Heat MM Btu/yr	Vol. Gas MM cu. ft./yr
12.4	8760	108624	108.624

Pollutant	Emission Factor lb/MM cu. ft.	TPY	lbs/hr
PM_{10}	7.6	0.40	0.09
SO_2	0.6	0.04	0.01
NO_x	100	5.43	1.24
CO	84	4.56	1.04
VOC	5.5	0.31	0.068

(Source of Emission Factors - Section 1.4, - Natural Gas Combustion, AP-42, 5th Ed. 7/98)
Based on natural gas heating value of 1,000 Btu/scf

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TITLE V PERMIT APPLICATION
STACK IDENTIFICATION

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Emission source (identify):**
(28-0025-06) Electric arc furnace melting operation #2 with baghouse control

STACK DESCRIPTION

3. Stack ID (or flow diagram point identification):
06-S1

4. Stack height above grade in feet:
27 feet

5. Velocity (data at exit conditions):
66 (Actual feet per second)

6. Inside dimensions at outlet in feet:
4.0 ft dia

7. Exhaust flowrate at exit conditions (ACFM):
50,000 CFM

8. Flow rate at standard conditions (DSCFM):
45,690 CFM

9. Exhaust temperature:
120 Degrees Fahrenheit (°F)

10. Moisture content (data at exit conditions):
Unknow Percent _____ Grains per dry standard cubic foot (gr./dscf.)

11. Exhaust temperature that is equaled or exceeded during ninety (90) percent or more of the operating time (for stacks subject to diffusion equation only):
N/A (°F)

12. If this stack is equipped with continuous pollutant monitoring equipment required for compliance, what pollutant(s) does this equipment monitor (e.g., Opacity, SO_2, NO_x, etc.)?
N/A

Complete the appropriate APC form(s) 4, 5, 7, 8, 9, or 10 for each source exhausting through this stack.

BYPASS STACK DESCRIPTION

13. Do you have a bypass stack?
_____ Yes X No

If yes, describe the conditions which require its use & complete APC form 4 for the bypass stack. Please identify the stack number(s) of flow diagram point number(s) exhausting through this bypass stack.

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TITLE V PERMIT APPLICATION
MISCELLANEOUS PROCESSES

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Process emission source (identify):**
(28-0025-06) Electric Arc Furnace No. 2

3. Stack ID or flow diagram point identification (s):
06-S1

4. Year of construction or last modification:
2005 (Installation of new baghouse

If the emissions are controlled for compliance, attach an appropriate Air Pollution Control system form.

5. Normal operating schedule: 24 Hrs./Day 6 Days/Wk. 312 Days/Yr.

6. Location of this process emission source in UTM coordinates: UTM Vertical: 3896.88 N UTM Horizontal: 494.57 E

7. Describe this process (Please attach a flow diagram of this process) and check one of the following:

[✓] Batch [ ] Continuous

PROCESS MATERIAL INPUT AND OUTPUT

8. List the types and amounts of raw materials input to this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Scrap Metal & Additives	Melting	7,220 lbs/hr	11,200 lbs/hr

9. List the types and amounts of primary products produced by this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Molten Metal	Ready for transfer to pouring ladles	7,220 lbs/hr	11,200 lbs/hr

10. Process fuel usage:

Type of fuel	Max heat input (10^6 BTU/Hr.)	Average usage (units)	Maximum usage (units)
N/A			

11. List any solvents, cleaners, etc., associated with this process:
N/A

If the emissions and/or operations of this process are monitored for compliance, please attach the appropriate Compliance Demonstration form.

12. Describe any fugitive emissions associated with this process, such as outdoor storage piles, open conveyors, open air sand blasting, material handling operations, etc. (please attach a separate sheet if necessary).
N/A

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TITLE V PERMIT APPLICATION
CONTROL EQUIPMENT - BAGHOUSES/FABRIC FILTERS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Emission source (identify):
(28-0025-06) Electric Arc Furnace #2 Melting Operation

3. Stack ID or flow diagram point identification(s):
06-S1

BAGHOUSE/FABRIC FILTER DESCRIPTION

4. Describe the device in use. List the key operating parameters of this device and their normal operating range.

50,000 cfm baghouse is used to control particulate emissions from the Electric Arc Furnace Operation. Gaseous emissions from this source are uncontrolled. The baghouse is operated at a minimum p of 1.0 inches of water as submitted in an Administrative Amendment on November 2, 2005.

5. Manufacturer and model number (if available):
Sly

6. Year of installation:
2005

7. List of pollutant(s) to be controlled and the expected control efficiency for each pollutant (see instructions).

Pollutant	Efficiency (%)	Source of data
Particulate	99	Engineering Estimate

8. Discuss how collected material is handled for reuse or disposal.
Captured particulate is disposed of in a landfill.

9. If the bags are coated, specify the material used for coating and frequency of coating
N/A

10. Does the baghouse collect asbestos containing material?
Yes [ ] No [✓]
If "Yes", provide data as outlined in Item 10, Instructions for this form.

11. If this control equipment is in series with some other control equipment, state and specify the overall efficiency.
N/A

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TITLE V PERMIT APPLICATION
COMPLIANCE CERTIFICATION - MONITORING AND REPORTING
DESCRIPTION OF METHODS USED FOR DETERMINING COMPLIANCE

All sources that are subject to 1200-03-09-.02(11) of the Tennessee Air Pollution Control Regulations are required to certify compliance with all applicable requirements by including a statement within the permit application of the methods used for determining compliance. This statement must include a description of the monitoring, recordkeeping, and reporting requirements and test methods. In addition, the application must include a schedule for compliance certification submittals during the permit term. These submittals must be no less frequent than annually and may need to be more frequent if specified by the underlying applicable requirement or the Technical Secretary.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.
2. Process emission source, fuel burning installation, or incinerator (identify): (28-0025-06) Electric Arc Furnace #2 Melting Operation
3. Stack ID or flowdiagram point identification(s): 06-S1

METHODS OF DETERMINING COMPLIANCE

4. This source as described under Item #2 of this application will use the following method(s) for determining compliance with applicable requirements (and special operating conditions from an existing permit). Check all that apply and attach the appropriate form(s)

[ ] Continuous Emission Monitoring (CEM) - APC 20
Pollutant(s):

[ ] Emission Monitoring Using Portable Monitors - APC 21
Pollutant(s):

[✓] Monitoring Control System Parameters or Operating Parameters of a Process - APC 22
Pollutant(s): Opacity

[ ] Monitoring Maintenance Procedures - APC 23
Pollutant(s):

[ ] Stack Testing - APC 24
Pollutant(s):

[ ] Fuel Sampling & Analysis (FSA) - APC 25
Pollutant(s):

[✓] Recordkeeping - APC 26
Pollutant(s): Particulates, SO2, NOx, CO, VOC, HAPs

[ ] Other (please describe) - APC 27
Pollutant(s):

5. Compliance certification reports will be submitted to the Division according to the following schedule:
Start date: Per the Title V permit.
And every _____ days thereafter.

6. Compliance monitoring reports will be submitted to the Division according to the following schedule:
Start date: Per the Title V permit.
And every _____ days thereafter.

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TITLE V PERMIT APPLICATION - COMPLIANCE DEMONSTRATION BY MONITORING CONTROL SYSTEM PARAMETERS OR OPERATING PARAMETERS OF A PROCESS

The monitoring of a control system parameter or a process parameter shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value and the emission rate of a particular pollutant is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s)
06-S1 Electric Arc Furnace #2

3. Emission source:
(28-0025-06) Electric Arc Furnace Melting Operation No. 2

MONITORING DESCRIPTION

4. Pollutant(s) being monitored:
Opacity

5. Description of the method of monitoring and establishment of correlation between the parameter value and the emission rate of a particular pollutant:

As per the initial Title V Permit term, and based on the opacity matrix decision tree, an initial 30 minute visible emission evaluation will be made using EPA Method 9 within one year of issuance. The number and timing of subsequent observations will be based on the results of the initial readings.

6. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
The frequency of visible emission evaluations will be determined as indicated in the Method 9 opacity decision tree.

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TITLE V PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY RECORDKEEPING

Recordkeeping shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value recorded and the applicable requirement is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s):
06-S1 Electric Arc Furnace #2

3. Emission source (identify):
(28-0025-06) Electric Arc Furnace No. 2

MONITORING AND RECORDKEEPING DESCRIPTION

4. Pollutant(s) or parameter being monitored:
Particulate, NOx, SO2, CO, VOCs, HAPs

5. Material or parameter being monitored and recorded:
Operator will maintain records of hours of operation, differences across the baghouse and the weight of metal melted in the EAF operation.

6. Method of monitoring and recording:

Daily records will be kept of the hours of operation, differences across the baghouse and the weight of metal melted in the EAF operation. The emissions will be estimated using the method shown on the attachment to APC V.28. A log of the maintenance performed on the baghouse will be kept as part of the PM compliance demonstration.

7. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
Daily

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TITLE V PERMIT APPLICATION
EMISSIONS FROM PROCESS EMISSION SOURCE / FUEL BURNING INSTALLATION / INCINERATOR

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flowdiagram point identification(s):
06-S1 Electric Arc Furnace #2

3. Process emission source / Fuel burning installation / Incinerator (identify):
(28-0025-06) Electric Arc Furnace No. 2 Melting Operation

EMISSIONS SUMMARY TABLE – CRITERIA AND FUGITIVE EMISSIONS

4. Complete the following emissions summary for regulated air pollutants. Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Particulate Matter (TSP)	16.8			
(Fugitive Emissions)				
Sulfur Dioxide	12.6			
(Fugitive Emissions)				
Volatile Organic Compounds	4.8			
(Fugitive Emissions)				
Carbon Monoxide	55.2			
(Fugitive Emissions)				
Lead				
(Fugitive Emissions)				
Nitrogen Oxides	2.76			
(Fugitive Emissions)				
Total Reduced Sulfur				
(Fugitive Emissions)				
Mercury				
(Fugitive Emissions)				

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(Continued from last page)

AIR POLLUTANT	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Asbestos				
(Fugitive Emissions)				
Beryllium				
(Fugitive Emissions)				
Vinyl Chloride				
(Fugitive Emissions)				
Fluorides				
(Fugitive Emissions)				
Gaseous Fluorides				
(Fugitive Emissions)				
Greenhouse Gases in CO_2 Equivalents				

EMISSIONS SUMMARY TABLE – FUGITIVE HAZARDOUS AIR POLLUTANTS

5. Complete the following emissions summary for regulated air pollutants that are hazardous air pollutant(s). Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant & CAS	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Particulate HAPs	1.26			
Particulate HAP emissions are				
included in the total TSP shown in				
number 4 above.				

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TITLE V PERMIT APPLICATION
CURRENT EMISSIONS REQUIREMENTS AND STATUS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Emission source number
Magotteaux Inc.	28-0025-06 Elecric Arc Furnace #2

3. Describe the process emission source / fuel burning installation / incinerator.

06, Electric Arc Furnace No. 2 - Electric Arc Furnace Melting Operation with baghouse control.

EMISSIONS AND REQUIREMENTS

4. Identify if only a part of the source is subject to this requirement	5. Pollutant	6. Applicable requirement(s): TN Air Pollution Control Regulations, 40 CFR, permit restrictions, air quality based standards	7. Limitation	8. Maximum actual emissions	9. Compliance status (In/Out)
	Sulfur Dioxide	Permit Condition E7-5	3.36 lbs/hr	< 3.36 lbs/hr	IN
	VOC	Permit Condition E7-6	1.96 lbs/hr and	< 1.96 lbs/hr and	IN
	Nitrogen	Permit Condition E7-7	1.12 lbs/hr and	< 1.12 lbs/hr and	IN
	Carbon	Permit Condition E7-8	22.4 lbs/hr and	< 22.4 lbs/hr and	IN
	Opacity	Permit Condition E3-20	20%	< 20%	IN
		Permit Condition E7-2	PWR input shall	11,200 lbs/hr I	IN
	Particulate	40 CFR 63 Subpart ZZZZZ	0.8 lb/Ton of	< 0.8 lb/Ton of	IN
	Particulate	40 CFR 63 Subpart ZZZZZ	0.06 lb/Ton of	0.06 LB/Ton of	IN
	Opacity	40 CFR 63 Subpart ZZZZZ	20%	< 20%	IN

10. Other applicable requirements (new requirements that apply to this source during the term of this permit)

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Attachment to APC V. 28

Magotteaux Inc.
Particulate and Particulate HAP Emission Calculations (28-0025-06)
Electric Arc Furnace No. 2

Allowable Particulate Emissions / Estimated HAP Emissions

Furnace#	Source#	Metal Input Tons/hr	Operation Hrs/yr	Total Thruput tons/yr	Emissions lbs/hr	Emissions Tons/yr	Particulate HAP Emissio lbs/hr	Particulate HAP Emissio Tons/yr
2	6	5.6	7500	42000	4.48	16.8	0.34	1.26

PM Based on MACT Allowable Emissions of 0.8 lb/T of Metal Charged
Maximum % HAP of Particulate Emissions based on MA 7.50%

Attachment to APC V.28

Magotteaux Inc.
Calculations: Electric Arc Furnace No. (28-0025-06)

Allowable - Hourly Limits for SO_2, VOC, NO_x, CO

Process Material Input Rate Limit (lbs/h 11200 Operating Time Limit (hrs/12 cons mo): 7500

Pollutant	Emissions Factor lbs/ton melted	Throughput Rate tons/hr	Emissions lbs/hr
SO_2	0.6	5.6	3.36
VOC	0.35	5.6	1.96
NOx	0.2	5.6	1.12
CO	4	5.6	22.4

Allowable - 12 Month Rolling Average Limits for VOC, NO_x, CO

Pollutant	Emissions Factor lbs/ton melted	Throughput Rate tons/month	Emissions tons/yr
VOC	0.35	2300	4.8
NOx	0.2	2300	2.76
CO	4	2300	55.2

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TITLE V PERMIT APPLICATION
STACK IDENTIFICATION

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Emission source (identify):**
28-0025-09 - Sand Plant

STACK DESCRIPTION

3. Stack ID (or flowdiagram point identification):
09-S1

4. Stack height above grade in feet:
48 feet

5. Velocity (data at exit conditions):
52.6 (Actual feet per second)

6. Inside dimensions at outlet in feet:
1.42 feet in diameter

7. Exhaust flowrate at exit conditions (ACFM):
5,000 CFM

8. Flow rate at standard conditions (DSCFM):
5,000 CFM

9. Exhaust temperature:
Ambient Degrees Fahrenheit (°F)

10. Moisture content (data at exit conditions):
_____ Percent _____ Grains per dry standard cubic foot (gr./dscf.)

11. Exhaust temperature that is equaled or exceeded during ninety (90) percent or more of the operating time (for stacks subject to diffusion equation only):
N/A (°F)

12. If this stack is equipped with continuous pollutant monitoring equipment required for compliance, what pollutant(s) does this equipment monitor (e.g., Opacity, SO_2, NO_x, etc.)?
N/A

Complete the appropriate APC form(s) 4, 5, 7, 8, 9, or 10 for each source exhausting through this stack.

BYPASS STACK DESCRIPTION

13. Do you have a bypass stack?
_____ Yes X No

If yes, describe the conditions which require its use & complete APC form 4 for the bypass stack. Please identify the stack number(s) of flowdiagram point number(s) exhausting through this bypass stack.

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TITLE V PERMIT APPLICATION
MISCELLANEOUS PROCESSES

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Process emission source (identify):**
(28-0025-09)

3. Stack ID or flow diagram point identification (s):
09-S1

4. Year of construction or last modification:
Prior to 1977

If the emissions are controlled for compliance, attach an appropriate Air Pollution Control system form.

5. Normal operating schedule: 24 Hrs./Day 6 Days/Wk. 312 Days/Yr.

6. Location of this process emission source in UTM coordinates: UTM Vertical: 3896.88 N UTM Horizontal: 494.57 E

7. Describe this process (Please attach a flow diagram of this process) and check one of the following:

[✓] Batch [ ] Continuous

PROCESS MATERIAL INPUT AND OUTPUT

8. List the types and amounts of raw materials input to this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Molding Sand	Sand weighing and transfer	59,916 lbs/hr	84,375 lbs/hr
Bentonite		1,493 lbs/hr	4,528 lbs/hr
Carbon		363 lbs/hr	1,097 lbs/hr

9. List the types and amounts of primary products produced by this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Mixture		61,772 lbs/hr	90,000 lbs/hr

10. Process fuel usage:

Type of fuel	Max heat input (10^6 BTU/Hr.)	Average usage (units)	Maximum usage (units)
N/A			

11. List any solvents, cleaners, etc., associated with this process:
N/A

If the emissions and/or operations of this process are monitored for compliance, please attach the appropriate Compliance Demonstration form.

12. Describe any fugitive emissions associated with this process, such as outdoor storage piles, open conveyors, open air sand blasting, material handling operations, etc. (please attach a separate sheet if necessary).
N/A

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TITLE V PERMIT APPLICATION
CONTROL EQUIPMENT - BAGHOUSES/FABRIC FILTERS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Emission source (identify):
28-0025-09

3. Stack ID or flowdiagram point identification (s):
09-S1

BAGHOUSE/FABRIC FILTER DESCRIPTION

4. Describe the device in use. List the key operating parameters of this device and their normal operating range.

5000 cfm baghouse is used to control particulate emissions from the Sand Plant. The baghouse is operated a difference greater than than the minimum difference of 1.69 inches of water.

5. Manufacturer and model number (if available):
Unavailiable

6. Year of installation:
1977

7. List of pollutant(s) to be controlled and the expected control efficiency for each pollutant (see instructions).

Pollutant	Efficiency (%)	Source of data
Particulate	99	Engineering Estimate

8. Discuss how collected material is handled for reuse or disposal.
Captured particulate is landfilled

9. If the bags are coated, specify the material used for coating and frequency of coating
N/A

10. Does the baghouse collect asbestos containing material?
Yes [ ] No [✓]
If "Yes", provide data as outlined in Item 10, Instructions for this form.

11. If this control equipment is in series with some other control equipment, state and specify the overall efficiency.
N/A

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William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
COMPLIANCE CERTIFICATION - MONITORING AND REPORTING
DESCRIPTION OF METHODS USED FOR DETERMINING COMPLIANCE

All sources that are subject to 1200-03-09-.02(11) of the Tennessee Air Pollution Control Regulations are required to certify compliance with all applicable requirements by including a statement within the permit application of the methods used for determining compliance. This statement must include a description of the monitoring, recordkeeping, and reporting requirements and test methods. In addition, the application must include a schedule for compliance certification submittals during the permit term. These submittals must be no less frequent than annually and may need to be more frequent if specified by the underlying applicable requirement or the Technical Secretary.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.
2. Process emission source, fuel burning installation, or incinerator (identify): 28-0025-09 Sand Plant
3. Stack ID or flowdiagram point identification(s): 09-S1

METHODS OF DETERMINING COMPLIANCE

4. This source as described under Item #2 of this application will use the following method(s) for determining compliance with applicable requirements (and special operating conditions from an existing permit). Check all that apply and attach the appropriate form(s)

[ ] Continuous Emission Monitoring (CEM) - APC 20
Pollutant(s):

[ ] Emission Monitoring Using Portable Monitors - APC 21
Pollutant(s):

[✓] Monitoring Control System Parameters or Operating Parameters of a Process - APC 22
Pollutant(s): Particulate

[ ] Monitoring Maintenance Procedures - APC 23
Pollutant(s):

[ ] Stack Testing - APC 24
Pollutant(s):

[ ] Fuel Sampling & Analysis (FSA) - APC 25
Pollutant(s):

[✓] Recordkeeping - APC 26
Pollutant(s): Particulate

[✓] Other (please describe) - APC 27
Pollutant(s): Opacity

5. Compliance certification reports will be submitted to the Division according to the following schedule:

Start date: Per the Title V permit

And every _____ days thereafter.

6. Compliance monitoring reports will be submitted to the Division according to the following schedule:

Start date: Per the Title V permit

And every _____ days thereafter.

7. Page number: 43 Revision number: Date of revision: 04/09/19

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
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TITLE V PERMIT APPLICATION - COMPLIANCE DEMONSTRATION BY MONITORING CONTROL SYSTEM PARAMETERS OR OPERATING PARAMETERS OF A PROCESS

The monitoring of a control system parameter or a process parameter shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value and the emission rate of a particular pollutant is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s)
09-S1 Sand Plant

3. Emission source:
28-0025-09 Sand Plant

MONITORING DESCRIPTION

4. Pollutant(s) being monitored:
Particulate

5. Description of the method of monitoring and establishment of correlation between the parameter value and the emission rate of a particular pollutant:

A daily log of pressure drop, in inches of water, will be maintained.

6. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
In accordance with the opacity matrix, no readings are required.

7. Page number: 44 Revision number: Date of revision: 04/09/19

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TITLE V PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY RECORDKEEPING

Recordkeeping shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value recorded and the applicable requirement is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s):
09-S1 Sand Plant

3. Emission source (identify):
28-0025-09 Sand Plant

MONITORING AND RECORDKEEPING DESCRIPTION

4. Pollutant(s) or parameter being monitored:
Particulate Emissions

5. Material or parameter being monitored and recorded:
Operator will maintain records of the hours of operation and differences across the baghouse.

6. Method of monitoring and recording:
A daily log of the hours of operation and material throughput will be maintained in order to calculate the hourly throughput, daily average basis.

7. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
Daily

8. Page number: 45 Revision number: Date of revision: 04/09/19

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TITLE V PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY OTHER METHOD(S)

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Stack ID or flow diagram point identification(s):
Magotteaux Inc.	09-S1 Sand Plant

3. Emission source (identify):

28-0025-09 Sand Plant

MONITORING DESCRIPTION

4. Pollutant(s) or parameter being monitored:

Opacity

5. Description of the method of monitoring:

In accordance with the Opacity Matrix

6. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):

In accordance with the opacity matrix, the frequency will be determined following the first required visible emissions evaluation.

7. Page number:	Revision number:	Date of revision:
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TITLE V PERMIT APPLICATION
EMISSIONS FROM PROCESS EMISSION SOURCE / FUEL BURNING INSTALLATION / INCINERATOR

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Stack ID or flow diagram point identification(s):
Magotteaux Inc.	09-S1 Sand Plant

3. Process emission source / Fuel burning installation / Incinerator (identify):
28-0025-09

EMISSIONS SUMMARY TABLE – CRITERIA AND FUGITIVE EMISSIONS

4. Complete the following emissions summary for regulated air pollutants. Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Particulate Matter (TSP)	3.22			
(Fugitive Emissions)				
Sulfur Dioxide				
(Fugitive Emissions)				
Volatile Organic Compounds				
(Fugitive Emissions)				
Carbon Monoxide				
(Fugitive Emissions)				
Lead				
(Fugitive Emissions)				
Nitrogen Oxides				
(Fugitive Emissions)				
Total Reduced Sulfur				
(Fugitive Emissions)				
Mercury				
(Fugitive Emissions)				

(Continued on next page)

(Continued from last page)

AIR POLLUTANT	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Asbestos				
(Fugitive Emissions)				
Beryllium				
(Fugitive Emissions)				
Vinyl Chloride				
(Fugitive Emissions)				
Fluorides				
(Fugitive Emissions)				
Gaseous Fluorides				
(Fugitive Emissions)				
Greenhouse Gases in CO_2 Equivalents				

EMISSIONS SUMMARY TABLE – FUGITIVE HAZARDOUS AIR POLLUTANTS

5. Complete the following emissions summary for regulated air pollutants that are hazardous air pollutant(s). Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant & CAS	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)

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TITLE V PERMIT APPLICATION
CURRENT EMISSIONS REQUIREMENTS AND STATUS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Emission source number
Magotteaux Inc.	28-0025-09 Sand Plant

3. Describe the process emission source / fuel burning installation / incinerator.

Sand Plant

EMISSIONS AND REQUIREMENTS

4. Identify if only a part of the source is subject to this requirement	5. Pollutant	6. Applicable requirement(s): TN Air Pollution Control Regulations, 40 CFR, permit restrictions, air quality based standards	7. Limitation	8. Maximum actual emissions	9. Compliance status (In/Out)
	Particulate	Permit Conditions E8-1 and E8-2	< 0.86 lbs/hr	< 0.86 lbs/hr	IN
	Opacity	Permit Condition E3-3	20%	< 20 %	IN

10. Other applicable requirements (new requirements that apply to this source during the term of this permit)

11. Page number: 49 Revision number: Date of revision: 04/09/19

Attachment to APC V. 28
Method of Monitoring and Recording: Sand Plant (28-0025-09)

Maximum Allowable Particulate Emissions

Magotteaux Inc. has agreed to an allowable particulate emission limit of 0.86 lbs/hr and 7,488 hours of operation per year.

E = (7,488 hours/yr)(0.86 lbs/hr)(1 ton/2000 lbs) = 3.22 tons/yr

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TITLE V PERMIT APPLICATION
STACK IDENTIFICATION

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Emission source (identify):**
(28-0025-10) Heat Treat Furnace No. 2 - 12.4 MMBtu/hr Natural Gas Fired

STACK DESCRIPTION

3. Stack ID (or flowdiagram point identification):
10-S1

4. Stack height above grade in feet:
44 feet

5. Velocity (data at exit conditions):
4.65 (Actual feet per second)

6. Inside dimensions at outlet in feet:
2.33' dia

7. Exhaust flowrate at exit conditions (ACFM):
1190 cfm

8. Flow rate at standard conditions (DSCFM):
920 cfm

9. Exhaust temperature:
225 Degrees Fahrenheit (°F)

10. Moisture content (data at exit conditions):
< 1% Percent _____ Grains per dry standard cubic foot (gr./dscf.)

11. Exhaust temperature that is equaled or exceeded during ninety (90) percent or more of the operating time (for stacks subject to diffusion equation only):
N/A (°F)

12. If this stack is equipped with continuous pollutant monitoring equipment required for compliance, what pollutant(s) does this equipment monitor (e.g., Opacity, SO_2, NO_x, etc.)?
N/A

Complete the appropriate APC form(s) 4, 5, 7, 8, 9, or 10 for each source exhausting through this stack.

BYPASS STACK DESCRIPTION

13. Do you have a bypass stack?
_____ Yes X No

If yes, describe the conditions which require its use & complete APC form 4 for the bypass stack. Please identify the stack number(s) of flowdiagram point number(s) exhausting through this bypass stack.

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TITLE V PERMIT APPLICATION
FUEL BURNING NON-PROCESS EQUIPMENT

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Stack ID or flow diagram point identification (s):**
10-S1

FUEL BURNING EQUIPMENT DESCRIPTION

3. List all fuel burning equipment that is at this fuel burning installation (please complete an APC 4 form for each piece of fuel burning equipment).
(28-002-10) Heat Treat Furnace No. 2 - 12.4 MMBtu/hr Natural Gas Fired Heat Treatment Furnace for Castings

4. Fuel burning equipment identification number:
10-B1

5. Fuel burning equipment description:
Process consists of heat treating of castings. Castings are heated in a pusher tray furnace with a total burner capacity of 12.4 MMBtu/hr

6. Year of installation or last modification of fuel burning equipment.
1975

7. Furnace type:
Direct Fired Natural Gas Burner

8. Manufacturer model number (if available):
Custom Fabricated Locally

9. Location of this fuel burning installation in UTM coordinates: UTM Vertical: 3896.88 N UTM Horizontal: 494.57 E

10. Normal operating schedule: 24 Hrs./Day 7 Days/Wk. 365 Days/Yr.

FUELS, CONTROLS, AND MONITORING DESCRIPTION

11. Maximum rated heat input capacity (in million BTU/Hour)
12.4 MMBtu/hr

12. If wood is used as a fuel, specify the amount of wood used as a fraction of total heat input.
N/A

13. Fuels:	Primary fuel	Backup fuel #1	Backup fuel #2	Backup fuel #3
Fuel name	Natural Gas	N/A	N/A	N/A
Actual yearly consumption	29.63 MM cu. ft./yr			

14. If emissions from this fuel burning equipment are controlled for compliance, please specify the type of control:
N/A

15. If emissions from this fuel burning equipment are monitored for compliance, please specify the type of monitoring:
N/A

16. Describe any fugitive emissions associated with this process, such as outdoor storage piles, open conveyors, material handling operations, etc. (please attach a separate sheet if necessary).
N/A

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TITLE V PERMIT APPLICATION
COMPLIANCE CERTIFICATION - MONITORING AND REPORTING
DESCRIPTION OF METHODS USED FOR DETERMINING COMPLIANCE

All sources that are subject to 1200-03-09-.02(11) of the Tennessee Air Pollution Control Regulations are required to certify compliance with all applicable requirements by including a statement within the permit application of the methods used for determining compliance. This statement must include a description of the monitoring, recordkeeping, and reporting requirements and test methods. In addition, the application must include a schedule for compliance certification submittals during the permit term. These submittals must be no less frequent than annually and may need to be more frequent if specified by the underlying applicable requirement or the Technical Secretary.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.
2. Process emission source, fuel burning installation, or incinerator (identify): (28-0025-10) Heat Treat Furnace No. 2
3. Stack ID or flow diagram point identification(s): 10-S1

METHODS OF DETERMINING COMPLIANCE

4. This source as described under Item #2 of this application will use the following method(s) for determining compliance with applicable requirements (and special operating conditions from an existing permit). Check all that apply and attach the appropriate form(s)

- [ ] Continuous Emission Monitoring (CEM) - APC 20
  Pollutant(s):
- [ ] Emission Monitoring Using Portable Monitors - APC 21
  Pollutant(s):
- [✓] Monitoring Control System Parameters or Operating Parameters of a Process - APC 22
  Pollutant(s): Opacity
- [ ] Monitoring Maintenance Procedures - APC 23
  Pollutant(s):
- [ ] Stack Testing - APC 24
  Pollutant(s):
- [ ] Fuel Sampling & Analysis (FSA) - APC 25
  Pollutant(s):
- [✓] Recordkeeping - APC 26
  Pollutant(s): Particulate, Sulfur Dioxide, Nitrogen Oxides, VOCs, Carbon Monoxide
- [ ] Other (please describe) - APC 27
  Pollutant(s):

5. Compliance certification reports will be submitted to the Division according to the following schedule:
   Start date: Per the Title V permit.
   And every _____ days thereafter.
6. Compliance monitoring reports will be submitted to the Division according to the following schedule:
   Start date: Per the Title V permit.
   And every _____ days thereafter.
7. Page number: 53 Revision number: Date of revision: 04/09/19

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TITLE V PERMIT APPLICATION - COMPLIANCE DEMONSTRATION BY MONITORING CONTROL SYSTEM PARAMETERS OR OPERATING PARAMETERS OF A PROCESS

The monitoring of a control system parameter or a process parameter shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value and the emission rate of a particular pollutant is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s)
10-S1 Heat Treat Furnace No. 2

3. Emission source:
28-0025-10 Heat Treat Furnace No. 2

MONITORING DESCRIPTION

4. Pollutant(s) being monitored:
Opacity

5. Description of the method of monitoring and establishment of correlation between the parameter value and the emission rate of a particular pollutant:

Based on the opacity matrix decision tree for EPA Method 9, no opacity readings are required for natural gas combustion sources.

6. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):

In accordance with the opacity matrix, no readings are required.

7. Page number: 54 Revision number: Date of revision: 04/09/19

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TITLE V PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY RECORDKEEPING

Recordkeeping shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value recorded and the applicable requirement is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s):
10-S1 Heat Treat Furnace No. 2

3. Emission source (identify):
(28-0025-10) Heat Treat Furnace No. 2

MONITORING AND RECORDKEEPING DESCRIPTION

4. Pollutant(s) or parameter being monitored:
Particulate, SOx, NOx, CO, VOC

5. Material or parameter being monitored and recorded:
Operator will maintain monthly records of the amount of natural gas consumed in MM cuft.

6. Method of monitoring and recording:
Monthly records will be kept of the amount of natural gas burned. The emissions will be estimated using AP-42 factors as shown on the attachment to APC V.28.

7. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
Monthly

8. Page number: 55 | Revision number: | Date of revision: 04/09/19

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TITLE V PERMIT APPLICATION
EMISSIONS FROM PROCESS EMISSION SOURCE / FUEL BURNING INSTALLATION / INCINERATOR

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Stack ID or flowdiagram point identification(s):
Magotteaux Inc.	10-S1 Heat Treat Furnace No. 2

3. Process emission source / Fuel burning installation / Incinerator (identify):
(28-0025-10) Heat Treat Furnace No. 2

EMISSIONS SUMMARY TABLE – CRITERIA AND FUGITIVE EMISSIONS

4. Complete the following emissions summary for regulated air pollutants. Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Particulate Matter (TSP)	0.44			
(Fugitive Emissions)				
Sulfur Dioxide	0.04			
(Fugitive Emissions)				
Volatile Organic Compounds	0.31			
(Fugitive Emissions)				
Carbon Monoxide	4.56			
(Fugitive Emissions)				
Lead				
(Fugitive Emissions)				
Nitrogen Oxides	5.43			
(Fugitive Emissions)				
Total Reduced Sulfur				
(Fugitive Emissions)				
Mercury				
(Fugitive Emissions)				

(Continued on next page)

(Continued from last page)

AIR POLLUTANT	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Asbestos				
(Fugitive Emissions)				
Beryllium				
(Fugitive Emissions)				
Vinyl Chloride				
(Fugitive Emissions)				
Fluorides				
(Fugitive Emissions)				
Gaseous Fluorides				
(Fugitive Emissions)				
Greenhouse Gases in CO_2 Equivalents				

EMISSIONS SUMMARY TABLE – FUGITIVE HAZARDOUS AIR POLLUTANTS

5. Complete the following emissions summary for regulated air pollutants that are hazardous air pollutant(s). Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant & CAS	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)

6. Page number: 57 Revision number: Date of revision 04/09/19

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TITLE V PERMIT APPLICATION
CURRENT EMISSIONS REQUIREMENTS AND STATUS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Emission source number
Magotteaux Inc.	28-0025-10 Heat Treat Furnace No. 2

3. Describe the process emission source / fuel burning installation / incinerator.

Heat Treat Furnace No. 2 - 12.4 MMBtu/hr Natural Gas Fired Furnace used to heat castings prior to quenching.

EMISSIONS AND REQUIREMENTS

4. Identify if only a part of the source is subject to this requirement	5. Pollutant	6. Applicable requirement(s): TN Air Pollution Control Regulations, 40 CFR, permit restrictions, air quality based standards	7. Limitation	8. Maximum actual emissions	9. Compliance status (In/Out)
	Particulate	Permit Condition E9-1	0.09 lbs/hr	< 0.09 lbs/hr	IN
	SO2	Permit Condition E9-2	0.01 lbs/hr	< 0.01 lbs/hr	IN
	Opacity	Permit Condition E3-3	20 %	< 20 %	IN
	VOC	Permit Condition E9-2	0.07 lbs/hr	< 0.07 lbs/hr	IN
	NOx	Permit Condition E9-2	1.24 lbs/hr	< 1.24 lbs/hr	IN

10. Other applicable requirements (new requirements that apply to this source during the term of this permit)

11. Page number: 58 Revision number: Date of revision: 04/09/19

Attachment to APC V. 28, Emission from Fuel Burning Installation

Magotteaux Inc.
Emissions from Heat Treat Furnace No. 2 (28-0025-10)

ALLOWABLE EMISSIONS

Heat Cap. MM Btu/hr	Operation Hrs/yr	Total Heat MM Btu/yr	Vol. Gas MM cu. ft./yr
12.4	8760	108624	108.624

Pollutant	Emission Factor lb/MM cu. ft.	Total Emission TPY	lbs/hr
PM_{10}	7.6	0.44	0.09
SO_2	0.6	0.04	0.01
NO_x	100	5.43	1.24
CO	84	4.56	1.04
VOC	5.5	0.31	0.07

(Source of Emission Factors - Section 1.4, - Natural Gas Combustion, AP-42, 5th Ed., 7/98)
Based on natural gas heating value of 1,000 Btu/scf

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TITLE V PERMIT APPLICATION
STACK IDENTIFICATION

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**

Magotteaux Inc.

2. **Emission source (identify):**

(28-0025-20) 200 ton capacity Sand Silo with bin vent fabric filter.

STACK DESCRIPTION

3. Stack ID (or flow diagram point identification):

20-S1

4. Stack height above grade in feet:

35 feet

5. Velocity (data at exit conditions): 1 (Actual feet per second)	6. Inside dimensions at outlet in feet: 0.33 x 1.75
7. Exhaust flow rate at exit conditions (ACFM): 40 CFM	8. Flow rate at standard conditions (DSCFM): 40 CFM
9. Exhaust temperature: ambient Degrees Fahrenheit (°F)	10. Moisture content (data at exit conditions): ambient Percent ____ Grains per dry standard cubic foot (gr./dscf.)

11. Exhaust temperature that is equaled or exceeded during ninety (90) percent or more of the operating time (for stacks subject to diffusion equation only):

ambient (°F)

12. If this stack is equipped with continuous pollutant monitoring equipment required for compliance, what pollutant(s) does this equipment monitor (e.g., Opacity, SO_2, NO_x, etc.)?

N/A

Complete the appropriate APC form(s) 4, 5, 7, 8, 9, or 10 for each source exhausting through this stack.

BYPASS STACK DESCRIPTION

13. Do you have a bypass stack?

____ Yes X No

If yes, describe the conditions which require its use & complete APC form 4 for the bypass stack. Please identify the stack number(s) of flow diagram point number(s) exhausting through this bypass stack.

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TITLE V PERMIT APPLICATION
MISCELLANEOUS PROCESSES

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Process emission source (identify):**
28-0025-20 (200 Ton Sand Silo)

3. Stack ID or flow diagram point identification (s):
20-S1

4. Year of construction or last modification:
1996

If the emissions are controlled for compliance, attach an appropriate Air Pollution Control system form.

5. Normal operating schedule: 24 Hrs./Day 7 Days/Wk. 365 Days/Yr.

6. Location of this process emission source in UTM coordinates: UTM Vertical: 3896.88 N UTM Horizontal: 494.57 E

7. Describe this process (Please attach a flow diagram of this process) and check one of the following:

[✓] Batch [ ] Continuous

PROCESS MATERIAL INPUT AND OUTPUT

8. List the types and amounts of raw materials input to this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Silica Sand	Filling a Silo	200 tons/hr	200 tons/hr

9. List the types and amounts of primary products produced by this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Silica Sand		200 tons/hr	200 tons/hr

10. Process fuel usage:

Type of fuel	Max heat input (10^6 BTU/Hr.)	Average usage (units)	Maximum usage (units)
N/A			

11. List any solvents, cleaners, etc., associated with this process:
N/A

If the emissions and/or operations of this process are monitored for compliance, please attach the appropriate Compliance Demonstration form.

12. Describe any fugitive emissions associated with this process, such as outdoor storage piles, open conveyors, open air sand blasting, material handling operations, etc. (please attach a separate sheet if necessary).
N/A

13. Page number: 61 Revision Number: Date of Revision: 04/09/19

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TITLE V PERMIT APPLICATION
COMPLIANCE CERTIFICATION - MONITORING AND REPORTING
DESCRIPTION OF METHODS USED FOR DETERMINING COMPLIANCE

All sources that are subject to 1200-03-09-.02(11) of the Tennessee Air Pollution Control Regulations are required to certify compliance with all applicable requirements by including a statement within the permit application of the methods used for determining compliance. This statement must include a description of the monitoring, recordkeeping, and reporting requirements and test methods. In addition, the application must include a schedule for compliance certification submittals during the permit term. These submittals must be no less frequent than annually and may need to be more frequent if specified by the underlying applicable requirement or the Technical Secretary.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.
2. Process emission source, fuel burning installation, or incinerator (identify): (28-0025-20) 200 ton capacity Sand Silo with bin vent fabric filter.
3. Stack ID or flowdiagram point identification(s): 20-S1

METHODS OF DETERMINING COMPLIANCE

4. This source as described under Item #2 of this application will use the following method(s) for determining compliance with applicable requirements (and special operating conditions from an existing permit). Check all that apply and attach the appropriate form(s)

- [ ] Continuous Emission Monitoring (CEM) - APC 20
  Pollutant(s):
- [ ] Emission Monitoring Using Portable Monitors - APC 21
  Pollutant(s):
- [✓] Monitoring Control System Parameters or Operating Parameters of a Process - APC 22
  Pollutant(s): Opacity
- [ ] Monitoring Maintenance Procedures - APC 23
  Pollutant(s):
- [ ] Stack Testing - APC 24
  Pollutant(s):
- [ ] Fuel Sampling & Analysis (FSA) - APC 25
  Pollutant(s):
- [✓] Recordkeeping - APC 26
  Pollutant(s): Particulate
- [ ] Other (please describe) - APC 27
  Pollutant(s):

5. Compliance certification reports will be submitted to the Division according to the following schedule:
   Start date: Per the Title V permit.
   And every _____ days thereafter.
6. Compliance monitoring reports will be submitted to the Division according to the following schedule:
   Start date: Per the Title V permit.
   And every _____ days thereafter.
7. Page number: 62 Revision number: Date of revision: 04/09/19

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION - COMPLIANCE DEMONSTRATION BY MONITORING CONTROL SYSTEM PARAMETERS OR OPERATING PARAMETERS OF A PROCESS

The monitoring of a control system parameter or a process parameter shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value and the emission rate of a particular pollutant is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s)
20-S1 (200 Ton Sand Silo)

3. Emission source:
(28-0025-20) 200 ton capacity Sand Silo with bin vent fabric filler.

MONITORING DESCRIPTION

4. Pollutant(s) being monitored:
Opacity

5. Description of the method of monitoring and establishment of correlation between the parameter value and the emission rate of a particular pollutant:

Based on the opacity matrix decision tree for EPA Method 9, no opacity readings are required for sources with an allowable limit of less than 10 tons per year.

6. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):

In accordance with the opacity matrix, no readings are required.

7. Page number: 63 | Revision number: | Date of revision: 04/09/19

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY RECORDKEEPING

Recordkeeping shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value recorded and the applicable requirement is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s):
20-S1 (200 Tons Sand Silo)

3. Emission source (identify):
(28-0025-20) 200 ton capacity Sand Silo with bin vent fabric filler.

MONITORING AND RECORDKEEPING DESCRIPTION

4. Pollutant(s) or parameter being monitored:
Particulate Emissions

5. Material or parameter being monitored and recorded:
Maintenance and inspection records

6. Method of monitoring and recording:
Manual records of semiannual inspections and maintenance performed on the bin vent filter.

7. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
Semiannually

8. Page number: 64 | Revision number: | Date of revision: 04/09/19

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
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Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
EMISSIONS FROM PROCESS EMISSION SOURCE / FUEL BURNING INSTALLATION / INCINERATOR

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Stack ID or flow diagram point identification(s):
Magotteaux Inc.	20-S1 (200 Ton Sand Silo)

3. Process emission source / Fuel burning installation / Incinerator (identify):
(28-0025-20) 200 ton capacity Sand Silo with bin vent fabric filter

EMISSIONS SUMMARY TABLE – CRITERIA AND FUGITIVE EMISSIONS

4. Complete the following emissions summary for regulated air pollutants. Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Particulate Matter (TSP)	0.03			
(Fugitive Emissions)				
Sulfur Dioxide				
(Fugitive Emissions)				
Volatile Organic Compounds				
(Fugitive Emissions)				
Carbon Monoxide				
(Fugitive Emissions)				
Lead				
(Fugitive Emissions)				
Nitrogen Oxides				
(Fugitive Emissions)				
Total Reduced Sulfur				
(Fugitive Emissions)				
Mercury				
(Fugitive Emissions)				

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AIR POLLUTANT	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Asbestos				
(Fugitive Emissions)				
Beryllium				
(Fugitive Emissions)				
Vinyl Chloride				
(Fugitive Emissions)				
Fluorides				
(Fugitive Emissions)				
Gaseous Fluorides				
(Fugitive Emissions)				
Greenhouse Gases in CO_2 Equivalents				

EMISSIONS SUMMARY TABLE – FUGITIVE HAZARDOUS AIR POLLUTANTS

5. Complete the following emissions summary for regulated air pollutants that are hazardous air pollutant(s). Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant & CAS	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
N/A				

6. Page number: 66 Revision number: Date of revision 04/09/19

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TITLE V PERMIT APPLICATION
CURRENT EMISSIONS REQUIREMENTS AND STATUS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Emission source number
Magotteaux Inc.	28-0025-20 (200 Ton Sand Silo)

3. Describe the process emission source / fuel burning installation / incinerator.

200 ton capacity Sand Silo with bin vent fabric filter.

EMISSIONS AND REQUIREMENTS

4. Identify if only a part of the source is subject to this requirement	5. Pollutant	6. Applicable requirement(s): TN Air Pollution Control Regulations, 40 CFR, permit restrictions, air quality based standards	7. Limitation	8. Maximum actual emissions	9. Compliance status (In/Out)
	Particulate	Permit Condition E10-1	0.0069 lbs/hr	< 0.0069 lbs/hr	IN
	Opacity	Permit Condition E3-20	20%	< 20%	IN

10. Other applicable requirements (new requirements that apply to this source during the term of this permit)

11. Page number: 67 Revision number: Date of revision: 04/09/19

Attachment to APC V.28
Method of Monitoring and Recording: 200 Ton Capacity Sand Silo (28-0025-20)

Based on the assumption that the volumetric throughput of sand in the silo is equal to the volume of air displaced through the vent, and a silo filling rate of 1 hour, or 200 ton/hr with a specific weight of 165 lbs/cu. ft. and 8760 operating hours per year, the emissions can be estimated as follows;

Allowable Emissions:

Magotteaux Inc. has agreed to an allowable limit of 0.0069 lbs/hr.

(200 ton/hr)(2000 lbs/ton)(1 cu. ft./165 lb)(0.02 gr/cu. ft.)(1 lb/7000 gr) = 0.0069 lbs/hr = 0.03 tons/yr

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TITLE V PERMIT APPLICATION
STACK IDENTIFICATION

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Emission source (identify):**
(28-0025-21) 150 ton capacity Sand Silo with bin vent fabric filter.

STACK DESCRIPTION

3. Stack ID (or flowdiagram point identification):
21-S1

4. Stack height above grade in feet:
50 feet

5. Velocity (data at exit conditions):
1 (Actual feet per second)

6. Inside dimensions at outlet in feet:
7" x 21"

7. Exhaust flowrate at exit conditions (ACFM):
30.3 CFM

8. Flow rate at standard conditions (DSCFM):
30.3 CFM

9. Exhaust temperature:
ambient Degrees Fahrenheit (°F)

10. Moisture content (data at exit conditions):
ambient Percent _____ Grains per dry standard cubic foot (gr./dscf.)

11. Exhaust temperature that is equaled or exceeded during ninety (90) percent or more of the operating time (for stacks subject to diffusion equation only):
ambient (°F)

12. If this stack is equipped with continuous pollutant monitoring equipment required for compliance, what pollutant(s) does this equipment monitor (e.g., Opacity, SO_2, NO_x, etc.)?
N/A

Complete the appropriate APC form(s) 4, 5, 7, 8, 9, or 10 for each source exhausting through this stack.

BYPASS STACK DESCRIPTION

13. Do you have a bypass stack?
_____ Yes X No

If yes, describe the conditions which require its use & complete APC form 4 for the bypass stack. Please identify the stack number(s) of flowdiagram point number(s) exhausting through this bypass stack.

14. Page number: 69 Revision Number: Date of Revision: 04/09/19

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TITLE V PERMIT APPLICATION
MISCELLANEOUS PROCESSES

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Process emission source (identify):**
28-0025-21 (150 Ton Sand Silo)

3. Stack ID or flowdiagram point identification(s):
21-S1

4. Year of construction or last modification:
1980

If the emissions are controlled for compliance, attach an appropriate Air Pollution Control system form.

5. Normal operating schedule: 24 Hrs./Day 7 Days/Wk. 365 Days/Yr.

6. Location of this process emission source in UTM coordinates: UTM Vertical: 3896.88 N UTM Horizontal: 494.57 E

7. Describe this process (Please attach a flowdiagram of this process) and check one of the following:

[✓] Batch [ ] Continuous

PROCESS MATERIAL INPUT AND OUTPUT

8. List the types and amounts of raw materials input to this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Silica Sand	Filling of Silo	150 ton/hr	150 ton/hr

9. List the types and amounts of primary products produced by this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Silica Sand		150 ton/hr	150 ton/hr

10. Process fuel usage:

Type of fuel	Max heat input (10^6 BTU/Hr.)	Average usage (units)	Maximum usage (units)
N/A			

11. List any solvents, cleaners, etc., associated with this process:
N/A

If the emissions and/or operations of this process are monitored for compliance, please attach the appropriate Compliance Demonstration form.

12. Describe any fugitive emissions associated with this process, such as outdoor storage piles, open conveyors, open air sand blasting, material handling operations, etc. (please attach a separate sheet if necessary).
N/A

13. Page number: 70 Revision Number: Date of Revision: 04/09/19

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Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
CONTROL EQUIPMENT - BAGHOUSES/FABRIC FILTERS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Emission source (identify):
28-0025-21 (150 Ton Sand Silo)

3. Stack ID or flowdiagram point identification (s):
21-S1

BAGHOUSE/FABRIC FILTER DESCRIPTION

4. Describe the device in use. List the key operating parameters of this device and their normal operating range.

150 ton capacity sand silo - Silo is used to store sand prior to use. Silo is equipped with a bin vent fabric filter.

5. Manufacturer and model number (if available):
Unavailiable

6. Year of installation:
1980

7. List of pollutant(s) to be controlled and the expected control efficiency for each pollutant (see instructions).

Pollutant	Efficiency (%)	Source of data
Particulate	99	Engineering Estimate

8. Discuss how collected material is handled for reuse or disposal.
Trapped particles fall back into silo.

9. If the bags are coated, specify the material used for coating and frequency of coating
N/A

10. Does the baghouse collect asbestos containing material?

Yes [ ] No [✓]

If "Yes", provide data as outlined in Item 10, Instructions for this form.

11. If this control equipment is in series with some other control equipment, state and specify the overall efficiency.
N/A

12. Page number: 71 Revision Number: Date of Revision:

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
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TITLE V PERMIT APPLICATION
COMPLIANCE CERTIFICATION - MONITORING AND REPORTING
DESCRIPTION OF METHODS USED FOR DETERMINING COMPLIANCE

All sources that are subject to 1200-03-09-.02(11) of the Tennessee Air Pollution Control Regulations are required to certify compliance with all applicable requirements by including a statement within the permit application of the methods used for determining compliance. This statement must include a description of the monitoring, recordkeeping, and reporting requirements and test methods. In addition, the application must include a schedule for compliance certification submittals during the permit term. These submittals must be no less frequent than annually and may need to be more frequent if specified by the underlying applicable requirement or the Technical Secretary.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.
2. Process emission source, fuel burning installation, or incinerator (identify): 150 ton capacity Sand Silo with bin vent fabric filter
3. Stack ID or flowdiagram point identification(s): 21-S1

METHODS OF DETERMINING COMPLIANCE

4. This source as described under Item #2 of this application will use the following method(s) for determining compliance with applicable requirements (and special operating conditions from an existing permit). Check all that apply and attach the appropriate form(s)

- [ ] Continuous Emission Monitoring (CEM) - APC 20
  Pollutant(s):
- [ ] Emission Monitoring Using Portable Monitors - APC 21
  Pollutant(s):
- [✓] Monitoring Control System Parameters or Operating Parameters of a Process - APC 22
  Pollutant(s): Opacity
- [ ] Monitoring Maintenance Procedures - APC 23
  Pollutant(s):
- [ ] Stack Testing - APC 24
  Pollutant(s):
- [ ] Fuel Sampling & Analysis (FSA) - APC 25
  Pollutant(s):
- [✓] Recordkeeping - APC 26
  Pollutant(s): Particulate
- [ ] Other (please describe) - APC 27
  Pollutant(s):

5. Compliance certification reports will be submitted to the Division according to the following schedule:
   Start date: Per the Title V permit
   And every _____ days thereafter.
6. Compliance monitoring reports will be submitted to the Division according to the following schedule:
   Start date: Per the Title V permit
   And every _____ days thereafter.
7. Page number: 72 Revision number: Date of revision: 04/09/19

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
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TITLE V PERMIT APPLICATION - COMPLIANCE DEMONSTRATION BY MONITORING CONTROL SYSTEM PARAMETERS OR OPERATING PARAMETERS OF A PROCESS

The monitoring of a control system parameter or a process parameter shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value and the emission rate of a particular pollutant is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s)
21-S1 (150 Ton Sand Silo)

3. Emission source:
(28-0025-21) 150 ton capacity Sand Silo with bin vent fabric filter.

MONITORING DESCRIPTION

4. Pollutant(s) being monitored:
Opacity

5. Description of the method of monitoring and establishment of correlation between the parameter value and the emission rate of a particular pollutant:

Based on the opacity matrix decision tree for EPA Method 9, no opacity readings are required for sources with an allowable limit of less than 10 tons per year.

6. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):

In accordance with the opacity matrix, no readings are required.

7. Page number: 73 Revision number: Date of revision: 04/09/19

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
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TITLE V PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY RECORDKEEPING

Recordkeeping shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value recorded and the applicable requirement is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s):
21-S1 (150 Ton Sand Silo)

3. Emission source (identify):
(28-0025-21) 150 ton capacity Sand Silo with bin vent fabric filter

MONITORING AND RECORDKEEPING DESCRIPTION

4. Pollutant(s) or parameter being monitored:
Particulate Emissions

5. Material or parameter being monitored and recorded:
Maintenance and inspection records

6. Method of monitoring and recording:
Manual records of semiannual inspections and maintenance performed on the bin vent filter.

7. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
Semiannually

8. Page number: 74 | Revision number: | Date of revision: 04/09/19

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Department of Environment and Conservation
Division of Air Pollution Control
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TITLE V PERMIT APPLICATION
EMISSIONS FROM PROCESS EMISSION SOURCE / FUEL BURNING INSTALLATION / INCINERATOR

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Stack ID or flowdiagram point identification(s):
Magotteaux Inc.	21-S1 (150 Ton Sand Silo)

3. Process emission source / Fuel burning installation / Incinerator (identify):
(28-0025-21) 150 ton capacity Sand Silo with bin vent fabric filter

EMISSIONS SUMMARY TABLE – CRITERIA AND FUGITIVE EMISSIONS

4. Complete the following emissions summary for regulated air pollutants. Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Particulate Matter (TSP)	0.02			
(Fugitive Emissions)				
Sulfur Dioxide				
(Fugitive Emissions)				
Volatile Organic Compounds				
(Fugitive Emissions)				
Carbon Monoxide				
(Fugitive Emissions)				
Lead				
(Fugitive Emissions)				
Nitrogen Oxides				
(Fugitive Emissions)				
Total Reduced Sulfur				
(Fugitive Emissions)				
Mercury				
(Fugitive Emissions)				

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AIR POLLUTANT	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Asbestos				
(Fugitive Emissions)				
Beryllium				
(Fugitive Emissions)				
Vinyl Chloride				
(Fugitive Emissions)				
Fluorides				
(Fugitive Emissions)				
Gaseous Fluorides				
(Fugitive Emissions)				
Greenhouse Gases in CO_2 Equivalents				

EMISSIONS SUMMARY TABLE – FUGITIVE HAZARDOUS AIR POLLUTANTS

5. Complete the following emissions summary for regulated air pollutants that are hazardous air pollutant(s). Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant & CAS	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)

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State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
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Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
CURRENT EMISSIONS REQUIREMENTS AND STATUS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Emission source number
Magotteaux Inc.	28-0025-21 (150 Ton Sand Silo)

3. Describe the process emission source / fuel burning installation / incinerator.

150 ton capacity Sand Silo with bin vent fabric filter

EMISSIONS AND REQUIREMENTS

4. Identify if only a part of the source is subject to this requirement	5. Pollutant	6. Applicable requirement(s): TN Air Pollution Control Regulations, 40 CFR, permit restrictions, air quality based standards	7. Limitation	8. Maximum actual emissions	9. Compliance status (In/Out)
	Particulate	Permit Condition E11-1	0.0052 lbs/hr	< 0.0052 lbs/hr	IN
	Opacity	Permit Condition E3-20	20%	< 20%	IN

10. Other applicable requirements (new requirements that apply to this source during the term of this permit)

11. Page number: 77 Revision number: Date of revision: 04/09/19

Attachment to APC V.28
Method of Monitoring and Recording: 150 Ton Capacity Sand Silo (28-0025-21)

Based on the assumption that the volumetric throughput of sand in the silo is equal to the volume of air displaced through the vent, and a silo filling rate of 1 hour, or 150 ton/hr with a specific weight of 165 lbs/cu. ft. and 8760 operating hours per year, the emissions can be estimated as follows;

Allowable Emissions:

Magotteaux Inc. has agreed to an allowable limit of 0.0052 lbs/hr.

(150 ton/hr)(2000 lbs/ton)(1 cu. ft./165 lb)(0.02 gr/cu. ft.)(1 lb/7000 gr) = 0.0052 lbs/hr = 0.02 tons/yr

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TITLE V PERMIT APPLICATION
STACK IDENTIFICATION

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Emission source (identify):**
(28-0025-22) 157 ton capacity Sand Silo with bin vent fabric filter

STACK DESCRIPTION

3. Stack ID (or flow diagram point identification):
22-S1

4. Stack height above grade in feet:
50 feet

5. Velocity (data at exit conditions):
2 (Actual feet per second)

6. Inside dimensions at outlet in feet:
12" x 6"

7. Exhaust flow rate at exit conditions (ACFM):
32 CFM

8. Flow rate at standard conditions (DSCFM):
32 CFM

9. Exhaust temperature:
ambient Degrees Fahrenheit (°F)

10. Moisture content (data at exit conditions):
ambient Percent _____ Grains per dry standard cubic foot (gr./dscf.)

11. Exhaust temperature that is equaled or exceeded during ninety (90) percent or more of the operating time (for stacks subject to diffusion equation only):
ambient (°F)

12. If this stack is equipped with continuous pollutant monitoring equipment required for compliance, what pollutant(s) does this equipment monitor (e.g., Opacity, SO_2, NO_x, etc.)?
N/A

Complete the appropriate APC form(s) 4, 5, 7, 8, 9, or 10 for each source exhausting through this stack.

BYPASS STACK DESCRIPTION

13. Do you have a bypass stack?
_____ Yes X No

If yes, describe the conditions which require its use & complete APC form 4 for the bypass stack. Please identify the stack number(s) of flow diagram point number(s) exhausting through this bypass stack.

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Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
MISCELLANEOUS PROCESSES

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Process emission source (identify):**
28-0025-22 (157 Ton Sand Silo)

3. Stack ID or flow diagram point identification (s):
22-S1

4. Year of construction or last modification:
1978

If the emissions are controlled for compliance, attach an appropriate Air Pollution Control system form.

5. Normal operating schedule: 24 Hrs./Day 7 Days/Wk. 365 Days/Yr.

6. Location of this process emission source in UTM coordinates: UTM Vertical: 3896.88 N UTM Horizontal: 494.57 E

7. Describe this process (Please attach a flow diagram of this process) and check one of the following:

[✓] Batch [ ] Continuous

PROCESS MATERIAL INPUT AND OUTPUT

8. List the types and amounts of raw materials input to this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Silica Sand	Filling of Silo	157 ton/hr	157 ton/hr

9. List the types and amounts of primary products produced by this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Silica Sand		157 ton/hr	157 ton/hr

10. Process fuel usage:

Type of fuel	Max heat input (10^6 BTU/Hr.)	Average usage (units)	Maximum usage (units)
N/A			

11. List any solvents, cleaners, etc., associated with this process:
N/A

If the emissions and/or operations of this process are monitored for compliance, please attach the appropriate Compliance Demonstration form.

12. Describe any fugitive emissions associated with this process, such as outdoor storage piles, open conveyors, open air sand blasting, material handling operations, etc. (please attach a separate sheet if necessary).
N/A

13. Page number: 80 Revision Number: Date of Revision: 04/09/19

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TITLE V PERMIT APPLICATION
CONTROL EQUIPMENT - BAGHOUSES/FABRIC FILTERS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Emission source (identify):
Magotteaux Inc.	28-0025-22 (157 Ton Sand Silo)

3. Stack ID or flowdiagram point identification (s):
22-S1

BAGHOUSE/FABRIC FILTER DESCRIPTION

4. Describe the device in use. List the key operating parameters of this device and their normal operating range.

157 ton capacity sand silo - Silo is used to store sand prior to use. Silo is equipped with a bin vent fabric filter.

5. Manufacturer and model number (if available):	6. Year of installation:
Unavailiable	1978

7. List of pollutant(s) to be controlled and the expected control efficiency for each pollutant (see instructions).

Pollutant	Efficiency (%)	Source of data
Particulate	99	Engineering Estimate

8. Discuss how collected material is handled for reuse or disposal.
Trapped particles fall back into silo

9. If the bags are coated, specify the material used for coating and frequency of coating
N/A

10. Does the baghouse collect asbestos containing material?

Yes [ ] No [✓]

If "Yes", provide data as outlined in Item 10, Instructions for this form.

11. If this control equipment is in series with some other control equipment, state and specify the overall efficiency.
N/A

12. Page number: 81	Revision Number:	Date of Revision: 04/09/19

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
COMPLIANCE CERTIFICATION - MONITORING AND REPORTING
DESCRIPTION OF METHODS USED FOR DETERMINING COMPLIANCE

All sources that are subject to 1200-03-09-.02(11) of the Tennessee Air Pollution Control Regulations are required to certify compliance with all applicable requirements by including a statement within the permit application of the methods used for determining compliance. This statement must include a description of the monitoring, recordkeeping, and reporting requirements and test methods. In addition, the application must include a schedule for compliance certification submittals during the permit term. These submittals must be no less frequent than annually and may need to be more frequent if specified by the underlying applicable requirement or the Technical Secretary.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.
2. Process emission source, fuel burning installation, or incinerator (identify): (28-0025-22) 157 ton capacity Sand Silo with bin vent fabric filter.
3. Stack ID or flow diagram point identification(s): 22-S1

METHODS OF DETERMINING COMPLIANCE

4. This source as described under Item #2 of this application will use the following method(s) for determining compliance with applicable requirements (and special operating conditions from an existing permit). Check all that apply and attach the appropriate form(s)

- [ ] Continuous Emission Monitoring (CEM) - APC 20
  Pollutant(s):
- [ ] Emission Monitoring Using Portable Monitors - APC 21
  Pollutant(s):
- [✓] Monitoring Control System Parameters or Operating Parameters of a Process - APC 22
  Pollutant(s): Opacity
- [ ] Monitoring Maintenance Procedures - APC 23
  Pollutant(s):
- [ ] Stack Testing - APC 24
  Pollutant(s):
- [ ] Fuel Sampling & Analysis (FSA) - APC 25
  Pollutant(s):
- [✓] Recordkeeping - APC 26
  Pollutant(s): Particulate
- [ ] Other (please describe) - APC 27
  Pollutant(s):

5. Compliance certification reports will be submitted to the Division according to the following schedule:

   Start date: Per the Title V permit

   And every _____ days thereafter.

6. Compliance monitoring reports will be submitted to the Division according to the following schedule:

   Start date: Per the Title V permit

   And every _____ days thereafter.

7. Page number: 82 Revision number: Date of revision: 04/09/19

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
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TITLE V PERMIT APPLICATION - COMPLIANCE DEMONSTRATION BY MONITORING CONTROL SYSTEM PARAMETERS OR OPERATING PARAMETERS OF A PROCESS

The monitoring of a control system parameter or a process parameter shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value and the emission rate of a particular pollutant is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s)
22-S1 (157 Ton Sand Silo)

3. Emission source:
(28-0025-22) 157 ton capacity Bentonite Silo with bin vent fabric filter.

MONITORING DESCRIPTION

4. Pollutant(s) being monitored:
Opacity

5. Description of the method of monitoring and establishment of correlation between the parameter value and the emission rate of a particular pollutant:

Based on the opacity matrix decision tree for EPA Method 9, no opacity readings are required for sources with an allowable limit of less than 10 tons per year.

6. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
In accordance with the opacity matrix, no readings are required.

7. Page number: 83 Revision number: Date of revision: 04/09/19

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
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TITLE V PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY RECORDKEEPING

Recordkeeping shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value recorded and the applicable requirement is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s):
22-S1 (157 Ton Sand Silo)

3. Emission source (identify):
(28-0025-22) 157 ton capacity Sand Silo with bin vent fabric filter

MONITORING AND RECORDKEEPING DESCRIPTION

4. Pollutant(s) or parameter being monitored:
Particulate Emissions

5. Material or parameter being monitored and recorded:
Maintenance and inspection records

6. Method of monitoring and recording:
Manual records of semiannual inspections and maintenance performed on the bin vent filter.

7. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
Semiannually

8. Page number: 84 Revision number: Date of revision: 04/09/19

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
EMISSIONS FROM PROCESS EMISSION SOURCE / FUEL BURNING INSTALLATION / INCINERATOR

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s):
22-S1 (157 Ton Sand Silo)

3. Process emission source / Fuel burning installation / Incinerator (identify):
(28-0025-22) 157 ton capacity Sand Silo with bin vent fabric filter

EMISSIONS SUMMARY TABLE – CRITERIA AND FUGITIVE EMISSIONS

4. Complete the following emissions summary for regulated air pollutants. Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Particulate Matter (TSP)	0.02			
(Fugitive Emissions)				
Sulfur Dioxide				
(Fugitive Emissions)				
Volatile Organic Compounds				
(Fugitive Emissions)				
Carbon Monoxide				
(Fugitive Emissions)				
Lead				
(Fugitive Emissions)				
Nitrogen Oxides				
(Fugitive Emissions)				
Total Reduced Sulfur				
(Fugitive Emissions)				
Mercury				
(Fugitive Emissions)				

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(Continued from last page)

AIR POLLUTANT	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Asbestos				
(Fugitive Emissions)				
Beryllium				
(Fugitive Emissions)				
Vinyl Chloride				
(Fugitive Emissions)				
Fluorides				
(Fugitive Emissions)				
Gaseous Fluorides	N/A		N/A	
(Fugitive Emissions)				
Greenhouse Gases in CO_2 Equivalents				

EMISSIONS SUMMARY TABLE – FUGITIVE HAZARDOUS AIR POLLUTANTS

5. Complete the following emissions summary for regulated air pollutants that are hazardous air pollutant(s). Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant & CAS	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)

6. Page number: 8b Revision number: Date of revision 04/09/19

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
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TITLE V PERMIT APPLICATION
CURRENT EMISSIONS REQUIREMENTS AND STATUS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Emission source number
Magotteaux Inc.	28-0025-22 (157 Ton Sand Silo)

3. Describe the process emission source / fuel burning installation / incinerator.

157 ton capacity Sand Silo with bin vent fabric filter.

EMISSIONS AND REQUIREMENTS

4. Identify if only a part of the source is subject to this requirement	5. Pollutant	6. Applicable requirement(s): TN Air Pollution Control Regulations, 40 CFR, permit restrictions, air quality based standards	7. Limitation	8. Maximum actual emissions	9. Compliance status (In/Out)
	Particulate	Permit Condition E12-1	0.0054 lb/hr	< 0.0054lb/hr	IN
	Opacity	Permit Condition E3-20	20%	< 20%	IN

10. Other applicable requirements (new requirements that apply to this source during the term of this permit)

11. Page number: 87 Revision number: Date of revision: 04/09/19

Attachment to APC V.28
Method of Monitoring and Recording: 157 Ton Capacity Sand Silo (28-0025-22)

Based on the assumption that the volumetric throughput of sand in the silo is equal to the volume of air displaced through the vent, and a silo filling rate of 1 hour, or 200 ton/hr with a specific weight of 165 lbs/cu. ft. and 8760 operating hours per year, the emissions can be estimated as follows:

Allowable Emissions:

Magotteaux Inc. has agreed to an allowable limit of 0.0054 lbs/hr.

(157 ton/hr)(2000 lbs/ton)(1 cu. ft./165 lbs)(0.02 gr/cu. ft.)(1 lb/7000 gr) = 0.0054 lbs/hr = 0.02 tons/yr

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TITLE V PERMIT APPLICATION
STACK IDENTIFICATION

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Emission source (identify):**
(28-0025-23) 55 ton capacity Bentonite Silo with bin vent fabric filter

STACK DESCRIPTION

3. Stack ID (or flow diagram point identification):
23-S1

4. Stack height above grade in feet:
50 feet

5. Velocity (data at exit conditions):
2 (Actual feet per second)

6. Inside dimensions at outlet in feet:
0.67 ft. dia.

7. Exhaust flow rate at exit conditions (ACFM):
34 CFM

8. Flow rate at standard conditions (DSCFM):
34 CFM

9. Exhaust temperature:
ambient Degrees Fahrenheit (°F)

10. Moisture content (data at exit conditions):
ambient Percent _____ Grains per dry standard cubic foot (gr./dscf.)

11. Exhaust temperature that is equaled or exceeded during ninety (90) percent or more of the operating time (for stacks subject to diffusion equation only):
ambient (°F)

12. If this stack is equipped with continuous pollutant monitoring equipment required for compliance, what pollutant(s) does this equipment monitor (e.g., Opacity, SO_2, NO_x, etc.)?
N/A

Complete the appropriate APC form(s) 4, 5, 7, 8, 9, or 10 for each source exhausting through this stack.

BYPASS STACK DESCRIPTION

13. Do you have a bypass stack?
_____ Yes X No

If yes, describe the conditions which require its use & complete APC form 4 for the bypass stack. Please identify the stack number(s) of flow diagram point number(s) exhausting through this bypass stack.

14. Page number: 89 Revision Number: Date of Revision: 04/15/19

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Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
MISCELLANEOUS PROCESSES

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Process emission source (identify):**
28-0025-23 (55 Ton Bentonite Silo)

3. Stack ID or flow diagram point identification (s):
23-S1

4. Year of construction or last modification:
Prior to 1977

If the emissions are controlled for compliance, attach an appropriate Air Pollution Control system form.

5. Normal operating schedule: 24 Hrs./Day 7 Days/Wk. 365 Days/Yr.

6. Location of this process emission source in UTM coordinates: UTM Vertical: 3896.88 N UTM Horizontal: 494.57 E

7. Describe this process (Please attach a flow diagram of this process) and check one of the following:

[✓] Batch [ ] Continuous

PROCESS MATERIAL INPUT AND OUTPUT

8. List the types and amounts of raw materials input to this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Bentonite	Filling of Silo	55 ton/hr	55 ton/hr

9. List the types and amounts of primary products produced by this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Bentonite		55 ton/hr	55 ton/hr

10. Process fuel usage:

Type of fuel	Max heat input (10^6 BTU/Hr.)	Average usage (units)	Maximum usage (units)
N/A			

11. List any solvents, cleaners, etc., associated with this process:
N/A

If the emissions and/or operations of this process are monitored for compliance, please attach the appropriate Compliance Demonstration form.

12. Describe any fugitive emissions associated with this process, such as outdoor storage piles, open conveyors, open air sand blasting, material handling operations, etc. (please attach a separate sheet if necessary).
N/A

13. Page number: 90 Revision Number: Date of Revision: 04/15/19

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Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
CONTROL EQUIPMENT - BAGHOUSES/FABRIC FILTERS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Emission source (identify):
28-0025-23 (55 Ton Bentonite Silo

3. Stack ID or flowdiagram point identification (s):
23-S1

BAGHOUSE/FABRIC FILTER DESCRIPTION

4. Describe the device in use. List the key operating parameters of this device and their normal operating range.

55 ton capacity sand silo - Silo is used to store Bentonite prior to use. Silo is equipped with a bin vent fabric filter.

5. Manufacturer and model number (if available):

6. Year of installation:
Prior to 1978

7. List of pollutant(s) to be controlled and the expected control efficiency for each pollutant (see instructions).

Pollutant	Efficiency (%)	Source of data
Particulate	99	Engineering Estimate

8. Discuss how collected material is handled for reuse or disposal.
Trapped particles fall back into silo.

9. If the bags are coated, specify the material used for coating and frequency of coating
N/A

10. Does the baghouse collect asbestos containing material?
Yes [ ] No [✓]
If "Yes", provide data as outlined in Item 10, Instructions for this form.

11. If this control equipment is in series with some other control equipment, state and specify the overall efficiency.
N/A

12. Page number: 91 Revision Number: Date of Revision: 04/15/19

State of Tennessee
Department of Environment and Conservation
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William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
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TITLE V PERMIT APPLICATION
COMPLIANCE CERTIFICATION - MONITORING AND REPORTING
DESCRIPTION OF METHODS USED FOR DETERMINING COMPLIANCE

All sources that are subject to 1200-03-09-.02(11) of the Tennessee Air Pollution Control Regulations are required to certify compliance with all applicable requirements by including a statement within the permit application of the methods used for determining compliance. This statement must include a description of the monitoring, recordkeeping, and reporting requirements and test methods. In addition, the application must include a schedule for compliance certification submittals during the permit term. These submittals must be no less frequent than annually and may need to be more frequent if specified by the underlying applicable requirement or the Technical Secretary.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.
2. Process emission source, fuel burning installation, or incinerator (identify): (28-0025-23) 55 ton capacity Bentonite Silo with bin vent fabric filter.
3. Stack ID or flow diagram point identification(s): 23-S1

METHODS OF DETERMINING COMPLIANCE

4. This source as described under Item #2 of this application will use the following method(s) for determining compliance with applicable requirements (and special operating conditions from an existing permit). Check all that apply and attach the appropriate form(s)

[ ] Continuous Emission Monitoring (CEM) - APC 20
Pollutant(s):

[ ] Emission Monitoring Using Portable Monitors - APC 21
Pollutant(s):

[✓] Monitoring Control System Parameters or Operating Parameters of a Process - APC 22
Pollutant(s): Opacity

[ ] Monitoring Maintenance Procedures - APC 23
Pollutant(s):

[ ] Stack Testing - APC 24
Pollutant(s):

[ ] Fuel Sampling & Analysis (FSA) - APC 25
Pollutant(s):

[✓] Recordkeeping - APC 26
Pollutant(s): Particulates

[ ] Other (please describe) - APC 27
Pollutant(s):

5. Compliance certification reports will be submitted to the Division according to the following schedule:

Start date: Per the Title V permit

And every _____ days thereafter.

6. Compliance monitoring reports will be submitted to the Division according to the following schedule:

Start date: Per the Title V permit

And every _____ days thereafter.

7. Page number: 92 Revision number: Date of revision: 04/15/19

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
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Nashville, TN 37243
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TITLE V PERMIT APPLICATION - COMPLIANCE DEMONSTRATION BY MONITORING CONTROL SYSTEM PARAMETERS OR OPERATING PARAMETERS OF A PROCESS

The monitoring of a control system parameter or a process parameter shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value and the emission rate of a particular pollutant is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s)
23-S1 (55 Ton Bentonite Silo)

3. Emission source:
(28-0025-23) 55 ton capacity Bentonite Silo with bin vent filter fabric.

MONITORING DESCRIPTION

4. Pollutant(s) being monitored:
Opacity

5. Description of the method of monitoring and establishment of correlation between the parameter value and the emission rate of a particular pollutant:
Based on the opacity matrix decision tree for EPA Method 9, no opacity readings are required for sources with an allowable limit of less than 10 tons per year.

6. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
In accordance with the opacity matrix, no readings are required.

7. Page number: 93 Revision number: Date of revision: 04/15/19

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Department of Environment and Conservation
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William R. Snodgrass Tennessee Tower
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TITLE V PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY RECORDKEEPING

Recordkeeping shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value recorded and the applicable requirement is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s):
23-S1 (55 Ton Bentonite Silo)

3. Emission source (identify):
(28-0025-23) 55 ton capacity Bentonite Silo with bin vent fabric filter.

MONITORING AND RECORDKEEPING DESCRIPTION

4. Pollutant(s) or parameter being monitored:
Particulate Emissions

5. Material or parameter being monitored and recorded:
Maintenance and inspection records.

6. Method of monitoring and recording:
Manuel records of semiannual inspections and maintenance performed on the bin vent filter.

7. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
Semiannually

8. Page number: 94 Revision number: Date of revision: 04/15/19

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TITLE V PERMIT APPLICATION
EMISSIONS FROM PROCESS EMISSION SOURCE / FUEL BURNING INSTALLATION / INCINERATOR

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s):
23-S1 (55 Ton Bentonite Silo)

3. Process emission source / Fuel burning installation / Incinerator (identify):
(28-0025-23) 55 ton capacity Bentonite Silo with bin vent fabric filter

EMISSIONS SUMMARY TABLE – CRITERIA AND FUGITIVE EMISSIONS

4. Complete the following emissions summary for regulated air pollutants. Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Particulate Matter (TSP)	0.03			
(Fugitive Emissions)				
Sulfur Dioxide				
(Fugitive Emissions)				
Volatile Organic Compounds				
(Fugitive Emissions)				
Carbon Monoxide				
(Fugitive Emissions)				
Lead				
(Fugitive Emissions)				
Nitrogen Oxides				
(Fugitive Emissions)				
Total Reduced Sulfur				
(Fugitive Emissions)				
Mercury				
(Fugitive Emissions)				

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AIR POLLUTANT	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Asbestos				
(Fugitive Emissions)				
Beryllium				
(Fugitive Emissions)				
Vinyl Chloride				
(Fugitive Emissions)				
Fluorides				
(Fugitive Emissions)				
Gaseous Fluorides				
(Fugitive Emissions)				
Greenhouse Gases in CO_2 Equivalents				

EMISSIONS SUMMARY TABLE – FUGITIVE HAZARDOUS AIR POLLUTANTS

5. Complete the following emissions summary for regulated air pollutants that are hazardous air pollutant(s). Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant & CAS	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)

6. Page number: 9b Revision number: Date of revision 04/15/19

State of Tennessee
Department of Environment and Conservation
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William R. Snodgrass Tennessee Tower
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TITLE V PERMIT APPLICATION
CURRENT EMISSIONS REQUIREMENTS AND STATUS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Emission source number
Magotteaux Inc.	28-0025-23 (55 Ton Bentonite Silo)

3. Describe the process emission source / fuel burning installation / incinerator.

55 ton capacity Bentonite Silo with bin vent fabric filter.

EMISSIONS AND REQUIREMENTS

4. Identify if only a part of the source is subject to this requirement	5. Pollutant	6. Applicable requirement(s): TN Air Pollution Control Regulations, 40 CFR, permit restrictions, air quality based standards	7. Limitation	8. Maximum actual emissions	9. Compliance status (In/Out)
	Particulate	Permit Condition E13-1	0.0058 lbs/hr	< 0.0058 lbs/hr	IN
	Opacity	Permit E3-20	20%	20%	IN

10. Other applicable requirements (new requirements that apply to this source during the term of this permit)

11. Page number: 97 Revision number: Date of revision: 04/15/19

Attachment to APC V.28
Method of Monitoring and Recording: 55 Ton Capacity Bentonite Silo (28-0025-23)

Based on the assumption that the volumetric throughput of sand in the silo is equal to the volume of air displaced through the vent, and a silo filling rate of 1 hour, or 55 ton/hr with a specific weight of 54.3 lbs/cu. ft. and 8760 operating hours per year, the emissions can be estimated as follows;

Allowable Emissions:

Magotteaux Inc. has agreed to an allowable limit of 0.0058 lbs/hr.

(55 ton/hr)(2000 lb/ton)(8760 hr/yr)(1 cu. ft./54.3 lb)(0.02 gr/cu. ft.)(1 lb/7000 gr) = 0.0058 lb/hr
= 0.03 tons/yr

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TITLE V PERMIT APPLICATION
STACK IDENTIFICATION

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**

Magotteaux Inc.

2. **Emission source (identify):**

(28-0025-24) 135 ton capacity Bentonite Silo with bin vent fabric filter.

STACK DESCRIPTION

3. Stack ID (or flow diagram point identification):

24-S1

4. Stack height above grade in feet:

50 feet

5. Velocity (data at exit conditions):

3 (Actual feet per second)

6. Inside dimensions at outlet in feet:

1 x 0.5

7. Exhaust flow rate at exit conditions (ACFM):

83 CFM

8. Flow rate at standard conditions (DSCFM):

83 CFM

9. Exhaust temperature:

ambient Degrees Fahrenheit (°F)

10. Moisture content (data at exit conditions):

ambient Percent _____ Grains per dry standard cubic foot (gr./dscf.)

11. Exhaust temperature that is equaled or exceeded during ninety (90) percent or more of the operating time (for stacks subject to diffusion equation only):

ambient (°F)

12. If this stack is equipped with continuous pollutant monitoring equipment required for compliance, what pollutant(s) does this equipment monitor (e.g., Opacity, SO_2, NO_x, etc.)?

N/A

Complete the appropriate APC form(s) 4, 5, 7, 8, 9, or 10 for each source exhausting through this stack.

BYPASS STACK DESCRIPTION

13. Do you have a bypass stack?

_____ Yes X No

If yes, describe the conditions which require its use & complete APC form 4 for the bypass stack. Please identify the stack number(s) of flow diagram point number(s) exhausting through this bypass stack.

14. Page number: 99 Revision Number: Date of Revision: 04/15/19

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TITLE V PERMIT APPLICATION
MISCELLANEOUS PROCESSES

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Process emission source (identify):**
28-0025-24 (135 Ton Bentonite Silo)

3. Stack ID or flow diagram point identification (s):
24-S1

4. Year of construction or last modification:
Prior to 1977

If the emissions are controlled for compliance, attach an appropriate Air Pollution Control system form.

5. Normal operating schedule: 24 Hrs./Day 7 Days/Wk. 365 Days/Yr.

6. Location of this process emission source in UTM coordinates: UTM Vertical: 3896.88 N UTM Horizontal: 494.57 E

7. Describe this process (Please attach a flow diagram of this process) and check one of the following:

[✓] Batch [ ] Continuous

PROCESS MATERIAL INPUT AND OUTPUT

8. List the types and amounts of raw materials input to this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Bentonite	Filling of Silo	135 ton/hr	135 ton/hr

9. List the types and amounts of primary products produced by this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Bentonite		135 ton/hr	135 ton/hr

10. Process fuel usage:

Type of fuel	Max heat input (10^6 BTU/Hr.)	Average usage (units)	Maximum usage (units)
N/A			

11. List any solvents, cleaners, etc., associated with this process:
N/A

If the emissions and/or operations of this process are monitored for compliance, please attach the appropriate Compliance Demonstration form.

12. Describe any fugitive emissions associated with this process, such as outdoor storage piles, open conveyors, open air sand blasting, material handling operations, etc. (please attach a separate sheet if necessary).
N/A

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State of Tennessee
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TITLE V PERMIT APPLICATION
CONTROL EQUIPMENT - BAGHOUSES/FABRIC FILTERS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.

2. Emission source (identify): 28-0025-24 (135 Ton Bentonite Silo)

3. Stack ID or flow diagram point identification (s): 24-S1

BAGHOUSE/FABRIC FILTER DESCRIPTION

4. Describe the device in use. List the key operating parameters of this device and their normal operating range.

135 ton capacity Bentonite Silo - Silo is used to store Bentonite Pre-mix prior to use. Silo is equipped with a bin vent fabric filter.

5. Manufacturer and model number (if available): Unavailable

6. Year of installation: Prior to 1977

7. List of pollutant(s) to be controlled and the expected control efficiency for each pollutant (see instructions).

Pollutant	Efficiency (%)	Source of data
Particulate	99	Engineering Estimate

8. Discuss how collected material is handled for reuse or disposal.

Trapped particles fall back into silo.

9. If the bags are coated, specify the material used for coating and frequency of coating

N/A

10. Does the baghouse collect asbestos containing material?

Yes [ ] No [✓]

If "Yes", provide data as outlined in Item 10, Instructions for this form.

11. If this control equipment is in series with some other control equipment, state and specify the overall efficiency.

N/A

12. Page number: 101 Revision Number: Date of Revision: 04/15/19

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TITLE V PERMIT APPLICATION
COMPLIANCE CERTIFICATION - MONITORING AND REPORTING
DESCRIPTION OF METHODS USED FOR DETERMINING COMPLIANCE

All sources that are subject to 1200-03-09-.02(11) of the Tennessee Air Pollution Control Regulations are required to certify compliance with all applicable requirements by including a statement within the permit application of the methods used for determining compliance. This statement must include a description of the monitoring, recordkeeping, and reporting requirements and test methods. In addition, the application must include a schedule for compliance certification submittals during the permit term. These submittals must be no less frequent than annually and may need to be more frequent if specified by the underlying applicable requirement or the Technical Secretary.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.
2. Process emission source, fuel burning installation, or incinerator (identify): (28-0025-24) 135 ton capacity Bentonite Silo with bin vent fabric filter.
3. Stack ID or flow diagram point identification(s): 24-S1

METHODS OF DETERMINING COMPLIANCE

4. This source as described under Item #2 of this application will use the following method(s) for determining compliance with applicable requirements (and special operating conditions from an existing permit). Check all that apply and attach the appropriate form(s)

[ ] Continuous Emission Monitoring (CEM) - APC 20
Pollutant(s):

[ ] Emission Monitoring Using Portable Monitors - APC 21
Pollutant(s):

[✓] Monitoring Control System Parameters or Operating Parameters of a Process - APC 22
Pollutant(s): Opacity

[ ] Monitoring Maintenance Procedures - APC 23
Pollutant(s):

[ ] Stack Testing - APC 24
Pollutant(s):

[ ] Fuel Sampling & Analysis (FSA) - APC 25
Pollutant(s):

[✓] Recordkeeping - APC 26
Pollutant(s): Particulates

[ ] Other (please describe) - APC 27
Pollutant(s):

5. Compliance certification reports will be submitted to the Division according to the following schedule:
Start date: Per the Title V permit.
And every _____ days thereafter.

6. Compliance monitoring reports will be submitted to the Division according to the following schedule:
Start date: Per the Title V permit.
And every _____ days thereafter.

7. Page number: 102 Revision number: Date of revision: 04/15/19

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TITLE V PERMIT APPLICATION - COMPLIANCE DEMONSTRATION BY MONITORING CONTROL SYSTEM PARAMETERS OR OPERATING PARAMETERS OF A PROCESS

The monitoring of a control system parameter or a process parameter shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value and the emission rate of a particular pollutant is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s)
24-S1 (135 Ton Bentonite Silo)

3. Emission source:
(28-0025-24) 135 ton capacity Bentonite Silo with bin vent fabric filter.

MONITORING DESCRIPTION

4. Pollutant(s) being monitored:
Opacity

5. Description of the method of monitoring and establishment of correlation between the parameter value and the emission rate of a particular pollutant:

Based on the opacity matrix decision tree for EPA Method 9, no opacity readings are required for sources with an allowable limit of less than 10 tons per year.

6. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
In accordance with the opacity matrix, no readings are required.

7. Page number: 103 | Revision number: | Date of revision: 04/15/19

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TITLE V PERMIT APPLICATION
EMISSIONS FROM PROCESS EMISSION SOURCE / FUEL BURNING INSTALLATION / INCINERATOR

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flowdiagram point identification(s):
24-S1 (135 Ton Bentonite Silo)

3. Process emission source / Fuel burning installation / Incinerator (identify):
(28-0025-24) 135 ton capacity Bentonite Silo ESRN 24

EMISSIONS SUMMARY TABLE – CRITERIA AND FUGITIVE EMISSIONS

4. Complete the following emissions summary for regulated air pollutants. Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Particulate Matter (TSP)	0.06			
(Fugitive Emissions)				
Sulfur Dioxide				
(Fugitive Emissions)				
Volatile Organic Compounds				
(Fugitive Emissions)				
Carbon Monoxide				
(Fugitive Emissions)				
Lead				
(Fugitive Emissions)				
Nitrogen Oxides				
(Fugitive Emissions)				
Total Reduced Sulfur				
(Fugitive Emissions)				
Mercury				
(Fugitive Emissions)				

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(Continued from last page)

AIR POLLUTANT	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Asbestos				
(Fugitive Emissions)				
Beryllium				
(Fugitive Emissions)				
Vinyl Chloride				
(Fugitive Emissions)				
Fluorides				
(Fugitive Emissions)				
Gaseous Fluorides				
(Fugitive Emissions)				
Greenhouse Gases in CO_2 Equivalents				

EMISSIONS SUMMARY TABLE – FUGITIVE HAZARDOUS AIR POLLUTANTS

5. Complete the following emissions summary for regulated air pollutants that are hazardous air pollutant(s). Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant & CAS	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)

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TITLE V PERMIT APPLICATION
CURRENT EMISSIONS REQUIREMENTS AND STATUS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Emission source number
Magotteaux Inc.	28-0025-24 (135 Ton Bentonite Silo)

3. Describe the process emission source / fuel burning installation / incinerator.

135 ton capacity Bentonite Silo - Bentonite silo with bin vent fabric filter.

EMISSIONS AND REQUIREMENTS

4. Identify if only a part of the source is subject to this requirement	5. Pollutant	6. Applicable requirement(s): TN Air Pollution Control Regulations, 40 CFR, permit restrictions, air quality based standards	7. Limitation	8. Maximum actual emissions	9. Compliance status (In/Out)
	Particulate	Permit Condition E14-1	0.0142 lbs/hr	< 0.0142 lbs/hr	IN
	Opacity	Permit Condition E3-20	20%	20%	IN

10. Other applicable requirements (new requirements that apply to this source during the term of this permit)

11. Page number: 106 Revision number: Date of revision: 04/15/19

Attachment to APC V.28
Method of Monitoring and Recording: 135 Ton Capacity Bentonite Silo (28-0025-24)

Based on the assumption that the volumetric throughput of bentonite in the silo is equal to the volume of air displaced through the vent, and a silo filling rate of 1 hour, or 135 ton/hr with a specific weight of 54.3 lbs/cu. ft. and 8760 operating hours per year, the emissions can be estimated as follows;

Allowable Emissions:

Magotteaux Inc. has agreed to an allowable limit of 0.0142 lbs/hr.

(135 ton/hr)(2000 lbs/ton)(1 cu. ft./54.3 lb)(0.02 gr/cu. ft.)(1 lb/7000 gr) = 0.0142 lbs/hr = 0.06 tons/yr

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TITLE V PERMIT APPLICATION
STACK IDENTIFICATION

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Emission source (identify):**
(28-0025-28) Induction Furnace

STACK DESCRIPTION

3. Stack ID (or flow diagram point identification):
28-S1

4. Stack height above grade in feet:
40 feet

5. Velocity (data at exit conditions):
47 (Actual feet per second)

6. Inside dimensions at outlet in feet:
4 at 22" in diameter each

7. Exhaust flow rate at exit conditions (ACFM):
30,000

8. Flow rate at standard conditions (DSCFM):
26,065

9. Exhaust temperature:
150 Degrees Fahrenheit (°F)

10. Moisture content (data at exit conditions):
ambient Percent _____ Grains per dry standard cubic foot (gr./dscf.)

11. Exhaust temperature that is equaled or exceeded during ninety (90) percent or more of the operating time (for stacks subject to diffusion equation only):
N/A (°F)

12. If this stack is equipped with continuous pollutant monitoring equipment required for compliance, what pollutant(s) does this equipment monitor (e.g., Opacity, SO_2, NO_x, etc.)?
N/A

Complete the appropriate APC form(s) 4, 5, 7, 8, 9, or 10 for each source exhausting through this stack.

BYPASS STACK DESCRIPTION

13. Do you have a bypass stack?
_____ Yes X No

If yes, describe the conditions which require its use & complete APC form 4 for the bypass stack. Please identify the stack number(s) of flow diagram point number(s) exhausting through this bypass stack.

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TITLE V PERMIT APPLICATION
MISCELLANEOUS PROCESSES

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Process emission source (identify):**
28-0025-28 Induction Furnace

3. Stack ID or flowdiagram point identification(s):
28-S1

4. Year of construction or last modification:
Installed - 1998

If the emissions are controlled for compliance, attach an appropriate Air Pollution Control system form.

5. Normal operating schedule: 24 Hrs./Day 7 Days/Wk. 365 Days/Yr.

6. Location of this process emission source in UTM coordinates: UTM Vertical: 3896.88 N UTM Horizontal: 494.57 E

7. Describe this process (Please attach a flowdiagram of this process) and check one of the following:

[✓] Batch [ ] Continuous

PROCESS MATERIAL INPUT AND OUTPUT

8. List the types and amounts of raw materials input to this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Scrap Metal	Induction Melting	10,000 lbs/hr	19,200 lbs/hr

9. List the types and amounts of primary products produced by this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Molten Metal	Tapping by ladies prior to pouring.	10,000 lbs/hr	19,200 lbs/hr

10. Process fuel usage:

Type of fuel	Max heat input (10^6 BTU/Hr.)	Average usage (units)	Maximum usage (units)
N/A			

11. List any solvents, cleaners, etc., associated with this process:
N/A

If the emissions and/or operations of this process are monitored for compliance, please attach the appropriate Compliance Demonstration form.

12. Describe any fugitive emissions associated with this process, such as outdoor storage piles, open conveyors, open air sand blasting, material handling operations, etc. (please attach a separate sheet if necessary).
N/A

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TITLE V PERMIT APPLICATION
CONTROL EQUIPMENT - BAGHOUSES/FABRIC FILTERS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Emission source (identify):
28-0025-28 Induction Furnace

3. Stack ID or flowdiagram point identification (s):
28-S1

BAGHOUSE/FABRIC FILTER DESCRIPTION

4. Describe the device in use. List the key operating parameters of this device and their normal operating range.
A 30,000 cfm baghouse is used to control particulate emissions from the induction furnace which is used to melt scrap metal. The baghouse is operated at a pressure differential greater than the minimum pressure differential of 0.4 inches of water.

5. Manufacturer and model number (if available):
Unavailable

6. Year of installation:
1983

7. List of pollutant(s) to be controlled and the expected control efficiency for each pollutant (see instructions).

Pollutant	Efficiency (%)	Source of data
Particulate	99	Engineering Estimate

8. Discuss how collected material is handled for reuse or disposal.
Captured particlate is disposed of in a landfill.

9. If the bags are coated, specify the material used for coating and frequency of coating
N/A

10. Does the baghouse collect asbestos containing material?
Yes [ ] No [✓]
If "Yes", provide data as outlined in Item 10, Instructions for this form.

11. If this control equipment is in series with some other control equipment, state and specify the overall efficiency.
N/A

12. Page number: 110 Revision Number: Date of Revision: 04/15/19

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TITLE V PERMIT APPLICATION
COMPLIANCE CERTIFICATION - MONITORING AND REPORTING
DESCRIPTION OF METHODS USED FOR DETERMINING COMPLIANCE

All sources that are subject to 1200-03-09-.02(11) of the Tennessee Air Pollution Control Regulations are required to certify compliance with all applicable requirements by including a statement within the permit application of the methods used for determining compliance. This statement must include a description of the monitoring, recordkeeping, and reporting requirements and test methods. In addition, the application must include a schedule for compliance certification submittals during the permit term. These submittals must be no less frequent than annually and may need to be more frequent if specified by the underlying applicable requirement or the Technical Secretary.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.
2. Process emission source, fuel burning installation, or incinerator (identify): (28-0025-28) Induction Furnace
3. Stack ID or flow diagram point identification(s): 28-S1

METHODS OF DETERMINING COMPLIANCE

4. This source as described under Item #2 of this application will use the following method(s) for determining compliance with applicable requirements (and special operating conditions from an existing permit). Check all that apply and attach the appropriate form(s)

[ ] Continuous Emission Monitoring (CEM) - APC 20
Pollutant(s):

[ ] Emission Monitoring Using Portable Monitors - APC 21
Pollutant(s):

[✓] Monitoring Control System Parameters or Operating Parameters of a Process - APC 22
Pollutant(s): Opacity

[ ] Monitoring Maintenance Procedures - APC 23
Pollutant(s):

[ ] Stack Testing - APC 24
Pollutant(s):

[ ] Fuel Sampling & Analysis (FSA) - APC 25
Pollutant(s):

[✓] Recordkeeping - APC 26
Pollutant(s): Particulates and HAPs

[ ] Other (please describe) - APC 27
Pollutant(s):

5. Compliance certification reports will be submitted to the Division according to the following schedule:

Start date: Per the Title V permit.

And every _____ days thereafter.

6. Compliance monitoring reports will be submitted to the Division according to the following schedule:

Start date: Per the Title V permit.

And every _____ days thereafter.

7. Page number: 111 Revision number: Date of revision: 04/15/19

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TITLE V PERMIT APPLICATION - COMPLIANCE DEMONSTRATION BY MONITORING CONTROL SYSTEM PARAMETERS OR OPERATING PARAMETERS OF A PROCESS

The monitoring of a control system parameter or a process parameter shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value and the emission rate of a particular pollutant is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s)
28-S1 Induction Furnace

3. Emission source:
(28-0025-28) Induction Furnace

MONITORING DESCRIPTION

4. Pollutant(s) being monitored:
Opacity

5. Description of the method of monitoring and establishment of correlation between the parameter value and the emission rate of a particular pollutant:

As per the initial Title V Permit term, and based on the opacity matrix decision tree, an initial 30 minute visible emission evaluation will be made using EPA Method 9 within one year of issuance. The number and timing of subsequent observations will be based on the results of the initial readings.

6. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):

The frequency of visible emission evaluations will be determined as indicated in the Method 9 opacity decision tree.

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TITLE V PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY RECORDKEEPING

Recordkeeping shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value recorded and the applicable requirement is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s):
28-S1 Induction Furnace

3. Emission source (identify):
Induction Furnace ESRN 28

MONITORING AND RECORDKEEPING DESCRIPTION

4. Pollutant(s) or parameter being monitored:
Particulate Emissions

5. Material or parameter being monitored and recorded:
Operator will maintain records of the weight of scrap steel melted, the pressure differential across the baghouse and the hours of operation.

6. Method of monitoring and recording:

Monthly records will be kept of the weight of scrap steel melted and the hours of operation. A daily log of the pressure differential across the baghouse will be kept. A log of the baghouse will be maintained as a part of the PM compliance demonstration. The emissions are estimated using the method shown on the attachment to APC V.28.

7. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):

Daily

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TITLE V PERMIT APPLICATION
EMISSIONS FROM PROCESS EMISSION SOURCE / FUEL BURNING INSTALLATION / INCINERATOR

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Stack ID or flowdiagram point identification(s):
Magotteaux Inc.	28-S1 Induction Furnace

3. Process emission source / Fuel burning installation / Incinerator (identify):
(28-0025-28) Induction Furnace

EMISSIONS SUMMARY TABLE – CRITERIA AND FUGITIVE EMISSIONS

4. Complete the following emissions summary for regulated air pollutants. Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Particulate Matter (TSP)	16.0			
(Fugitive Emissions)				
Sulfur Dioxide				
(Fugitive Emissions)				
Volatile Organic Compounds				
(Fugitive Emissions)				
Carbon Monoxide				
(Fugitive Emissions)				
Lead				
(Fugitive Emissions)				
Nitrogen Oxides				
(Fugitive Emissions)				
Total Reduced Sulfur				
(Fugitive Emissions)				
Mercury				
(Fugitive Emissions)				

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(Continued from last page)

AIR POLLUTANT	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Asbestos				
(Fugitive Emissions)				
Beryllium				
(Fugitive Emissions)				
Vinyl Chloride				
(Fugitive Emissions)				
Fluorides				
(Fugitive Emissions)				
Gaseous Fluorides				
(Fugitive Emissions)				
Greenhouse Gases in CO_2 Equivalents				

EMISSIONS SUMMARY TABLE – FUGITIVE HAZARDOUS AIR POLLUTANTS

5. Complete the following emissions summary for regulated air pollutants that are hazardous air pollutant(s). Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant & CAS	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Particulate HAP	1.20			
*Particulate HAP emissions are				
Included in the total for particulate				
in item 4 above				

6. Page number: 115 Revision number: Date of revision 04/15/19

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TITLE V PERMIT APPLICATION
CURRENT EMISSIONS REQUIREMENTS AND STATUS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Emission source number
Magotteaux Inc.	28-0025-28 Induction Furnace

3. Describe the process emission source / fuel burning installation / incinerator.

Induction Furnace - Induction melting of scrap steel with 30,000 cfm baghouse for particulate emission control.

EMISSIONS AND REQUIREMENTS

4. Identify if only a part of the source is subject to this requirement	5. Pollutant	6. Applicable requirement(s): TN Air Pollution Control Regulations, 40 CFR, permit restrictions, air quality based standards	7. Limitation	8. Maximum actual emissions	9. Compliance status (In/Out)
	Opacity	Permit Condition E3-20	20%	< 20%	IN
	Particulate	40 CFR 63 Subpart ZZZZZ	0.8lb/T of metal	0.8lb/T of metal	IN
	Partic. HAPs	40 CFR 63 Subpart ZZZZZ	0.06 lb/T of metal	0.06 lb/T of metal	IN
	Opacity	40 CFR 63 Subpart ZZZZZ	20%	< 20%	IN
		Condition 15-1	< 40,000T/yr	< 40,000T/yr	IN

10. Other applicable requirements (new requirements that apply to this source during the term of this permit)

11. Page number: 116 Revision number: Date of revision: 04/15/19

Attachment to APC V. 28

Magotteaux Inc.
Particulate and Particulate HAP Emission Calculation (28-0025-28)
Induction Furnace Melting Operation

Allowable Particulate Emissions / Estimated HAP Emissions

Source#	Metal Input Tons/hr	Operation Hrs/yr	Total Thruput tons/yr	Emissions lbs/hr	Emissions Tons/yr	Particulate HAP Emissio lbs/hr	Particulate HAP Emissio Tons/yr
28	9.6	8760	40000	7.68	16.0	0.58	1.20

PM Based on MACT Allowable Emissions of 0.8 lb/T of Metal Charged
Maximum % HAP of Particulate Emissions based on 7.50%

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TITLE V PERMIT APPLICATION
STACK IDENTIFICATION

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Emission source (identify):**
(28-0025-30) No-Bake Finishing and Grinding

STACK DESCRIPTION

3. Stack ID (or flow diagram point identification):
30-S1

4. Stack height above grade in feet:
42 feet

5. Velocity (data at exit conditions):
93.8 (Actual feet per second)

6. Inside dimensions at outlet in feet:
2.33' dia.

7. Exhaust flow rate at exit conditions (ACFM):
24,000 CFM

8. Flow rate at standard conditions (DSCFM):
24,000 CFM

9. Exhaust temperature:
ambient Degrees Fahrenheit (°F)

10. Moisture content (data at exit conditions):
ambient Percent _____ Grains per dry standard cubic foot (gr./dscf.)

11. Exhaust temperature that is equaled or exceeded during ninety (90) percent or more of the operating time (for stacks subject to diffusion equation only):
N/A (°F)

12. If this stack is equipped with continuous pollutant monitoring equipment required for compliance, what pollutant(s) does this equipment monitor (e.g., Opacity, SO_2, NO_x, etc.)?
N/A

Complete the appropriate APC form(s) 4, 5, 7, 8, 9, or 10 for each source exhausting through this stack.

BYPASS STACK DESCRIPTION

13. Do you have a bypass stack?
_____ Yes X No

If yes, describe the conditions which require its use & complete APC form 4 for the bypass stack. Please identify the stack number(s) of flow diagram point number(s) exhausting through this bypass stack.

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State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
STACK IDENTIFICATION

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Emission source (identify):**
(28-0025-30) No-Bake Finishing and Grinding

STACK DESCRIPTION

3. Stack ID (or flowdiagram point identification):
30-S2

4. Stack height above grade in feet:
45 feet

5. Velocity (data at exit conditions):
56.6 (Actual feet per second)

6. Inside dimensions at outlet in feet:
3.0' dia.

7. Exhaust flowrate at exit conditions (ACFM):
24,000 CFM

8. Flow rate at standard conditions (DSCFM):
24,000 CFM

9. Exhaust temperature:
ambient Degrees Fahrenheit (°F)

10. Moisture content (data at exit conditions):
ambient Percent _____ Grains per dry standard cubic foot (gr./dscf.)

11. Exhaust temperature that is equaled or exceeded during ninety (90) percent or more of the operating time (for stacks subject to diffusion equation only):
N/A (°F)

12. If this stack is equipped with continuous pollutant monitoring equipment required for compliance, what pollutant(s) does this equipment monitor (e.g., Opacity, SO_2, NO_x, etc.)?
N/A

Complete the appropriate APC form(s) 4, 5, 7, 8, 9, or 10 for each source exhausting through this stack.

BYPASS STACK DESCRIPTION

13. Do you have a bypass stack?
_____ Yes X No

If yes, describe the conditions which require its use & complete APC form 4 for the bypass stack. Please identify the stack number(s) of flow diagram point number(s) exhausting through this bypass stack.

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TITLE V PERMIT APPLICATION
STACK IDENTIFICATION

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Emission source (identify):**
(28-0025-30) No-Bake Finishing and Grinding

STACK DESCRIPTION

3. Stack ID (or flowdiagram point identification):
30-S3

4. Stack height above grade in feet:
17 feet

5. Velocity (data at exit conditions):
77.6 (Actual feet per second)

6. Inside dimensions at outlet in feet:
2.75 X 1.875

7. Exhaust flowrate at exit conditions (ACFM):
24,000 CFM

8. Flow rate at standard conditions (DSCFM):
24,000 CFM

9. Exhaust temperature:
ambient Degrees Fahrenheit (°F)

10. Moisture content (data at exit conditions):
ambient Percent _____ Grains per dry standard cubic foot (gr./dscf.)

11. Exhaust temperature that is equaled or exceeded during ninety (90) percent or more of the operating time (for stacks subject to diffusion equation only):
N/A (°F)

12. If this stack is equipped with continuous pollutant monitoring equipment required for compliance, what pollutant(s) does this equipment monitor (e.g., Opacity, SO_2, NO_x, etc.)?
N/A

Complete the appropriate APC form(s) 4, 5, 7, 8, 9, or 10 for each source exhausting through this stack.

BYPASS STACK DESCRIPTION

13. Do you have a bypass stack?
_____ Yes X No

If yes, describe the conditions which require its use & complete APC form 4 for the bypass stack. Please identify the stack number(s) of flowdiagram point number(s) exhausting through this bypass stack.

14. Page number: 120 Revision Number: Date of Revision: 04/15/19

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TITLE V PERMIT APPLICATION
MISCELLANEOUS PROCESSES

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Process emission source (identify):**
28-0025-30 No-Bake Finishing and Grinding

3. Stack ID or flow diagram point identification (s):
30-S1, S2, S3

4. Year of construction or last modification:
1994

If the emissions are controlled for compliance, attach an appropriate Air Pollution Control system form.

5. Normal operating schedule: 24 Hrs./Day 7 Days/Wk. 365 Days/Yr.

6. Location of this process emission source in UTM coordinates: UTM Vertical: 3896.88 N UTM Horizontal: 494.57 E

7. Describe this process (Please attach a flow diagram of this process) and check one of the following:

[ ] Batch [✓] Continuous

PROCESS MATERIAL INPUT AND OUTPUT

8. List the types and amounts of raw materials input to this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Rough Castings	Grinding and Cutting	12 tons/hr	20 tons/hr

9. List the types and amounts of primary products produced by this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Finished Castings	Transfer to Storage and Shipping	12 tons/hr	20 tons/hr

10. Process fuel usage:

Type of fuel	Max heat input (10^6 BTU/Hr.)	Average usage (units)	Maximum usage (units)
N/A			

11. List any solvents, cleaners, etc., associated with this process:

N/A

If the emissions and/or operations of this process are monitored for compliance, please attach the appropriate Compliance Demonstration form.

12. Describe any fugitive emissions associated with this process, such as outdoor storage piles, open conveyors, open air sand blasting, material handling operations, etc. (please attach a separate sheet if necessary).

N/A

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TITLE V PERMIT APPLICATION
CONTROL EQUIPMENT - CYCLONES/SETTLING CHAMBERS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Emission source (identify):
28-0025-30 No-Bake Finishing and Grinding

3. Stack ID or flow diagram point identification (s):
30-S1, 30-S2, and 30-S3

CYCLONE/SETTLING CHAMBER DESCRIPTION

4. Describe the device in use. List the key operating parameters of this device and their normal operating range.

The source consists of grinding and cutting of steel castings using a cup-wheel grinder, swing frame grinders, and a cut-off saw. The source uses three cyclones each rated at 24,000 cfm, with efficiencies of 97.37% for the control of particulate emissions. All three cyclones are similar and have the same efficiency.

5. List of pollutants (s) to be controlled and the expected control efficiency for each pollutant.

Pollutant	Efficiency (%)	Source of data
Particulate	97.37	Manufacturer Claim

6. Discuss how collected material is handled for reuse or disposal.
Collected particulate is landfilled.

7. Gas flow rate (ACFM):
Source is exhausted by three cyclones, each with airflow rating of 24,000 cfm and an efficiency of 97.37%.

8. If this control equipment is in series with some other control equipment, state and specify the overall efficiency.
N/A

9. Page number: 122 Revision Number: Date of Revision: 04/15/19

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TITLE V PERMIT APPLICATION
COMPLIANCE CERTIFICATION - MONITORING AND REPORTING
DESCRIPTION OF METHODS USED FOR DETERMINING COMPLIANCE

All sources that are subject to 1200-03-09-.02(11) of the Tennessee Air Pollution Control Regulations are required to certify compliance with all applicable requirements by including a statement within the permit application of the methods used for determining compliance. This statement must include a description of the monitoring, recordkeeping, and reporting requirements and test methods. In addition, the application must include a schedule for compliance certification submittals during the permit term. These submittals must be no less frequent than annually and may need to be more frequent if specified by the underlying applicable requirement or the Technical Secretary.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.
2. Process emission source, fuel burning installation, or incinerator (identify): (28-0025-30) No-Bake Finishing and Grinding
3. Stack ID or flowdiagram point identification(s): 30-S1, 30-S2, and 30-S3

METHODS OF DETERMINING COMPLIANCE

4. This source as described under Item #2 of this application will use the following method(s) for determining compliance with applicable requirements (and special operating conditions from an existing permit). Check all that apply and attach the appropriate form(s)

[ ] Continuous Emission Monitoring (CEM) - APC 20
Pollutant(s):

[ ] Emission Monitoring Using Portable Monitors - APC 21
Pollutant(s):

[✓] Monitoring Control System Parameters or Operating Parameters of a Process - APC 22
Pollutant(s): Opacity

[ ] Monitoring Maintenance Procedures - APC 23
Pollutant(s):

[ ] Stack Testing - APC 24
Pollutant(s):

[ ] Fuel Sampling & Analysis (FSA) - APC 25
Pollutant(s):

[✓] Recordkeeping - APC 26
Pollutant(s): Particulates

[ ] Other (please describe) - APC 27
Pollutant(s):

5. Compliance certification reports will be submitted to the Division according to the following schedule:

Start date: Per the Title V permit.

And every _____ days thereafter.

6. Compliance monitoring reports will be submitted to the Division according to the following schedule:

Start date: Per the Title V permit.

And every _____ days thereafter.

7. Page number: 123 Revision number: Date of revision: 04/15/19

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TITLE V PERMIT APPLICATION - COMPLIANCE DEMONSTRATION BY MONITORING CONTROL SYSTEM PARAMETERS OR OPERATING PARAMETERS OF A PROCESS

The monitoring of a control system parameter or a process parameter shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value and the emission rate of a particular pollutant is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s)
30-S1, 30-S2, and 30-S3 No-Bake Finishing and Grinding

3. Emission source:
(28-0025-30) No-Bake Finishing and Grinding

MONITORING DESCRIPTION

4. Pollutant(s) being monitored:
Opacity

5. Description of the method of monitoring and establishment of correlation between the parameter value and the emission rate of a particular pollutant:

Based on the capacity matrix decision tree for EPA Method 9, no opacity readings are required for sources with allowable emissions of less than 10 tons.

6. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
In accordance with the opacity decision matrix, no readings are required.

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TITLE V PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY RECORDKEEPING

Recordkeeping shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value recorded and the applicable requirement is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s):
30-S1, 30-S2, and 30-S3 No-Bake Finishing and Grinding

3. Emission source (identify):
(28-0025-30) No-Bake Finishing and Grinding

MONITORING AND RECORDKEEPING DESCRIPTION

4. Pollutant(s) or parameter being monitored:
Particulate Emissions

5. Material or parameter being monitored and recorded:
Operator will maintain daily records of the cyclone inspections and maintenance.

6. Method of monitoring and recording:

Records will be maintained of the daily Cyclone inspections and maintenance. The emissions are estimated using the method shown in the attachment to APC V .28.

7. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
Monthly

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TITLE V PERMIT APPLICATION
EMISSIONS FROM PROCESS EMISSION SOURCE / FUEL BURNING INSTALLATION / INCINERATOR

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flowdiagram point identification(s):
30-S1, 30-S2, and 30-S3 No-Bake Finishing and Grinding

3. Process emission source / Fuel burning installation / Incinerator (identify):
(28-0025-30) Finishing and Grinding

EMISSIONS SUMMARY TABLE – CRITERIA AND FUGITIVE EMISSIONS

4. Complete the following emissions summary for regulated air pollutants. Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Particulate Matter (TSP)	0.375			
(Fugitive Emissions)				
Sulfur Dioxide				
(Fugitive Emissions)				
Volatile Organic Compounds				
(Fugitive Emissions)				
Carbon Monoxide				
(Fugitive Emissions)				
Lead				
(Fugitive Emissions)				
Nitrogen Oxides				
(Fugitive Emissions)				
Total Reduced Sulfur				
(Fugitive Emissions)				
Mercury				
(Fugitive Emissions)				

(Continued on next page)

(Continued from last page)

AIR POLLUTANT	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Asbestos				
(Fugitive Emissions)				
Beryllium				
(Fugitive Emissions)				
Vinyl Chloride				
(Fugitive Emissions)				
Fluorides				
(Fugitive Emissions)				
Gaseous Fluorides				
(Fugitive Emissions)				
Greenhouse Gases in CO_2 Equivalents				

EMISSIONS SUMMARY TABLE – FUGITIVE HAZARDOUS AIR POLLUTANTS

5. Complete the following emissions summary for regulated air pollutants that are hazardous air pollutant(s). Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant & CAS	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
* Particulate HAPs				
* Particulate HAPs are included in				
particulate total in item no. 4				

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TITLE V PERMIT APPLICATION
CURRENT EMISSIONS REQUIREMENTS AND STATUS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Emission source number
Magotteaux Inc.	28-0025-30 No-Bake Finishing and Grinding

3. Describe the process emission source / fuel burning installation / incinerator.

No-Bake Finishing and Grinding - Emissions are controlled using three cyclones each rated at 24,000 cfm, with efficiency of 97.37%.

EMISSIONS AND REQUIREMENTS

4. Identify if only a part of the source is subject to this requirement	5. Pollutant	6. Applicable requirement(s): TN Air Pollution Control Regulations, 40 CFR, permit restrictions, air quality based standards	7. Limitation	8. Maximum actual emissions	9. Compliance status (In/Out)
	Particulate	Permit Condition E17-1	0.18 lbs/hr	< 0.18 lbs/hr	IN
	Opacity	Permit Condition E17-2	10%	< 10%	IN

10. Other applicable requirements (new requirements that apply to this source during the term of this permit)

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Attachment to APC V.28
Calculations: No-Bake Finishing and Grinding (28-0025-30)

Allowable Emissions:

Based on PWR equation:
$E = 3.59P^{0.62}$ $P = 6$ tons/hr
$E = 3.59(6)^{0.62} = 10.90$ lbs/hr

Magotteaux Inc. has agreed to an allowable limit of 0.18 lbs/hr and 0.375 tons/yr

Actual Emissions:

Based on the weight of particulates collected in the drop-out drums beneath the cyclones and a collection efficiency of 97.37%, the actual emissions are calculated as follows;

Cyclone Dust (Captured) = 50.0 lb/day = (50.0 lb/day)(day/24 hr) = 2.08 lb/hr
Cyclone Dust (Captured) = 50.0 lb/day = (50.0 lb/day)(365days/yr) = 18250 lb/yr

E = ((Cyclone Dust Captured)/(Cyclone Efficiency))(1-Cyclone Efficiency)

E = ((18250lb/yr)/(0.9737))(1-0.9737) = 492.94 lb/yr = **0.25 tons/yr (Total for all three cyclones)**

HAP Emissions

HAP Emissions are estimated to be 4% of particulate emissions from this source based on analysis of the dust collected from the cyclone. The estimated HAP emissions are therefore;

E_{HAP} = (0.25 tons/yr)(0.04) = 0.01 tons/year

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TITLE V PERMIT APPLICATION
STACK IDENTIFICATION

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Emission source (identify):**
(28-0025-33) No-Bake Shakeout

STACK DESCRIPTION

3. Stack ID (or flowdiagram point identification):
33-S1

4. Stack height above grade in feet:
46 feet

5. Velocity (data at exit conditions):
52.8 (Actual feet per second)

6. Inside dimensions at outlet in feet:
3.75 feet dia.

7. Exhaust flowrate at exit conditions (ACFM):
35,000 CFM

8. Flow rate at standard conditions (DSCFM):
35,000 CFM

9. Exhaust temperature:
ambient Degrees Fahrenheit (°F)

10. Moisture content (data at exit conditions):
< 20 Percent _____ Grains per dry standard cubic foot (gr./dscf.)

11. Exhaust temperature that is equaled or exceeded during ninety (90) percent or more of the operating time (for stacks subject to diffusion equation only):
N/A (°F)

12. If this stack is equipped with continuous pollutant monitoring equipment required for compliance, what pollutant(s) does this equipment monitor (e.g., Opacity, SO_2, NO_x, etc.)?
N/A

Complete the appropriate APC form(s) 4, 5, 7, 8, 9, or 10 for each source exhausting through this stack.

BYPASS STACK DESCRIPTION

13. Do you have a bypass stack?
_____ Yes X No

If yes, describe the conditions which require its use & complete APC form 4 for the bypass stack. Please identify the stack number(s) of flow diagram point number(s) exhausting through this bypass stack.

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TITLE V PERMIT APPLICATION
STACK IDENTIFICATION

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Emission source (identify):**
(28-0025-33) No-Bake Shakeout

STACK DESCRIPTION

3. Stack ID (or flow diagram point identification):
33-S2

4. Stack height above grade in feet:
43 feet

5. Velocity (data at exit conditions):
132 (Actual feet per second)

6. Inside dimensions at outlet in feet:
2.5 feet dia.

7. Exhaust flow rate at exit conditions (ACFM):
39,000 CFM

8. Flow rate at standard conditions (DSCFM):
39,000 CFM

9. Exhaust temperature:
ambient Degrees Fahrenheit (°F)

10. Moisture content (data at exit conditions):
< 20 Percent _____ Grains per dry standard cubic foot (gr./dscf.)

11. Exhaust temperature that is equaled or exceeded during ninety (90) percent or more of the operating time (for stacks subject to diffusion equation only):
N/A (°F)

12. If this stack is equipped with continuous pollutant monitoring equipment required for compliance, what pollutant(s) does this equipment monitor (e.g., Opacity, SO_2, NO_x, etc.)?
N/A

Complete the appropriate APC form(s) 4, 5, 7, 8, 9, or 10 for each source exhausting through this stack.

BYPASS STACK DESCRIPTION

13. Do you have a bypass stack?
_____ Yes X No

If yes, describe the conditions which require its use & complete APC form 4 for the bypass stack. Please identify the stack number(s) of flow diagram point number(s) exhausting through this bypass stack.

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TITLE V PERMIT APPLICATION
MISCELLANEOUS PROCESSES

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Process emission source (identify):**
28-0025-33 No-Bake Shakeout

3. Stack ID or flow diagram point identification (s):
33-S1 and 33-S2

4. Year of construction or last modification:
1997

If the emissions are controlled for compliance, attach an appropriate Air Pollution Control system form.

5. Normal operating schedule: 24 Hrs./Day 6 Days/Wk. 300 Days/Yr.

6. Location of this process emission source in UTM coordinates: UTM Vertical: 3896.88 N UTM Horizontal: 494.57 E

7. Describe this process (Please attach a flow diagram of this process) and check one of the following:

[ ] Batch [✓] Continuous

PROCESS MATERIAL INPUT AND OUTPUT

8. List the types and amounts of raw materials input to this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Sand		11.25 ton/hr	35 ton/hr
Binder		0.13 ton/hr	0.4 ton/hr
Catalyst		0.05 ton/hr	0.2 ton/hr
Hot Topping		0.011 ton/hr	0.035 ton/hr

9. List the types and amounts of primary products produced by this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Sand		11.25 ton/hr	35 ton/hr
Catings		3.0 ton/hr	15 ton/hr

10. Process fuel usage:

Type of fuel	Max heat input (10^6 BTU/Hr.)	Average usage (units)	Maximum usage (units)
N/A			

11. List any solvents, cleaners, etc., associated with this process:
N/A

If the emissions and/or operations of this process are monitored for compliance, please attach the appropriate Compliance Demonstration form.

12. Describe any fugitive emissions associated with this process, such as outdoor storage piles, open conveyors, open air sand blasting, material handling operations, etc. (please attach a separate sheet if necessary).
N/A

13. Page number: 132 Revision Number: Date of Revision: 04/15/19

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TITLE V PERMIT APPLICATION
CONTROL EQUIPMENT - BAGHOUSES/FABRIC FILTERS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Emission source (identify):
28-0025-33 No-Bake Shakeout

3. Stack ID or flowdiagram point identification (s):
33-S1

BAGHOUSE/FABRIC FILTER DESCRIPTION

4. Describe the device in use. List the key operating parameters of this device and their normal operating range.

No-Bake Shakeout - Castings are poured and allowed to cool before being broken out of the molds on a vibrating table. Following removal of the castings, the reusable sand is separated from the sand fines and any remaining metallic material is removed by the Didion Drum. A 39,000 cfm baghouse (S2) exhausts the inclined conveyor, Themal Reclaimer, shot blast, sand cooler, Didion, and miscellaneous sand transfer points. A 35,000 cfm baghouse (S1) exhausts the vibrating table and sand bin. There is a hood at the mold dump and overhead canopy with collects emissions from the vibrating table, any emissions escaping past the Table Shot Blast, (i.e. when doors open), and from the point where the molds exit the vibrating table and enter onto the inclined conveyor. This page details the 35,000 cfm baghouse (S1).

5. Manufacturer and model number (if available):
Unavailable

6. Year of installation:
1978

7. List of pollutant(s) to be controlled and the expected control efficiency for each pollutant (see instructions).

Pollutant	Efficiency (%)	Source of data
Particulate	99	Engineering Experience

8. Discuss how collected material is handled for reuse or disposal.
Captured particulate is trucked to landfill

9. If the bags are coated, specify the material used for coating and frequency of coating
N/A

10. Does the baghouse collect asbestos containing material?
Yes [ ] No [✓]
If "Yes", provide data as outlined in Item 10, Instructions for this form.

11. If this control equipment is in series with some other control equipment, state and specify the overall efficiency.
N/A

12. Page number: 133 Revision Number: Date of Revision: 04/15/19

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TITLE V PERMIT APPLICATION
CONTROL EQUIPMENT - BAGHOUSES/FABRIC FILTERS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Emission source (identify):
28-0025-33 No-Bake Shakeout

3. Stack ID or flowdiagram point identification (s):
33-S2

BAGHOUSE/FABRIC FILTER DESCRIPTION

4. Describe the device in use. List the key operating parameters of this device and their normal operating range.

No-Bake Shakeout - Castings are poured and allowed to cool before being broken out of the molds on a vibrating table. Following removal of the castings, the reusable sand is separated from the sand fines and any remaining metallic material is removed by the Didion Drum. A 39,000 cfm baghouse (S2) exhausts the inclined conveyor, Themal Reclaimer, shot blast, sand cooler, Didion, and miscellaneous sand transfer points. A 35,000 cfm baghouse (S1) exhausts the vibrating table and sand bin. There is a hood at the mold dump and overhead canopy with collects emissions from the vibrating table, any emissions escaping past the Table Shot Blast, (i.e. when doors open), and from the point where the molds exit the vibrating table and enter onto the inclined conveyor. This page details the 39,000 cfm baghouse (S2).

5. Manufacturer and model number (if available):
Unavailable

6. Year of installation:
1978

7. List of pollutant(s) to be controlled and the expected control efficiency for each pollutant (see instructions).

Pollutant	Efficiency (%)	Source of data
Particulate	99	Engineering Estimate

8. Discuss how collected material is handled for reuse or disposal.
Captured particulate is trucked to landfill.

9. If the bags are coated, specify the material used for coating and frequency of coating
N/A

10. Does the baghouse collect asbestos containing material?

Yes [ ] No [✓]

If "Yes", provide data as outlined in Item 10, Instructions for this form.

11. If this control equipment is in series with some other control equipment, state and specify the overall efficiency.
N/A

12. Page number: 134 Revision Number: Date of Revision: 04/15/19

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TITLE V PERMIT APPLICATION
COMPLIANCE CERTIFICATION - MONITORING AND REPORTING
DESCRIPTION OF METHODS USED FOR DETERMINING COMPLIANCE

All sources that are subject to 1200-03-09-.02(11) of the Tennessee Air Pollution Control Regulations are required to certify compliance with all applicable requirements by including a statement within the permit application of the methods used for determining compliance. This statement must include a description of the monitoring, recordkeeping, and reporting requirements and test methods. In addition, the application must include a schedule for compliance certification submittals during the permit term. These submittals must be no less frequent than annually and may need to be more frequent if specified by the underlying applicable requirement or the Technical Secretary.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.
2. Process emission source, fuel burning installation, or incinerator (identify): (28-0025-33) No-Bake Shakeout
3. Stack ID or flow diagram point identification(s): 33-S1 and 33-S2

METHODS OF DETERMINING COMPLIANCE

4. This source as described under Item #2 of this application will use the following method(s) for determining compliance with applicable requirements (and special operating conditions from an existing permit). Check all that apply and attach the appropriate form(s)

- [ ] Continuous Emission Monitoring (CEM) - APC 20
  Pollutant(s):
- [ ] Emission Monitoring Using Portable Monitors - APC 21
  Pollutant(s):
- [✓] Monitoring Control System Parameters or Operating Parameters of a Process - APC 22
  Pollutant(s): PM, Opacity
- [ ] Monitoring Maintenance Procedures - APC 23
  Pollutant(s):
- [ ] Stack Testing - APC 24
  Pollutant(s):
- [ ] Fuel Sampling & Analysis (FSA) - APC 25
  Pollutant(s):
- [✓] Recordkeeping - APC 26
  Pollutant(s): VOCs, SO2, CO, NOx, and HAPs
- [ ] Other (please describe) - APC 27
  Pollutant(s):

5. Compliance certification reports will be submitted to the Division according to the following schedule:

   Start date: Per the Title V Permit.

   And every _____ days thereafter.

6. Compliance monitoring reports will be submitted to the Division according to the following schedule:

   Start date: Per the Title V Permit.

   And every _____ days thereafter.

7. Page number: 135 Revision number: Date of revision: 04/16/19

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
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TITLE V PERMIT APPLICATION - COMPLIANCE DEMONSTRATION BY MONITORING CONTROL SYSTEM PARAMETERS OR OPERATING PARAMETERS OF A PROCESS

The monitoring of a control system parameter or a process parameter shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value and the emission rate of a particular pollutant is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s)
33-S1 and 33-S2 No-Bake Shakeout

3. Emission source:
(28-0025-33) No-Bake Shakeout

MONITORING DESCRIPTION

4. Pollutant(s) being monitored:
PM, Opacity

5. Description of the method of monitoring and establishment of correlation between the parameter value and the emission rate of a particular pollutant:

Pressure drop across Baghouse 33-S1 will be measured once per day to assure pressure drop to be maintained at equal to or greater than 0.5 inches of H2O.
Pressure drop across Baghouse 33-S2 will be measured once per day to assure pressure drop to be maintained at equal to or greater than 1.5 inches of H2O.
Opacity to be measured in accordance with June 18, 1996 Opacity Matrix.

6. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):

In accordance with the opacity matrix, VEE readings will be performed as required.

7. Page number: 136 Revision number: Date of revision: 04/16/19

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TITLE V PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY RECORDKEEPING

Recordkeeping shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value recorded and the applicable requirement is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s):
33-S1 and 33-S2 No-Bake Shakeout

3. Emission source (identify):
(28-0025-33) No-Bake Shakeout

MONITORING AND RECORDKEEPING DESCRIPTION

4. Pollutant(s) or parameter being monitored:
VOCs, SO2, CO, NOx

5. Material or parameter being monitored and recorded:
Operator will maintain records of the weight of no-bake resin used in the process, and records of the hours of operation of the process.

6. Method of monitoring and recording:
Monthly records will be kept of the weight of No-Bake resin used in the process, and daily records of the hours of operation of the process.

7. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
Monthly

8. Page number: 137 | Revision number: | Date of revision: 04/16/19

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TITLE V PERMIT APPLICATION
EMISSIONS FROM PROCESS EMISSION SOURCE / FUEL BURNING INSTALLATION / INCINERATOR

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flowdiagram point identification(s):
33-S1 and 33-S2 No-Bake Shakeout

3. Process emission source / Fuel burning installation / Incinerator (identify):
(28-0025-33) No-Bake Shakeout

EMISSIONS SUMMARY TABLE – CRITERIA AND FUGITIVE EMISSIONS

4. Complete the following emissions summary for regulated air pollutants. Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Particulate Matter (TSP)	31.0			
(Fugitive Emissions)				
Sulfur Dioxide	21.6			
(Fugitive Emissions)				
Volatile Organic Compounds	11.5			
(Fugitive Emissions)				
Carbon Monoxide	40.6			
(Fugitive Emissions)				
Lead	N/A			
(Fugitive Emissions)				
Nitrogen Oxides	0.064			
(Fugitive Emissions)				
Total Reduced Sulfur	N/A			
(Fugitive Emissions)				
Mercury	N/A			
(Fugitive Emissions)				

(Continued on next page)

(Continued from last page)

AIR POLLUTANT	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Asbestos				
(Fugitive Emissions)				
Beryllium				
(Fugitive Emissions)				
Vinyl Chloride				
(Fugitive Emissions)				
Fluorides				
(Fugitive Emissions)				
Gaseous Fluorides				
(Fugitive Emissions)				
Greenhouse Gases in CO_2 Equivalents				

EMISSIONS SUMMARY TABLE – FUGITIVE HAZARDOUS AIR POLLUTANTS

5. Complete the following emissions summary for regulated air pollutants that are hazardous air pollutant(s). Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant & CAS	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Gaseous HAPs			13.3*	

6. Page number: 139 Revision number: Date of revision 04/16/19

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TITLE V PERMIT APPLICATION
CURRENT EMISSIONS REQUIREMENTS AND STATUS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Emission source number
Magotteaux Inc.	28-0025-33

3. Describe the process emission source / fuel burning installation / incinerator.

No-Bake Skakeout - Castings are poured and allowed to cool before being broken out of the molds on a vibrating table.

EMISSIONS AND REQUIREMENTS

4. Identify if only a part of the source is subject to this requirement	5. Pollutant	6. Applicable requirement(s): TN Air Pollution Control Regulations, 40 CFR, permit restrictions, air quality based standards	7. Limitation	8. Maximum actual emissions	9. Compliance status (In/Out)
	Particulate	Condition E18-2 - rule 1200-3-7-.01(5)	8.62 lbs/hr (Total)	< 8.62 lbs/hr(Total)	IN
	VOCs	Permit Condition E18-3	1.92 tons/month	< 1.92 tons/month	IN
	Opacity	Permit Condition E18-7	10%	<10%	IN
	SO2	Permit Condition E18-5	6.0 lb/hr	< 6.0 lb/hr	IN
	NOx	Permit Condition E18-6	0.011 tons/month	< 0.011 tons/mo	IN
	HAP	Permit Condition E18-4	2.22 tons/month	< 2.22 tons/month	IN
		Permit Condition E18-1	NTE 7200 pr 12m	NTE 7200 pr 12m	IN

10. Other applicable requirements (new requirements that apply to this source during the term of this permit)

11. Page number: 140 Revision number: Date of revision: 04/16/19

Attachment to APC V. 28 (continued)
Calculations and Emission Factor Reference: No-Bake Pouring, Cooling, and Shakeout (28-0025-33)

Phenolic No-Bake Ref: Gary E. Mosher

Allowable Emissions:
Based on average monthly usage of 11.25 ton/hr sand input
and operating time = 7200 hr/yr

Source	Mold/Core Ratio	% Resin	Usage (lb/hr)
No-Bake Mold	0.8752	1.68	330.83
No-Bake Core	0.1098	1.92	47.43
Pre-coat Core	0.015	4.5	15.19

Pollutant	No-Bake Mold			No-Bake Core			Pre-coat Core			TOTAL Emission	
	Factor	Emission (ton/month)	Emission (TPY)	Factor	Emission (ton/month)	Emission (TPY)	Factor	Emission (ton/month)	Emission (TPY)	(ton/month)	(TPY)
NO_x	0.000029	0.003	0.035	2.9E-05	0.0004	0.005	0.00099	0.005	0.054	0.008	0.094
SO_2	0.015107	1.499	17.99	0.01511	0.215	2.580	0.00351	0.016	0.192	1.73	20.76
CO	0.049440	4.907	58.88	0.049440	0.704	8.442	0.03717	0.169	2.032	5.78	69.36
VOC	0.012159	1.207	14.48	0.01216	0.173	2.076	0.02242	0.102	1.226	1.48	17.78
Total HAP*	0.016174	1.605	19.26	0.01617	0.230	2.762	0.02622	0.119	1.434	1.95	23.46

*HAP emissions include all gaseous HAPs

Attachment to APC V. 28
Calculations and Emission Factor Reference: No-Bake Shakeout (28-0025-33)

Castings are poured and allowed to cool before being broken out of the molds on a vibrating table. Following removal of the castings, the reusable sand is separated from the sand fines and any remaining metallic material on the inclined shaker and vibramill. This operation is exhausted by two baghouses. Emissions are inclusive in the agreed to limit as noted below. The input to the vibrating table consists of both castings and sand. The input to the inclined shaker consists of only sand.

Allowable Emissions:

Particulate Emissions:

Magotteaux has agreed to an allowable limit of 0.015 gr/dscf (4.5 lb/hr) for 33-S1 and 0.011 gr/dscf (3.14 lb/hr) for 33-S2. Also, Magotteaux has agreed to an operating time

35,000 cfm baghouse (33-S1)
(35,000 cfm)(0.015 gr/dscf)(1 lb/7000 gr)(60 min/hr) = 4.5 lb/hr = 16.20 TPY
33,300 cfm baghouse (33-S2)
(33,300 cfm)(0.011 gr/dscf)(1 lb/7000 gr)(60 min/hr) = 3.14 lb/hr = 11.30 TPY

Combined PM Limit:
4.5 + 3.14 = 7.64 lb/hr
7.64 (lb/hr)(7200 hr/yr)/(2000 lb/ton) = 27.5 TPY

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TITLE V PERMIT APPLICATION
STACK IDENTIFICATION

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Emission source (identify):**
(28-0025-36) No-Bake Mixer

STACK DESCRIPTION

3. Stack ID (or flowdiagram point identification):
36-S1

4. Stack height above grade in feet:
41 feet

5. Velocity (data at exit conditions):
81 (Actual feet per second)

6. Inside dimensions at outlet in feet:
2.17 feet dia.

7. Exhaust flowrate at exit conditions (ACFM):
21,500 CFM

8. Flow rate at standard conditions (DSCFM):
21,500 CFM

9. Exhaust temperature:
ambient Degrees Fahrenheit (°F)

10. Moisture content (data at exit conditions):
1 Percent _____ Grains per dry standard cubic foot (gr./dscf.)

11. Exhaust temperature that is equaled or exceeded during ninety (90) percent or more of the operating time (for stacks subject to diffusion equation only):
N/A (°F)

12. If this stack is equipped with continuous pollutant monitoring equipment required for compliance, what pollutant(s) does this equipment monitor (e.g., Opacity, SO_2, NO_x, etc.)?
N/A

Complete the appropriate APC form(s) 4, 5, 7, 8, 9, or 10 for each source exhausting through this stack.

BYPASS STACK DESCRIPTION

13. Do you have a bypass stack?
_____ Yes X No

If yes, describe the conditions which require its use & complete APC form 4 for the bypass stack. Please identify the stack number(s) of flow diagram point number(s) exhausting through this bypass stack.

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TITLE V PERMIT APPLICATION
MISCELLANEOUS PROCESSES

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Process emission source (identify):**
28-0025-36 No-Bake Mixer

3. Stack ID or flowdiagram point identification(s):
36-S1

4. Year of construction or last modification:
1993

If the emissions are controlled for compliance, attach an appropriate Air Pollution Control system form.

5. Normal operating schedule: 24 Hrs./Day 6 Days/Wk. 312 Days/Yr.

6. Location of this process emission source in UTM coordinates: UTM Vertical: 3896.88 N UTM Horizontal: 494.57 E

7. Describe this process (Please attach a flow diagram of this process) and check one of the following:

[✓] Batch [ ] Continuous

PROCESS MATERIAL INPUT AND OUTPUT

8. List the types and amounts of raw materials input to this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Silica Sand	Mixing	3470.8 tons/month	6000 tons/month
Iron Oxide		12.3 tons/month	19.5 tons/month
Resin (Binder)		46.5 tons/month	66.7 tons/month
Acid Catalyst		24.4 tons/month	27.5 tons/month

9. List the types and amounts of primary products produced by this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Prepared No-Bake Sand	Mixed no-bake sand ready for mold forming	3554 tons/month	6113.7 tons/month

10. Process fuel usage:

Type of fuel	Max heat input (10^6 BTU/Hr.)	Average usage (units)	Maximum usage (units)
N/A			

11. List any solvents, cleaners, etc., associated with this process:
N/A

If the emissions and/or operations of this process are monitored for compliance, please attach the appropriate Compliance Demonstration form.

12. Describe any fugitive emissions associated with this process, such as outdoor storage piles, open conveyors, open air sand blasting, material handling operations, etc. (please attach a separate sheet if necessary).
N/A

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TITLE V PERMIT APPLICATION
CONTROL EQUIPMENT - BAGHOUSES/FABRIC FILTERS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Emission source (identify):
28-0025-36 No-Bake Mixer

3. Stack ID or flowdiagram point identification (s):
36-S1

BAGHOUSE/FABRIC FILTER DESCRIPTION

4. Describe the device in use. List the key operating parameters of this device and their normal operating range.

21,500 cfm baghouse is used to control particulate emissions from the No-Bake Mixer. Gaseous VOC emissions from this source are uncontrolled fugitive emissions. The baghouse pressure differential is operated at a pressure differential greater than the required minimum of 0.2 inches of water.

5. Manufacturer and model number (if available):
Steelcraft

6. Year of installation:
1993

7. List of pollutant(s) to be controlled and the expected control efficiency for each pollutant (see instructions).

Pollutant	Efficiency (%)	Source of data
Particulate	99	Manufacturer Claim

8. Discuss how collected material is handled for reuse or disposal.
Captured particulate is landfilled

9. If the bags are coated, specify the material used for coating and frequency of coating
N/A

10. Does the baghouse collect asbestos containing material?
Yes ☐ No ☑
If "Yes", provide data as outlined in Item 10, Instructions for this form.

11. If this control equipment is in series with some other control equipment, state and specify the overall efficiency.
N/A

12. Page number: 145 Revision Number: Date of Revision: 04/16/19

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TITLE V PERMIT APPLICATION
COMPLIANCE CERTIFICATION - MONITORING AND REPORTING
DESCRIPTION OF METHODS USED FOR DETERMINING COMPLIANCE

All sources that are subject to 1200-03-09-.02(11) of the Tennessee Air Pollution Control Regulations are required to certify compliance with all applicable requirements by including a statement within the permit application of the methods used for determining compliance. This statement must include a description of the monitoring, recordkeeping, and reporting requirements and test methods. In addition, the application must include a schedule for compliance certification submittals during the permit term. These submittals must be no less frequent than annually and may need to be more frequent if specified by the underlying applicable requirement or the Technical Secretary.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.
2. Process emission source, fuel burning installation, or incinerator (identify): (28-0025-36) No-Bake Mixer
3. Stack ID or flow diagram point identification(s): 36-S1

METHODS OF DETERMINING COMPLIANCE

4. This source as described under Item #2 of this application will use the following method(s) for determining compliance with applicable requirements (and special operating conditions from an existing permit). Check all that apply and attach the appropriate form(s)

[ ] Continuous Emission Monitoring (CEM) - APC 20
Pollutant(s):

[ ] Emission Monitoring Using Portable Monitors - APC 21
Pollutant(s):

[✓] Monitoring Control System Parameters or Operating Parameters of a Process - APC 22
Pollutant(s): Opacity

[ ] Monitoring Maintenance Procedures - APC 23
Pollutant(s):

[ ] Stack Testing - APC 24
Pollutant(s):

[ ] Fuel Sampling & Analysis (FSA) - APC 25
Pollutant(s):

[✓] Recordkeeping - APC 26
Pollutant(s): Particulates, VOCs

[ ] Other (please describe) - APC 27
Pollutant(s):

5. Compliance certification reports will be submitted to the Division according to the following schedule:
Start date: Per the Title V permit.
And every _____ days thereafter.

6. Compliance monitoring reports will be submitted to the Division according to the following schedule:
Start date: Per the Title V permit.
And every _____ days thereafter.

7. Page number: 146 Revision number: Date of revision: 04/16/19

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Department of Environment and Conservation
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TITLE V PERMIT APPLICATION - COMPLIANCE DEMONSTRATION BY MONITORING CONTROL SYSTEM PARAMETERS OR OPERATING PARAMETERS OF A PROCESS

The monitoring of a control system parameter or a process parameter shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value and the emission rate of a particular pollutant is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s)
36-S1 No-Bake Mixer

3. Emission source:
(28-0025-36) No-Bake Mixer

MONITORING DESCRIPTION

4. Pollutant(s) being monitored:
Opacity

5. Description of the method of monitoring and establishment of correlation between the parameter value and the emission rate of a particular pollutant:

As per the initial Title V Permit term, and based on the opacity matrix decision tree, an initial 30 minute visible emission evaluation will be made using EPA Method 9 within one year of issuance. The number and timing of subsequent observations will be based on the results of the initial readings.

6. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
VEE observations will be made as required by the opacity matrix and the results of the initial opacity reading.

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TITLE V PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY RECORDKEEPING

Recordkeeping shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value recorded and the applicable requirement is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s):
36-S1 No-Bake Mixer

3. Emission source (identify):
(28-0025-36) No-Bake Mixer

MONITORING AND RECORDKEEPING DESCRIPTION

4. Pollutant(s) or parameter being monitored:
Particulate, VOCs

5. Material or parameter being monitored and recorded:
Operator will maintain records of the weight of VOC containing inputs consumed in the process and the pressure differential across the baghouse.

6. Method of monitoring and recording:

Monthly records will be kept of the weight of VOC containing inputs to the process. Daily records will be kept of the operating time and the pressure differential across the baghouse. A log of the maintenance performed on the baghouse will be kept as a part of the PM compliance demostration.

The emissions will be estimated using the method shown on the attachment to APC V .28.

7. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
Monthly & Daily

8. Page number: 148
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TITLE V PERMIT APPLICATION
EMISSIONS FROM PROCESS EMISSION SOURCE / FUEL BURNING INSTALLATION / INCINERATOR

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.

2. Stack ID or flowdiagram point identification(s): 36-S1 No-Bake Mixer

3. Process emission source / Fuel burning installation / Incinerator (identify): (28-0025-36) No-Bake Mixer

EMISSIONS SUMMARY TABLE – CRITERIA AND FUGITIVE EMISSIONS

4. Complete the following emissions summary for regulated air pollutants. Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Particulate Matter (TSP)	11.8			
(Fugitive Emissions)				
Sulfur Dioxide				
(Fugitive Emissions)				
Volatile Organic Compounds	28.41			
(Fugitive Emissions)				
Carbon Monoxide				
(Fugitive Emissions)				
Lead				
(Fugitive Emissions)				
Nitrogen Oxides				
(Fugitive Emissions)				
Total Reduced Sulfur				
(Fugitive Emissions)				
Mercury				
(Fugitive Emissions)				

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AIR POLLUTANT	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Asbestos				
(Fugitive Emissions)				
Beryllium				
(Fugitive Emissions)				
Vinyl Chloride				
(Fugitive Emissions)				
Fluorides				
(Fugitive Emissions)				
Gaseous Fluorides				
(Fugitive Emissions)				
Greenhouse Gases in CO_2 Equivalents				

EMISSIONS SUMMARY TABLE – FUGITIVE HAZARDOUS AIR POLLUTANTS

5. Complete the following emissions summary for regulated air pollutants that are hazardous air pollutant(s). Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant & CAS	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Formaldehyde 50-00-0	N/A			
HAP included in VOC Total above				

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TITLE V PERMIT APPLICATION
CURRENT EMISSIONS REQUIREMENTS AND STATUS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Emission source number
Magotteaux Inc.	28-0025-36 No-Bake Mixer

3. Describe the process emission source / fuel burning installation / incinerator.

No-Bake Mixer - All VOCs generated from this process are fugitive emissions.

EMISSIONS AND REQUIREMENTS

4. Identify if only a part of the source is subject to this requirement	5. Pollutant	6. Applicable requirement(s): TN Air Pollution Control Regulations, 40 CFR, permit restrictions, air quality based standards	7. Limitation	8. Maximum actual emissions	9. Compliance status (In/Out)
	Particulate	Permit Condition E19-3	0.017 gr/dscf	< 0.017 gr/dscf	IN
	VOCs	Permit Condition E19-4	3.5T for any mon.	< 3.5 T/mon.	IN
	Opacity	Permit Condition E19-5	10%	< 10%	IN
		Permit Condition E19-2	NTE 7488 hrs.	< 7488 hrs.	IN

10. Other applicable requirements (new requirements that apply to this source during the term of this permit)

11. Page number: 151 Revision number: Date of revision: 04/16/19

Attachment to APC V.28
Calculations and Emission Factor References: No Bake Mixer (28-0025-36)

Particulate Emissions
Allowable Emissions:

Magotteaux Inc. has agreed to a maximum allowable limit of 0.017 gr/dscf (3.14 lb/hr) for particulate emissions and 7,488 hours per year of operation.

E = (21,549 cfm)(0.017 gr/dscf)(lb/7000 gr)(60 min/hr)(7,488 Hr/Yr)(ton/2000 lbs) = 11.8 tons/year

Uncontrolled VOC Emissions
Resin Components:
Ethyl Alcohol is 0.0% maximum by weight. Formaldehyde is 10.0% maximum by weight, with 10% of the Formaldehyde evaporating off at mold formation.

1) Ethyl Alcohol is 0.0% maximum by weight of the resin
Actual: (41.4 tons resin/month)(12 months/yr)(0.0)(0.50) = 0.0 tons/yr
Maximum: (59.2 tons resin/month)(12 months/yr)(0.0)(0.50) = 0.0 tons/yr

2) Formaldehyde is 10.0% maximum by weight of resin
Actual: (41.4 tons resin/month)(12 months/yr)(0.10)(0.10) = 4.97 tons/yr
Maximum: (59.2 tons resin/month)(12 months/yr)(0.10)(0.10) = 7.10 tons/yr

Acid Catalyst Components:
Ethyl Alcohol is 15.0% maximum by weight, with 50% of the ethyl alcohol evaporating off during mold formation.

1) Ethyl Alcohol is 15.0% maximum by weight of the acid catalyst.
Actual: (21.1 tons catalyst/month)(12 months/yr)(0.15)(0.50) = 18.99 tons/yr
Maximum: (23.68 tons catalyst/month)(12 months/yr)(0.15)(0.50) = 21.31 tons/yr

VOC Emissions Summary:

Component	Actual Emissions (tons/yr)	Allowable Emissions (tons/yr)
1) Formaldehyde	4.97	7.10
2) Ethyl Alcohol		
1) Resin	0.0	0.0
2) Acid Catalyst	18.99	21.31
Ethyl Alcohol Total	18.99	21.31
TOTAL	23.96	28.41

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TITLE V PERMIT APPLICATION
STACK IDENTIFICATION

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Emission source (identify):**
(28-0025-37) Spinner Hanger Wheelabrator shot blast operation

STACK DESCRIPTION

3. Stack ID (or flowdiagram point identification):
37-S1

4. Stack height above grade in feet:
21 feet

5. Velocity (data at exit conditions):
149 (Actual feet per second)

6. Inside dimensions at outlet in feet:
1 X 1

7. Exhaust flowrate at exit conditions (ACFM):
7000 CFM

8. Flow rate at standard conditions (DSCFM):
7000 CFM

9. Exhaust temperature:
ambient Degrees Fahrenheit (°F)

10. Moisture content (data at exit conditions):
ambient Percent _____ Grains per dry standard cubic foot (gr./dscf.)

11. Exhaust temperature that is equaled or exceeded during ninety (90) percent or more of the operating time (for stacks subject to diffusion equation only):
N/A (°F)

12. If this stack is equipped with continuous pollutant monitoring equipment required for compliance, what pollutant(s) does this equipment monitor (e.g., Opacity, SO_2, NO_x, etc.)?
N/A

Complete the appropriate APC form(s) 4, 5, 7, 8, 9, or 10 for each source exhausting through this stack.

BYPASS STACK DESCRIPTION

13. Do you have a bypass stack?
_____ Yes X No

If yes, describe the conditions which require its use & complete APC form 4 for the bypass stack. Please identify the stack number(s) of flowdiagram point number(s) exhausting through this bypass stack.

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TITLE V PERMIT APPLICATION
MISCELLANEOUS PROCESSES

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Process emission source (identify):**
28-0025-37 Spinner Hanger Wheelabrator Shot Blast

3. Stack ID or flowdiagram point identification (s):
37-S1

4. Year of construction or last modification:
1995

If the emissions are controlled for compliance, attach an appropriate Air Pollution Control system form.

5. Normal operating schedule: 24 Hrs./Day 6 Days/Wk. 312 Days/Yr.

6. Location of this process emission source in UTM coordinates: UTM Vertical: 3896.88 N UTM Horizontal: 494.57 E

7. Describe this process (Please attach a flowdiagram of this process) and check one of the following:

[✓] Batch [ ] Continuous

PROCESS MATERIAL INPUT AND OUTPUT

8. List the types and amounts of raw materials input to this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
steel casting require clean	Shot blast cleaning of castings	533 tons/month	800 tons/month
Steel Shot		2.5 tons/month	4 tons/month
Heat Treat Salt		300 Lb/month	300 Lb/month

9. List the types and amounts of primary products produced by this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Clean Steel Casting	Cleaned Castings removed to next process	533 tons/month	800 tons/month
Steel Shot	Shot is reused	2.5 tons/month	4 tons/month

10. Process fuel usage:

Type of fuel	Max heat input (10^6 BTU/Hr.)	Average usage (units)	Maximum usage (units)
N/A			

11. List any solvents, cleaners, etc., associated with this process:
N/A

If the emissions and/or operations of this process are monitored for compliance, please attach the appropriate Compliance Demonstration form.

12. Describe any fugitive emissions associated with this process, such as outdoor storage piles, open conveyors, open air sand blasting, material handling operations, etc. (please attach a separate sheet if necessary).
N/A

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TITLE V PERMIT APPLICATION
CONTROL EQUIPMENT - BAGHOUSES/FABRIC FILTERS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Emission source (identify):
28-0025-37 Spinner Hanger Wheelabrator Shot Blast

3. Stack ID or flowdiagram point identification (s):
37-S1

BAGHOUSE/FABRIC FILTER DESCRIPTION

4. Describe the device in use. List the key operating parameters of this device and their normal operating range.

The process consists of shot blast cleaning of castings. Particulate emissions are controlled with a 7000 cfm baghouse. The baghouse is operated at a pressure differential greater than the required minimum pressure differential of 1.17 inches of water.

5. Manufacturer and model number (if available):
Unknown

6. Year of installation:
1995

7. List of pollutant(s) to be controlled and the expected control efficiency for each pollutant (see instructions).

Pollutant	Efficiency (%)	Source of data
Particulate	99	Engineering Estimate

8. Discuss how collected material is handled for reuse or disposal.
Captured particulate is trucked to landfill.

9. If the bags are coated, specify the material used for coating and frequency of coating
N/A

10. Does the baghouse collect asbestos containing material?
Yes [ ] No [✓]
If "Yes", provide data as outlined in Item 10, Instructions for this form.

11. If this control equipment is in series with some other control equipment, state and specify the overall efficiency.
N/A

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TITLE V PERMIT APPLICATION
COMPLIANCE CERTIFICATION - MONITORING AND REPORTING
DESCRIPTION OF METHODS USED FOR DETERMINING COMPLIANCE

All sources that are subject to 1200-03-09-.02(11) of the Tennessee Air Pollution Control Regulations are required to certify compliance with all applicable requirements by including a statement within the permit application of the methods used for determining compliance. This statement must include a description of the monitoring, recordkeeping, and reporting requirements and test methods. In addition, the application must include a schedule for compliance certification submittals during the permit term. These submittals must be no less frequent than annually and may need to be more frequent if specified by the underlying applicable requirement or the Technical Secretary.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.
2. Process emission source, fuel burning installation, or incinerator (identify): (28-0025-37) Spinner Hanger Wheelabrator shot blast operation
3. Stack ID or flow diagram point identification(s): 37-S1

METHODS OF DETERMINING COMPLIANCE

4. This source as described under Item #2 of this application will use the following method(s) for determining compliance with applicable requirements (and special operating conditions from an existing permit). Check all that apply and attach the appropriate form(s)

[ ] Continuous Emission Monitoring (CEM) - APC 20
Pollutant(s):

[ ] Emission Monitoring Using Portable Monitors - APC 21
Pollutant(s):

[✓] Monitoring Control System Parameters or Operating Parameters of a Process - APC 22
Pollutant(s): Opacity

[ ] Monitoring Maintenance Procedures - APC 23
Pollutant(s):

[ ] Stack Testing - APC 24
Pollutant(s):

[ ] Fuel Sampling & Analysis (FSA) - APC 25
Pollutant(s):

[✓] Recordkeeping - APC 26
Pollutant(s): Particulate

[ ] Other (please describe) - APC 27
Pollutant(s):

5. Compliance certification reports will be submitted to the Division according to the following schedule:

Start date: Per the Title V permit.

And every _____ days thereafter.

6. Compliance monitoring reports will be submitted to the Division according to the following schedule:

Start date: Per the Title V permit.

And every _____ days thereafter.

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TITLE V PERMIT APPLICATION - COMPLIANCE DEMONSTRATION BY MONITORING CONTROL SYSTEM PARAMETERS OR OPERATING PARAMETERS OF A PROCESS

The monitoring of a control system parameter or a process parameter shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value and the emission rate of a particular pollutant is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s)
37-S1 Spinner Hanger Wheelabrator Shot Blast

3. Emission source:
(28-0025-37) Spinner Hanger Wheelabout shot blast operation

MONITORING DESCRIPTION

4. Pollutant(s) being monitored:
Opacity

5. Description of the method of monitoring and establishment of correlation between the parameter value and the emission rate of a particular pollutant:

Based on the opacity matrix decision tree for EPA Mehtod 9, no opacity readings are required.

6. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
In accordance with the opacity matrix, no readings are required.

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TITLE V PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY RECORDKEEPING

Recordkeeping shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value recorded and the applicable requirement is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s):
37-S1 Spinner Hanger Wheelabrator Shot Blast

3. Emission source (identify):
(28-0025-37) Spinner Hanger Wheelabrator shot blast operation

MONITORING AND RECORDKEEPING DESCRIPTION

4. Pollutant(s) or parameter being monitored:
Hours of operation

5. Material or parameter being monitored and recorded:
Operator will maintain records of the hours of operation and the pressure differential across the baghouse.

6. Method of monitoring and recording:

Daily records will bekept of the operation hours. Based on the hours of operation, maximum flowrate, and grain loading, the emissions are estimated as shown on attachment to APC V.28. A log of the pressure differential across the baghouse will be kept and a log of the maintenance performed on the baghouse will be kept as a part of the PM compliance demonstration.

7. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
Daily

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TITLE V PERMIT APPLICATION
EMISSIONS FROM PROCESS EMISSION SOURCE / FUEL BURNING INSTALLATION / INCINERATOR

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flowdiagram point identification(s):
37-S1 Spinner Hanger Wheelabrator Shot Blast

3. Process emission source / Fuel burning installation / Incinerator (identify):
(28-0025-37) Spinner Hanger Wheelabrator shot blast operation

EMISSIONS SUMMARY TABLE – CRITERIA AND FUGITIVE EMISSIONS

4. Complete the following emissions summary for regulated air pollutants. Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Particulate Matter (TSP)	4.5			
(Fugitive Emissions)				
Sulfur Dioxide				
(Fugitive Emissions)				
Volatile Organic Compounds				
(Fugitive Emissions)				
Carbon Monoxide				
(Fugitive Emissions)				
Lead				
(Fugitive Emissions)				
Nitrogen Oxides				
(Fugitive Emissions)				
Total Reduced Sulfur				
(Fugitive Emissions)				
Mercury				
(Fugitive Emissions)				

(Continued on next page)

(Continued from last page)

AIR POLLUTANT	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Asbestos				
(Fugitive Emissions)				
Beryllium				
(Fugitive Emissions)				
Vinyl Chloride				
(Fugitive Emissions)				
Fluorides				
(Fugitive Emissions)				
Gaseous Fluorides				
(Fugitive Emissions)				
Greenhouse Gases in CO_2 Equivalents				

EMISSIONS SUMMARY TABLE – FUGITIVE HAZARDOUS AIR POLLUTANTS

5. Complete the following emissions summary for regulated air pollutants that are hazardous air pollutant(s). Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant & CAS	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
* Particulate HAP	N/A			
* Particulate HAP is included in the				
Particulate total in item 4 above				

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TITLE V PERMIT APPLICATION
CURRENT EMISSIONS REQUIREMENTS AND STATUS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Emission source number
Magotteaux Inc.	28-0025-37 Spinner Hanger Wheelabrator Shot Blast

3. Describe the process emission source / fuel burning installation / incinerator.

Shot Blast Operation - Source consists of shot blast cleaning of castings. Emissions controlled with 7000 cfm baghouse

EMISSIONS AND REQUIREMENTS

4. Identify if only a part of the source is subject to this requirement	5. Pollutant	6. Applicable requirement(s): TN Air Pollution Control Regulations, 40 CFR, permit restrictions, air quality based standards	7. Limitation	8. Maximum actual emissions	9. Compliance status (In/Out)
	Particulate	Permit Conditions E20-1 and E-20-2	0.02 gr/dscf	< 0.02 gr/dscf	IN
	Opacity	Permit Condition E3-20	20%	< 20%	IN

10. Other applicable requirements (new requirements that apply to this source during the term of this permit)

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Attachment to APC V.28
Method Monitoring and Recording: Spinner Hanger Wheelabrator Shot Blast (28-0025-37)

Maximum Allowable Particulate Emissions:

Magotteaux Inc. has agreed to a maximum allowable limit of 0.02 gr/dscf (1.2 lb/hr).

(7000 cfm)(0.02 gr/dscf)(1 lb/7000 gr)(60 min/hr)=1.2 lb/hr
(1.2 lb/hr)(7488 hr/yr)(t/2000 lb)= 4.5 ton/yr

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TITLE V PERMIT APPLICATION
STACK IDENTIFICATION

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Emission source (identify):**
(28-0025-40) The Didion rotary ball mill is used to recondition mill balls and to recover recyclable metal

STACK DESCRIPTION

3. Stack ID (or flowdiagram point identification):
40-S1

4. Stack height above grade in feet:
15 feet

5. Velocity (data at exit conditions):
283.3 (Actual feet per second)

6. Inside dimensions at outlet in feet:
1' X 1'

7. Exhaust flowrate at exit conditions (ACFM):
17,000 CFM

8. Flow rate at standard conditions (DSCFM):
17,000 CFM

9. Exhaust temperature:
ambient Degrees Fahrenheit (°F)

10. Moisture content (data at exit conditions):
ambient Percent _____ Grains per dry standard cubic foot (gr./dscf.)

11. Exhaust temperature that is equaled or exceeded during ninety (90) percent or more of the operating time (for stacks subject to diffusion equation only):
N/A (°F)

12. If this stack is equipped with continuous pollutant monitoring equipment required for compliance, what pollutant(s) does this equipment monitor (e.g., Opacity, SO_2, NO_x, etc.)?
N/A

Complete the appropriate APC form(s) 4, 5, 7, 8, 9, or 10 for each source exhausting through this stack.

BYPASS STACK DESCRIPTION

13. Do you have a bypass stack?
_____ Yes X No

If yes, describe the conditions which require its use & complete APC form 4 for the bypass stack. Please identify the stack number(s) of flowdiagram point number(s) exhausting through this bypass stack.

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TITLE V PERMIT APPLICATION
MISCELLANEOUS PROCESSES

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Process emission source (identify):**
28-0025-40 Didion Ball Mill

3. Stack ID or flow diagram point identification (s):
40-S1

4. Year of construction or last modification:
2004 (install new baghouse) & (increased throughput & add slag)

If the emissions are controlled for compliance, attach an appropriate Air Pollution Control system form.

5. Normal operating schedule: 16 Hrs./Day 6 Days/Wk. 300 Days/Yr.

6. Location of this process emission source in UTM coordinates: UTM Vertical: 3896.88 N UTM Horizontal: 494.57 E

7. Describe this process (Please attach a flow diagram of this process) and check one of the following:

[✓] Batch [ ] Continuous

PROCESS MATERIAL INPUT AND OUTPUT

8. List the types and amounts of raw materials input to this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Used mill balls and/or	Cleaned in rotary ball mill	10,000 lbs/hr	40,000 lbs/hr
Slag	Recovery of metal fragments from slag		

9. List the types and amounts of primary products produced by this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Reconditioned mill balls &/	Balls are sized, graded, and resold,	Mill balls: 80-90% recovery	
Recyclable Metal	separated metal is returned to process.		
Debris	Mill ball coating and waste slag		

10. Process fuel usage:

Type of fuel	Max heat input (10^6 BTU/Hr.)	Average usage (units)	Maximum usage (units)
N/A			

11. List any solvents, cleaners, etc., associated with this process:
N/A

If the emissions and/or operations of this process are monitored for compliance, please attach the appropriate Compliance Demonstration form.

12. Describe any fugitive emissions associated with this process, such as outdoor storage piles, open conveyors, open air sand blasting, material handling operations, etc. (please attach a separate sheet if necessary).
N/A

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TITLE V PERMIT APPLICATION
CONTROL EQUIPMENT - BAGHOUSES/FABRIC FILTERS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Emission source (identify):
28-0025-40 Didion Ball Mill

3. Stack ID or flowdiagram point identification (s):
40-S1

BAGHOUSE/FABRIC FILTER DESCRIPTION

4. Describe the device in use. List the key operating parameters of this device and their normal operating range.

Particulate matter emissions are controlled by a 17,000 cfm baghouse. The process may operate continuously with a baghouse for control of emissions. The baghouse is operated at a pressure differential greater than the required minimum pressure differential of 2.0 inches of water.

5. Manufacturer and model number (if available):
Unavailable

6. Year of installation:
2004

7. List of pollutant(s) to be controlled and the expected control efficiency for each pollutant (see instructions).

Pollutant	Efficiency (%)	Source of data
Particulate	99	Engineering Estimate

8. Discuss how collected material is handled for reuse or disposal.
Captured particulate is trucked to landfill

9. If the bags are coated, specify the material used for coating and frequency of coating
N/A

10. Does the baghouse collect asbestos containing material?
Yes ☐ No ☑
If "Yes", provide data as outlined in Item 10, Instructions for this form.

11. If this control equipment is in series with some other control equipment, state and specify the overall efficiency.
N/A

12. Page number: 165 Revision Number: Date of Revision: 04/16/19

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TITLE V PERMIT APPLICATION
COMPLIANCE CERTIFICATION - MONITORING AND REPORTING
DESCRIPTION OF METHODS USED FOR DETERMINING COMPLIANCE

All sources that are subject to 1200-03-09-.02(11) of the Tennessee Air Pollution Control Regulations are required to certify compliance with all applicable requirements by including a statement within the permit application of the methods used for determining compliance. This statement must include a description of the monitoring, recordkeeping, and reporting requirements and test methods. In addition, the application must include a schedule for compliance certification submittals during the permit term. These submittals must be no less frequent than annually and may need to be more frequent if specified by the underlying applicable requirement or the Technical Secretary.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.
2. Process emission source, fuel burning installation, or incinerator (identify): (28-0025-40) Didion Rotary Ball Mill ESRN
3. Stack ID or flow diagram point identification(s): 40-S1

METHODS OF DETERMINING COMPLIANCE

4. This source as described under Item #2 of this application will use the following method(s) for determining compliance with applicable requirements (and special operating conditions from an existing permit). Check all that apply and attach the appropriate form(s)

- [ ] Continuous Emission Monitoring (CEM) - APC 20
  Pollutant(s):
- [ ] Emission Monitoring Using Portable Monitors - APC 21
  Pollutant(s):
- [✓] Monitoring Control System Parameters or Operating Parameters of a Process - APC 22
  Pollutant(s): Opacity
- [ ] Monitoring Maintenance Procedures - APC 23
  Pollutant(s):
- [ ] Stack Testing - APC 24
  Pollutant(s):
- [ ] Fuel Sampling & Analysis (FSA) - APC 25
  Pollutant(s):
- [✓] Recordkeeping - APC 26
  Pollutant(s): Particulates
- [ ] Other (please describe) - APC 27
  Pollutant(s):

5. Compliance certification reports will be submitted to the Division according to the following schedule:
   Start date: Per the Title V permit.
   And every _____ days thereafter.
6. Compliance monitoring reports will be submitted to the Division according to the following schedule:
   Start date: Per the Title V permit.
   And every _____ days thereafter.
7. Page number: 166 Revision number: Date of revision: 04/16/19

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TITLE V PERMIT APPLICATION - COMPLIANCE DEMONSTRATION BY MONITORING CONTROL SYSTEM PARAMETERS OR OPERATING PARAMETERS OF A PROCESS

The monitoring of a control system parameter or a process parameter shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value and the emission rate of a particular pollutant is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s)
40-S1 Didion Ball Mill

3. Emission source:
(28-0025-40) Didion Rotary Ball Mill

MONITORING DESCRIPTION

4. Pollutant(s) being monitored:
Opacity

5. Description of the method of monitoring and establishment of correlation between the parameter value and the emission rate of a particular pollutant:

Based on the opacity matrix decision tree for EPA Method 9, no opacity readings are required for the emissions from the baghouse stack which has an allowable limit of less than 10 tons per year.

Fugitive visible emissions will be observed once a year using Tennessee Visible Emission Evaluation Method 4.

6. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
In accordance with the opacity matrix, no readings are required for the baghouse stack emissions. Fugitive emissions will be observed on an annual basis.

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TITLE V PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY RECORDKEEPING

Recordkeeping shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value recorded and the applicable requirement is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s):
40-S-1 Didion Ball Mill

3. Emission source (identify):
28-0025-40 Didion Rotary Ball Mill

MONITORING AND RECORDKEEPING DESCRIPTION

4. Pollutant(s) or parameter being monitored:
Hours of operation

5. Material or parameter being monitored and recorded:
Operator will maintain a record of the hours of operation and the pressure differential across the baghouse.

6. Method of monitoring and recording:

A daily log of the operation hours and the pressure differential across the baghouse will be kept. A log of the maintenance performed on the baghouse will be kept as a part of the PM compliance demonstration. Based on the hours of operation, maximum flow, and grain loading, the emissions can be estimated as shown on the attachment to APC V.28.

7. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
Daily

8. Page number: 168 | Revision number: | Date of revision: 04/16/19

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Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
EMISSIONS FROM PROCESS EMISSION SOURCE / FUEL BURNING INSTALLATION / INCINERATOR

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.

2. Stack ID or flow diagram point identification(s): 40-S1 Didion Ball Mill

3. Process emission source / Fuel burning installation / Incinerator (identify): (28-0025-40) Didion Rotary Ball Mill

EMISSIONS SUMMARY TABLE – CRITERIA AND FUGITIVE EMISSIONS

4. Complete the following emissions summary for regulated air pollutants. Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Particulate Matter (TSP)	4.2			
(Fugitive Emissions)				
Sulfur Dioxide				
(Fugitive Emissions)				
Volatile Organic Compounds				
(Fugitive Emissions)				
Carbon Monoxide				
(Fugitive Emissions)				
Lead				
(Fugitive Emissions)				
Nitrogen Oxides				
(Fugitive Emissions)				
Total Reduced Sulfur				
(Fugitive Emissions)				
Mercury				
(Fugitive Emissions)				

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AIR POLLUTANT	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Asbestos				
(Fugitive Emissions)				
Beryllium				
(Fugitive Emissions)				
Vinyl Chloride				
(Fugitive Emissions)				
Fluorides				
(Fugitive Emissions)				
Gaseous Fluorides				
(Fugitive Emissions)				
Greenhouse Gases in CO_2 Equivalents				

EMISSIONS SUMMARY TABLE – FUGITIVE HAZARDOUS AIR POLLUTANTS

5. Complete the following emissions summary for regulated air pollutants that are hazardous air pollutant(s). Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant & CAS	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)

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TITLE V PERMIT APPLICATION
CURRENT EMISSIONS REQUIREMENTS AND STATUS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Emission source number
Magotteaux Inc.	28-0025-40 Didion Ball Mill

3. Describe the process emission source / fuel burning installation / incinerator.

Didion rotary ball mill is used to recondition used mill balls and to seperate recyclable metal from slag. Exhausted with 17,000 cfm bag

EMISSIONS AND REQUIREMENTS

4. Identify if only a part of the source is subject to this requirement	5. Pollutant	6. Applicable requirement(s): TN Air Pollution Control Regulations, 40 CFR, permit restrictions, air quality based standards	7. Limitation	8. Maximum actual emissions	9. Compliance status (In/Out)
	Particulate	Permit Condition E21-3	(1.74 lbs/hr)	< 1.74 lbs/hr	IN
		Permit Condition E21-2	4,800 hr/yr	4,800 hr/yr	IN
Opacity fr. baghouse	Opacity	Permit Condition E21-5	10%	< 10%	IN
Opacity fug. emiss	Opacity	Permit Condition E21-4	NTE 20 per day	< 20 per day	IN

10. Other applicable requirements (new requirements that apply to this source during the term of this permit)

11. Page number: 171 Revision number: Date of revision: 04/16/19

Attachment to APC V.28
Method of Monitoring and Recording: Didion Rotary Ball Mill (28-0025-40)

The Didion Rotary Ball Mill is used to recondition used mill balls used in the cement and mining industry. These balls may have a surface coating of cementatious material. This material is removed in the ball mill and represents potential particulate emissions. It is estimated that 5 % of the weight of the balls reconditioned in the ball mill is cementatious material. Magotteaux Pulaski Inc. reconditions approximately 40,000 tons of mill balls per year.

Allowable Emissions:

Magotteaux Inc. has agreed not to exceed 4800 hours of operation per year, and to a maximum allowable particulate emission limit of 1.74 lb/hr from the baghouse and 4.18 tons per year.

Stack Emissions:

E = (1.74 lbs/hr)(4800 hrs/yr)(1 ton/2000 lbs) = 4.2 tons/yr

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TITLE V PERMIT APPLICATION
STACK IDENTIFICATION

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**

Magotteaux Inc.

2. **Emission source (identify):**

(28-0025-44) Pangborn shot blast operation and two heater/cooler/classifiers

STACK DESCRIPTION

3. Stack ID (or flowdiagram point identification):

44-S1

4. Stack height above grade in feet:

Note: Stack is exhausted inside building

5. Velocity (data at exit conditions):

N/A (Actual feet per second)

6. Inside dimensions at outlet in feet:

N/A

7. Exhaust flowrate at exit conditions (ACFM):

14,400 CFM

8. Flow rate at standard conditions (DSCFM):

14,400 CFM

9. Exhaust temperature:

ambient Degrees Fahrenheit (°F)

10. Moisture content (data at exit conditions):

ambient Percent _____ Grains per dry standard cubic foot (gr./dscf.)

11. Exhaust temperature that is equaled or exceeded during ninety (90) percent or more of the operating time (for stacks subject to diffusion equation only):

N/A (°F)

12. If this stack is equipped with continuous pollutant monitoring equipment required for compliance, what pollutant(s) does this equipment monitor (e.g., Opacity, SO_2, NO_x, etc.)?

N/A

Complete the appropriate APC form(s) 4, 5, 7, 8, 9, or 10 for each source exhausting through this stack.

BYPASS STACK DESCRIPTION

13. Do you have a bypass stack?

_____ Yes X No

If yes, describe the conditions which require its use & complete APC form 4 for the bypass stack. Please identify the stack number(s) of flow diagram point number(s) exhausting through this bypass stack.

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TITLE V PERMIT APPLICATION
MISCELLANEOUS PROCESSES

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Process emission source (identify):**
28-0025-44 Pangborn shot blast operation and heater/cooler classifiers

3. Stack ID or flowdiagram point identification (s):
44-Baghouse exhaust indoors

4. Year of construction or last modification:
2007

If the emissions are controlled for compliance, attach an appropriate Air Pollution Control system form.

5. Normal operating schedule: 24 Hrs./Day 7 Days/Wk. 365 Days/Yr.

6. Location of this process emission source in UTM coordinates: UTM Vertical: 3896.88 N UTM Horizontal: 494.57 E

7. Describe this process (Please attach a flowdiagram of this process) and check one of the following:

[✓] Batch [ ] Continuous

PROCESS MATERIAL INPUT AND OUTPUT

8. List the types and amounts of raw materials input to this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
steel casting require clean	Castings to be shot blast cleaned.	533 tons/month	800 tons/month
Steel Shot	Shot is used to clean castings.	3.75 tons/month	6 tons/month
New & Reclaimed Sand	Tank storage and pneumatic transfer	12 tons/hr	22.5 tons/hr

9. List the types and amounts of primary products produced by this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Clean Steel Castings	Cleaned Castings	533 tons/month	800 tons/month
Steel Shot	Shot is reused	3.75 tons/month	6 tons/month
Tempered Sand	Tank storage and pneumatic transfer	12 tons/hr	22.5 tons/hr

10. Process fuel usage:

Type of fuel	Max heat input (10^6 BTU/Hr.)	Average usage (units)	Maximum usage (units)
Natural gas	3.28	5 yr avg. BTU/YR	48,760 BTU/YR

11. List any solvents, cleaners, etc., associated with this process:
N/A

If the emissions and/or operations of this process are monitored for compliance, please attach the appropriate Compliance Demonstration form.

12. Describe any fugitive emissions associated with this process, such as outdoor storage piles, open conveyors, open air sand blasting, material handling operations, etc. (please attach a separate sheet if necessary).
N/A

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TITLE V PERMIT APPLICATION
CONTROL EQUIPMENT - BAGHOUSES/FABRIC FILTERS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Emission source (identify):
(28-0025-44) Pangborn shot blast op. & 2 Heater/Cooler/Classifiers

3. Stack ID or flowdiagram point identification (s):
44-Baghouse exhausts indoors

BAGHOUSE/FABRIC FILTER DESCRIPTION

4. Describe the device in use. List the key operating parameters of this device and their normal operating range.

14,400 cfm baghouse exhausts inside the plant. Roof ventilators are located near the exhaust to the baghouse. Magotteaux estimates that 50% of the emissions from the baghouse are exhausted to the atmosphere through the ventilators. The remaining 50% of the emissions stays inside the plant.

The baghouse is operated at a pressure differential greater than the required minimum pressure differential of 2.3 inches of water.

5. Manufacturer and model number (if available):
Unavailable

6. Year of installation:
1979, Modified 2007

7. List of pollutant(s) to be controlled and the expected control efficiency for each pollutant (see instructions).

Pollutant	Efficiency (%)	Source of data
Particulate	99+	Engineering Estimate

8. Discuss how collected material is handled for reuse or disposal.
Captured particulate is trucked to landfill.

9. If the bags are coated, specify the material used for coating and frequency of coating
N/A

10. Does the baghouse collect asbestos containing material?
Yes [ ] No [✓]
If "Yes", provide data as outlined in Item 10, Instructions for this form.

11. If this control equipment is in series with some other control equipment, state and specify the overall efficiency.
N/A

12. Page number: 175 Revision Number: Date of Revision: 04/16/19

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TITLE V PERMIT APPLICATION
COMPLIANCE CERTIFICATION - MONITORING AND REPORTING
DESCRIPTION OF METHODS USED FOR DETERMINING COMPLIANCE

All sources that are subject to 1200-03-09-.02(11) of the Tennessee Air Pollution Control Regulations are required to certify compliance with all applicable requirements by including a statement within the permit application of the methods used for determining compliance. This statement must include a description of the monitoring, recordkeeping, and reporting requirements and test methods. In addition, the application must include a schedule for compliance certification submittals during the permit term. These submittals must be no less frequent than annually and may need to be more frequent if specified by the underlying applicable requirement or the Technical Secretary.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.
2. Process emission source, fuel burning installation, or incinerator (identify): (28-0025-44) Pangborn shot blast op. & 2 heater/cooler/classifiers
3. Stack ID or flow diagram point identification(s): 44-Baghouse exhausts indoors

METHODS OF DETERMINING COMPLIANCE

4. This source as described under Item #2 of this application will use the following method(s) for determining compliance with applicable requirements (and special operating conditions from an existing permit). Check all that apply and attach the appropriate form(s)

[ ] Continuous Emission Monitoring (CEM) - APC 20
Pollutant(s):

[ ] Emission Monitoring Using Portable Monitors - APC 21
Pollutant(s):

[✓] Monitoring Control System Parameters or Operating Parameters of a Process - APC 22
Pollutant(s): Opacity

[ ] Monitoring Maintenance Procedures - APC 23
Pollutant(s):

[ ] Stack Testing - APC 24
Pollutant(s):

[ ] Fuel Sampling & Analysis (FSA) - APC 25
Pollutant(s):

[✓] Recordkeeping - APC 26
Pollutant(s): Particulates

[ ] Other (please describe) - APC 27
Pollutant(s):

5. Compliance certification reports will be submitted to the Division according to the following schedule:

Start date: Per the Title V permit.

And every _____ days thereafter.

6. Compliance monitoring reports will be submitted to the Division according to the following schedule:

Start date: Per the Title V permit.

And every _____ days thereafter.

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TITLE V PERMIT APPLICATION - COMPLIANCE DEMONSTRATION BY MONITORING CONTROL SYSTEM PARAMETERS OR OPERATING PARAMETERS OF A PROCESS

The monitoring of a control system parameter or a process parameter shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value and the emission rate of a particular pollutant is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s)
44- Pangborn shot blast and two heater/cooler/classifiers

3. Emission source:
(28-0025-44) Pangborn shot blast and two heater/cooler/classifiers - exhaust to building interior

MONITORING DESCRIPTION

4. Pollutant(s) being monitored:
Opacity

5. Description of the method of monitoring and establishment of correlation between the parameter value and the emission rate of a particular pollutant:

Based on opacity matrix decision tree for EPA Method 9, no opacity readings are required.

6. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
In accordance with the opacity matrix, no readings are required.

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TITLE V PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY RECORDKEEPING

Recordkeeping shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value recorded and the applicable requirement is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s):
44-Baghouse exhausts indoors

3. Emission source (identify):
(28-0025-44) Pangborn shot blast and Two Heater/Cooler Classifiers Operation

MONITORING AND RECORDKEEPING DESCRIPTION

4. Pollutant(s) or parameter being monitored:
Particulate

5. Material or parameter being monitored and recorded:
Operator will maintain records of the pressure differential across the baghouse and the maintenance performed on the baghouse.

6. Method of monitoring and recording:

A record of daily pressure differential readings across the baghouse will be kept. A record will be kept of the maintenance performed on the baghouse as a part of the PM compliance demonstration. Based on hours of operation, maximum flowrate, and grain loading, the emissions are estimated as shown on the attachment to APC V.28.

7. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
Daily

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TITLE V PERMIT APPLICATION
EMISSIONS FROM PROCESS EMISSION SOURCE / FUEL BURNING INSTALLATION / INCINERATOR

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Stack ID or flowdiagram point identification(s):
Magotteaux Inc.	44-Baghouse exhausts indoors

3. Process emission source / Fuel burning installation / Incinerator (identify):
(28-0025-44) Pangborn shot blast operation and Two Heater/Cooler/Classifiers

EMISSIONS SUMMARY TABLE – CRITERIA AND FUGITIVE EMISSIONS

4. Complete the following emissions summary for regulated air pollutants. Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Particulate Matter (TSP)	4.27			
(Fugitive Emissions)				
Sulfur Dioxide				
(Fugitive Emissions)				
Volatile Organic Compounds				
(Fugitive Emissions)				
Carbon Monoxide				
(Fugitive Emissions)				
Lead				
(Fugitive Emissions)				
Nitrogen Oxides				
(Fugitive Emissions)				
Total Reduced Sulfur				
(Fugitive Emissions)				
Mercury				
(Fugitive Emissions)				

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AIR POLLUTANT	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Asbestos				
(Fugitive Emissions)				
Beryllium				
(Fugitive Emissions)				
Vinyl Chloride				
(Fugitive Emissions)				
Fluorides				
(Fugitive Emissions)				
Gaseous Fluorides				
(Fugitive Emissions)				
Greenhouse Gases in CO_2 Equivalents				

EMISSIONS SUMMARY TABLE – FUGITIVE HAZARDOUS AIR POLLUTANTS

5. Complete the following emissions summary for regulated air pollutants that are hazardous air pollutant(s). Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant & CAS	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Particulate HAP	N/A			
Particulate HAP is included in				
particulate total in item 4 above				

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TITLE V PERMIT APPLICATION
CURRENT EMISSIONS REQUIREMENTS AND STATUS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Emission source number
Magotteaux Inc.	(28-0025-44) Pangborn shot blast op. & 2 heater/cooler/classifiers

3. Describe the process emission source / fuel burning installation / incinerator.

Pangborn Shot Blasting - Source consists of shot blast cleaning of steel castings. Emissions are controlled with 11,400 cfm baghouse.

EMISSIONS AND REQUIREMENTS

4. Identify if only a part of the source is subject to this requirement	5. Pollutant	6. Applicable requirement(s): TN Air Pollution Control Regulations, 40 CFR, permit restrictions, air quality based standards	7. Limitation	8. Maximum actual emissions	9. Compliance status (In/Out)
	Particulate	Permit Condition E22-1	0.975 lbs/hr	< 0.975 lbs/hr	IN
	Opacity	Permit Condition E22-2	10%	< 10%	IN

10. Other applicable requirements (new requirements that apply to this source during the term of this permit)

11. Page number: 181 Revision number: Date of revision: 04/16/19

Attachment to APC V.28
Method of Monitoring and Recording: Pangborn Cleaning (28-0025-44)

The Pangborn and two heater/cooler classifiers are vented to an approximately 14,400 CFM baghouse. The baghouse exhausts inside the plant. Roof ventilators are located near the exhaust to the baghouse. Magotteaux Pulaski estimates that 50% of the emissions from the baghouse are exhausted to the atmosphere through the roof ventilators. The remaining 50% of the emissions fall inside the plant. The following calculation estimates emissions.

Allowable Emissions

Magotteaux has agreed to a maximum allowable limit of 0.975 lb/hr.

E = (14,400 cfm)(60 min/hr)(0.0158 gr/cuft)(1 lb/7000 gr)
= 1.95 lb/hr = 8.56 tons/yr (emitted from the baghouse)

Emissions from roof ventilator
E = 0.5(1.95 lb/hr) = 0.975 lb/hr = 4.3 tons/yr

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TITLE V PERMIT APPLICATION
STACK IDENTIFICATION

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Emission source (identify):**
(28-0025-45) Core Room Pep-Set Mixer

STACK DESCRIPTION

3. Stack ID (or flow diagram point identification):
45-S1

4. Stack height above grade in feet:
N/A - exhausts indoors

5. Velocity (data at exit conditions):
N/A (Actual feet per second)

6. Inside dimensions at outlet in feet:
N/A

7. Exhaust flow rate at exit conditions (ACFM):
5000 cfm

8. Flow rate at standard conditions (DSCFM):
5000

9. Exhaust temperature:
ambient Degrees Fahrenheit (°F)

10. Moisture content (data at exit conditions):
ambient Percent _____ Grains per dry standard cubic foot (gr./dscf.)

11. Exhaust temperature that is equaled or exceeded during ninety (90) percent or more of the operating time (for stacks subject to diffusion equation only):
N/A (°F)

12. If this stack is equipped with continuous pollutant monitoring equipment required for compliance, what pollutant(s) does this equipment monitor (e.g., Opacity, SO_2, NO_x, etc.)?
N/A

Complete the appropriate APC form(s) 4, 5, 7, 8, 9, or 10 for each source exhausting through this stack.

BYPASS STACK DESCRIPTION

13. Do you have a bypass stack?
_____ Yes X No

If yes, describe the conditions which require its use & complete APC form 4 for the bypass stack. Please identify the stack number(s) of flow diagram point number(s) exhausting through this bypass stack.

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TITLE V PERMIT APPLICATION
MISCELLANEOUS PROCESSES

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Process emission source (identify):**
28-0025-45 Core Room Pep-Set Mixer

3. Stack ID or flowdiagram point identification (s):
45-S1

4. Year of construction or last modification:
1996

If the emissions are controlled for compliance, attach an appropriate Air Pollution Control system form.

5. Normal operating schedule: 24 Hrs./Day 5.75 Days/Wk. 300 Days/Yr.

6. Location of this process emission source in UTM coordinates: UTM Vertical: 3896.88 N UTM Horizontal: 494.57 E

7. Describe this process (Please attach a flowdiagram of this process) and check one of the following:

[✓] Batch [ ] Continuous

PROCESS MATERIAL INPUT AND OUTPUT

8. List the types and amounts of raw materials input to this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Sand	Mixing	1,386 lb/hr	1,732 lb/hr
Binder		126 lb/hr	167 lb/hr
Acid Catalyst		10 lb/hr	13 lb/hr
Activator		4 lb/hr	5 lb/hr

9. List the types and amounts of primary products produced by this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
prepped nobake core sand	Mixed no-bake sand ready for core forming.	1,832 lb/hr	2,300 lb/hr

10. Process fuel usage:

Type of fuel	Max heat input (10^6 BTU/Hr.)	Average usage (units)	Maximum usage (units)
N/A			

11. List any solvents, cleaners, etc., associated with this process:
N/A

If the emissions and/or operations of this process are monitored for compliance, please attach the appropriate Compliance Demonstration form.

12. Describe any fugitive emissions associated with this process, such as outdoor storage piles, open conveyors, open air sand blasting, material handling operations, etc. (please attach a separate sheet if necessary).
N/A

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TITLE V PERMIT APPLICATION
CONTROL EQUIPMENT - BAGHOUSES/FABRIC FILTERS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Emission source (identify):
(28-0025-45) Core Room Pep-Set Mixer

3. Stack ID or flowdiagram point identification (s):
45-S1

BAGHOUSE/FABRIC FILTER DESCRIPTION

4. Describe the device in use. List the key operating parameters of this device and their normal operating range.

5,000 cfm baghouse will be used to control particulate emissions from the source which consists of pneumatically filled silica sand bin, chromite and iron oxide bins filled by a bucket elevator, and sand mixer discharge into molds. This baghouse exhausts inside the building and therefore the particulate emissions is negligible. The source will use a phenolic no-bake resin and acid catalyst for sand formation.

Gaseous emissions from this source are uncontrolled.

The baghouse is operated at a pressure differential greater than the required minimum pressure differential of 1.97 inches of water.

5. Manufacturer and model number (if available):
Unavailable

6. Year of installation:
1996

7. List of pollutant(s) to be controlled and the expected control efficiency for each pollutant (see instructions).

Pollutant	Efficiency (%)	Source of data
Particulate	99	Engineering Estimate

8. Discuss how collected material is handled for reuse or disposal.
Captured particulate is landfilled.

9. If the bags are coated, specify the material used for coating and frequency of coating
N/A

10. Does the baghouse collect asbestos containing material?
Yes ☐ No ☑
If "Yes", provide data as outlined in Item 10, Instructions for this form.

11. If this control equipment is in series with some other control equipment, state and specify the overall efficiency.
N/A

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TITLE V PERMIT APPLICATION
COMPLIANCE CERTIFICATION - MONITORING AND REPORTING
DESCRIPTION OF METHODS USED FOR DETERMINING COMPLIANCE

All sources that are subject to 1200-03-09-.02(11) of the Tennessee Air Pollution Control Regulations are required to certify compliance with all applicable requirements by including a statement within the permit application of the methods used for determining compliance. This statement must include a description of the monitoring, recordkeeping, and reporting requirements and test methods. In addition, the application must include a schedule for compliance certification submittals during the permit term. These submittals must be no less frequent than annually and may need to be more frequent if specified by the underlying applicable requirement or the Technical Secretary.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.
2. Process emission source, fuel burning installation, or incinerator (identify): (28-0025-45) Core Room Pep-Set Mixer
3. Stack ID or flow diagram point identification(s): 45-S1

METHODS OF DETERMINING COMPLIANCE

4. This source as described under Item #2 of this application will use the following method(s) for determining compliance with applicable requirements (and special operating conditions from an existing permit). Check all that apply and attach the appropriate form(s)

[ ] Continuous Emission Monitoring (CEM) - APC 20
Pollutant(s):

[ ] Emission Monitoring Using Portable Monitors - APC 21
Pollutant(s):

[✓] Monitoring Control System Parameters or Operating Parameters of a Process - APC 22
Pollutant(s): Opacity

[ ] Monitoring Maintenance Procedures - APC 23
Pollutant(s):

[ ] Stack Testing - APC 24
Pollutant(s):

[ ] Fuel Sampling & Analysis (FSA) - APC 25
Pollutant(s):

[✓] Recordkeeping - APC 26
Pollutant(s): Particulates, VOCs

[ ] Other (please describe) - APC 27
Pollutant(s):

5. Compliance certification reports will be submitted to the Division according to the following schedule:

Start date: Per the Title V permit.

And every _____ days thereafter.

6. Compliance monitoring reports will be submitted to the Division according to the following schedule:

Start date: Per the Title V permit.

And every _____ days thereafter.

7. Page number: 186 Revision number: Date of revision: 04/16/19

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION - COMPLIANCE DEMONSTRATION BY MONITORING CONTROL SYSTEM PARAMETERS OR OPERATING PARAMETERS OF A PROCESS

The monitoring of a control system parameter or a process parameter shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value and the emission rate of a particular pollutant is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s)
45-S1 Core Room Pep-Set Mixer

3. Emission source:
(28-0025-45) Core Room Pep-Set Mixer

MONITORING DESCRIPTION

4. Pollutant(s) being monitored:
Opacity

5. Description of the method of monitoring and establishment of correlation between the parameter value and the emission rate of a particular pollutant:

Based on the opacity matrix decision tree for EPA Method 9, no opacity readings are required for sources with an allowable limit of less than 10 tons per year.

6. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
In accordance with the opacity matrix, no readings are required.

7. Page number: 187 | Revision number: | Date of revision: 04/16/19

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TITLE V PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY RECORDKEEPING

Recordkeeping shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value recorded and the applicable requirement is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s):
45-S1 Core Room Pep-Set Mixer

3. Emission source (identify):
(28-0025-45) Core Room Pep-Set Mixer

MONITORING AND RECORDKEEPING DESCRIPTION

4. Pollutant(s) or parameter being monitored:
Particulate, VOCs

5. Material or parameter being monitored and recorded:
Operator will maintain a log of operating time, pressure differential across the baghouse and a record weight of resins added to the Core Room No-Bake Mixer.

6. Method of monitoring and recording:
A daily log of operating hours will be maintained and the pressure differential across the baghouse. Monthly records will also be kept of the weight of resins added to the mixer. A log of the maintenance performed on the baghouse as a part of the PM compliance demostration. The VOC emissions will be estimated using the method shown on the attachment to APC V.28. Particulate emissions will be calculated using estimated grain loading and hours of operation.

7. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
Daily

8. Page number: (88)
Revision number:
Date of revision: 04/16/19

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TITLE V PERMIT APPLICATION
EMISSIONS FROM PROCESS EMISSION SOURCE / FUEL BURNING INSTALLATION / INCINERATOR

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.

2. Stack ID or flowdiagram point identification(s): 45-S1 Core Room Pep-Set Mixer

3. Process emission source / Fuel burning installation / Incinerator (identify): (28-0025-45) Core Room Pep-Set Mixer

EMISSIONS SUMMARY TABLE – CRITERIA AND FUGITIVE EMISSIONS

4. Complete the following emissions summary for regulated air pollutants. Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Particulate Matter (TSP)	3.1			
(Fugitive Emissions)				
Sulfur Dioxide				
(Fugitive Emissions)				
Volatile Organic Compounds	7.27			
(Fugitive Emissions)				
Carbon Monoxide				
(Fugitive Emissions)				
Lead				
(Fugitive Emissions)				
Nitrogen Oxides				
(Fugitive Emissions)				
Total Reduced Sulfur				
(Fugitive Emissions)				
Mercury				
(Fugitive Emissions)				

(Continued on next page)

(Continued from last page)

AIR POLLUTANT	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Asbestos				
(Fugitive Emissions)				
Beryllium				
(Fugitive Emissions)				
Vinyl Chloride				
(Fugitive Emissions)				
Fluorides				
(Fugitive Emissions)				
Gaseous Fluorides				
(Fugitive Emissions)				
Greenhouse Gases in CO_2 Equivalents				

EMISSIONS SUMMARY TABLE – FUGITIVE HAZARDOUS AIR POLLUTANTS

5. Complete the following emissions summary for regulated air pollutants that are hazardous air pollutant(s). Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant & CAS	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
*Gaseous HAPs	0.1			
*Gaseous HAP emissions are				
included in the total for particulate				
in Item 4 above.				

6. Page number: 190 Revision number: Date of revision 04/16/19

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TITLE V PERMIT APPLICATION
CURRENT EMISSIONS REQUIREMENTS AND STATUS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Emission source number
Magotteaux Inc.	28-0025-45 Core Room Pep-Set Mixer

3. Describe the process emission source / fuel burning installation / incinerator.

Core Room Pep-Set Mixer

EMISSIONS AND REQUIREMENTS

4. Identify if only a part of the source is subject to this requirement	5. Pollutant	6. Applicable requirement(s): TN Air Pollution Control Regulations, 40 CFR, permit restrictions, air quality based standards	7. Limitation	8. Maximum actual emissions	9. Compliance status (In/Out)
	Particulate	Permit Condition E23-3	0.02 gr/dscf	< 0.02 gr/dscf	IN
		Permit Condition E23-1	NTE 2,300 lb/hr		IN
		Permit Condition E23-2	NTE 7,200 hrs/yr		IN
	Opacity	Permit Condition E23-20	20%	< 20%	IN
	VOC	Permit Condition E23-4	7.27 tons	< 7.27 tons	IN

10. Other applicable requirements (new requirements that apply to this source during the term of this permit)

11. Page number: 19 | Revision number: | Date of revision: 04/16/19

Attachment to APC V.28

Magotteaux Inc.
Core Room Pep-Set Mixer (28-0025-45)

Allowable Particulate Emissions

Maximum Material Throughput Rate (lbs/hr):	2,300
Core Room Pep-Set Mixer Baghouse Flowrate (cfm):	5,000

Magotteaux has agreed to a maximum allowable limit for particulate of 0.02 gr/dscf (0.86 Lb/Hr) and 7200 operating hours per year.

Baghouse Flowrate (cfm):	5,000
Allowable grain loading (gr/dscf):	0.02
Maximum Hours of Operation (hr/yr):	7200
Allowable Emissions (lb/hr):	0.86
Maximum Emissions (tons/yr):	3.1

Allowable VOC Emissions

Binder Concentration in Core Sand (Wt %):	1.5%
Maximum Material Throughput Rate (lbs/hr):	2,300

* Phenolic Urethane No-Bake VOC emission factor (lb VOC/Ton of Sand): 1.17
* R. Murray and C. Schmeisser, "Control of VOC's from Phenolic Urethane Cold Box and No Bake Core and Mold-Making Operations in Foundries", 10th AFS Environmental Conf., August 16-19, 1998. Note: This factor was accepted by the Ohio EPA/DAPC in March 1997 and is based on a binder content of 1% by weight of core/mold sand produced.

VOC emission factor adjusted for binder content (lb VOC/Ton of Sand): 1.755

Maximum Allowable VOC emission rate (tons/yr): 7.27

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TITLE V PERMIT APPLICATION
STACK IDENTIFICATION

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Emission source (identify):**
(28-0025-59) Furnace charge weight hoppers

STACK DESCRIPTION

3. Stack ID (or flow diagram point identification):
59-S1

4. Stack height above grade in feet:
20 feet

5. Velocity (data at exit conditions):
40.7 (Actual feet per second)

6. Inside dimensions at outlet in feet:
2.5 feet

7. Exhaust flow rate at exit conditions (ACFM):
12,000 CFM

8. Flow rate at standard conditions (DSCFM):
12,000 CFM

9. Exhaust temperature:
ambient Degrees Fahrenheit (°F)

10. Moisture content (data at exit conditions):
ambient Percent _____ Grains per dry standard cubic foot (gr./dscf.)

11. Exhaust temperature that is equaled or exceeded during ninety (90) percent or more of the operating time (for stacks subject to diffusion equation only):
ambient (°F)

12. If this stack is equipped with continuous pollutant monitoring equipment required for compliance, what pollutant(s) does this equipment monitor (e.g., Opacity, SO_2, NO_x, etc.)?
N/A

Complete the appropriate APC form(s) 4, 5, 7, 8, 9, or 10 for each source exhausting through this stack.

BYPASS STACK DESCRIPTION

13. Do you have a bypass stack?
_____ Yes X No

If yes, describe the conditions which require its use & complete APC form 4 for the bypass stack. Please identify the stack number(s) of flow diagram point number(s) exhausting through this bypass stack.

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TITLE V PERMIT APPLICATION
MISCELLANEOUS PROCESSES

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Process emission source (identify):**
(28-0025-59) Furnace charge weight hoppers

3. Stack ID or flow diagram point identification (s):
59-S1

4. Year of construction or last modification:
1984

If the emissions are controlled for compliance, attach an appropriate Air Pollution Control system form.

5. Normal operating schedule: 24 Hrs./Day 7 Days/Wk. 365 Days/Yr.

6. Location of this process emission source in UTM coordinates: UTM Vertical: 3896.88 N UTM Horizontal: 494.57 E

7. Describe this process (Please attach a flow diagram of this process) and check one of the following:

[✓] Batch [ ] Continuous

PROCESS MATERIAL INPUT AND OUTPUT

8. List the types and amounts of raw materials input to this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Scrap Metal	Dropped into weight hopper	29,136 lbs/hr	42,500 lbs/hr

9. List the types and amounts of primary products produced by this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Scrap Metal	Weighed furnace charge ready for melting	29,136 lbs/hr	42,500 lbs/hr

10. Process fuel usage:

Type of fuel	Max heat input (10^6 BTU/Hr.)	Average usage (units)	Maximum usage (units)
N/A			

11. List any solvents, cleaners, etc., associated with this process:
N/A

If the emissions and/or operations of this process are monitored for compliance, please attach the appropriate Compliance Demonstration form.

12. Describe any fugitive emissions associated with this process, such as outdoor storage piles, open conveyors, open air sand blasting, material handling operations, etc. (please attach a separate sheet if necessary).
N/A

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TITLE V PERMIT APPLICATION
CONTROL EQUIPMENT - CYCLONES/SETTLING CHAMBERS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Emission source (identify):
(28-0025-59) Furnace charge weight hoppers

3. Stack ID or flow diagram point identification (s):
59-S1

CYCLONE/SETTLING CHAMBER DESCRIPTION

4. Describe the device in use. List the key operating parameters of this device and their normal operating range.

EAF and induction furnace charges are made up in two weight hoppers. The fines from these weight hoppers are collected in a single cyclone. The fines seperated in the cyclone are collected in a 55-gallon drum, and eventually landfilled. The cyclone has a 6.0 foot diameter, with a 9.0 foot body height and 9.0 foot cone height. The cyclone is of the dry-type centrifugal seperator variety and operates with an efficiency of at least 80% on particles with diameters greater than 10 microns.

5. List of pollutants (s) to be controlled and the expected control efficiency for each pollutant.

Pollutant	Efficiency (%)	Source of data
Particulates (Metal fines)	80%	Manufacturer Claim

6. Discuss how collected material is handled for reuse or disposal.
The separated fines are collected in a container and eventually landfilled.

7. Gas flow rate (ACFM):
12,000 cfm

8. If this control equipment is in series with some other control equipment, state and specify the overall efficiency.
N/A

9. Page number: 195 Revision Number: Date of Revision: 04/16/19

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TITLE V PERMIT APPLICATION
COMPLIANCE CERTIFICATION - MONITORING AND REPORTING
DESCRIPTION OF METHODS USED FOR DETERMINING COMPLIANCE

All sources that are subject to 1200-03-09-.02(11) of the Tennessee Air Pollution Control Regulations are required to certify compliance with all applicable requirements by including a statement within the permit application of the methods used for determining compliance. This statement must include a description of the monitoring, recordkeeping, and reporting requirements and test methods. In addition, the application must include a schedule for compliance certification submittals during the permit term. These submittals must be no less frequent than annually and may need to be more frequent if specified by the underlying applicable requirement or the Technical Secretary.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.
2. Process emission source, fuel burning installation, or incinerator (identify): (28-0025-59) Furnace charge weight hoppers
3. Stack ID or flowdiagram point identification(s): 59-S1

METHODS OF DETERMINING COMPLIANCE

4. This source as described under Item #2 of this application will use the following method(s) for determining compliance with applicable requirements (and special operating conditions from an existing permit). Check all that apply and attach the appropriate form(s)

- [ ] Continuous Emission Monitoring (CEM) - APC 20
  Pollutant(s):
- [ ] Emission Monitoring Using Portable Monitors - APC 21
  Pollutant(s):
- [✓] Monitoring Control System Parameters or Operating Parameters of a Process - APC 22
  Pollutant(s): Opacity
- [ ] Monitoring Maintenance Procedures - APC 23
  Pollutant(s):
- [ ] Stack Testing - APC 24
  Pollutant(s):
- [ ] Fuel Sampling & Analysis (FSA) - APC 25
  Pollutant(s):
- [✓] Recordkeeping - APC 26
  Pollutant(s): Particulates
- [ ] Other (please describe) - APC 27
  Pollutant(s):

5. Compliance certification reports will be submitted to the Division according to the following schedule:
   Start date: Per the Title V permit.
   And every _____ days thereafter.
6. Compliance monitoring reports will be submitted to the Division according to the following schedule:
   Start date: Per the Title V permit.
   And every _____ days thereafter.
7. Page number: 19b Revision number: Date of revision: 04/16/19

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
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TITLE V PERMIT APPLICATION - COMPLIANCE DEMONSTRATION BY MONITORING CONTROL SYSTEM PARAMETERS OR OPERATING PARAMETERS OF A PROCESS

The monitoring of a control system parameter or a process parameter shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value and the emission rate of a particular pollutant is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s)
59-S1 Furnace Charge weight hoppers

3. Emission source:
(28-0025-59) Furnace charge weight hoppers

MONITORING DESCRIPTION

4. Pollutant(s) being monitored:
Opacity

5. Description of the method of monitoring and establishment of correlation between the parameter value and the emission rate of a particular pollutant:

Based on the opacity matrix decision tree for TVEE Method 2, no opacity readings are required for sources with an allowable limit of less than 10 tons per year.

6. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
In accordance with the opacity matrix, no readings are required.

7. Page number: 197 Revision number: Date of revision: 04/16/19

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TITLE V PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY RECORDKEEPING

Recordkeeping shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value recorded and the applicable requirement is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s):
59-S1 Furnace Charge weight hoppers

3. Emission source (identify):
(28-0025-59) Furnace charge weight hoppers

MONITORING AND RECORDKEEPING DESCRIPTION

4. Pollutant(s) or parameter being monitored:
Particulate Emissions

5. Material or parameter being monitored and recorded:
Operator will maintain daily records of the cyclone inspections and maintenance.

6. Method of monitoring and recording:
Records will be maintained of the daily Cyclone inspections and maintenance. The emissions are estimated using the method shown in the attachment to APC V. 28.

7. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
Monthly

8. Page number: 198 | Revision number: | Date of revision: 04/16/19

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
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TITLE V PERMIT APPLICATION
EMISSIONS FROM PROCESS EMISSION SOURCE / FUEL BURNING INSTALLATION / INCINERATOR

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Stack ID or flowdiagram point identification(s):
Magotteaux Inc.	59-S1 Furnace Charge weight hoppers

3. Process emission source / Fuel burning installation / Incinerator (identify):
(28-0025-59) Furnace charge weight hoppers

EMISSIONS SUMMARY TABLE – CRITERIA AND FUGITIVE EMISSIONS

4. Complete the following emissions summary for regulated air pollutants. Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Particulate Matter (TSP)	7.7			
(Fugitive Emissions)				
Sulfur Dioxide				
(Fugitive Emissions)				
Volatile Organic Compounds				
(Fugitive Emissions)				
Carbon Monoxide				
(Fugitive Emissions)				
Lead				
(Fugitive Emissions)				
Nitrogen Oxides				
(Fugitive Emissions)				
Total Reduced Sulfur				
(Fugitive Emissions)				
Mercury				
(Fugitive Emissions)				

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AIR POLLUTANT	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Asbestos				
(Fugitive Emissions)				
Beryllium				
(Fugitive Emissions)				
Vinyl Chloride				
(Fugitive Emissions)				
Fluorides				
(Fugitive Emissions)				
Gaseous Fluorides				
(Fugitive Emissions)				
Greenhouse Gases in CO_2 Equivalents				

EMISSIONS SUMMARY TABLE – FUGITIVE HAZARDOUS AIR POLLUTANTS

5. Complete the following emissions summary for regulated air pollutants that are hazardous air pollutant(s). Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant & CAS	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)

6. Page number: 200 Revision number: Date of revision 04/16/19

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TITLE V PERMIT APPLICATION
CURRENT EMISSIONS REQUIREMENTS AND STATUS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Emission source number
Magotteaux Inc.	ESRN 59 Furnace Charge weight hoppers

3. Describe the process emission source / fuel burning installation / incinerator.

Furnace Charge Weight Hopper - EAF and induction furnace charges are made up in 2 weight hoppers. Fines collected are landfilled

EMISSIONS AND REQUIREMENTS

4. Identify if only a part of the source is subject to this requirement	5. Pollutant	6. Applicable requirement(s): TN Air Pollution Control Regulations, 40 CFR, permit restrictions, air quality based standards	7. Limitation	8. Maximum actual emissions	9. Compliance status (In/Out)
	Particulate	Permit Condition E24-1	1.75 lbs/hr	< 1.75 lbs/hr	IN
	Opacity	Permit Condition E24-2	20%	< 20%	IN

10. Other applicable requirements (new requirements that apply to this source during the term of this permit)

11. Page number: 201 Revision number: Date of revision: 04/16/19

Attachment to APC V.28, Emissions From Process Emission Source (28-0025-59)
Furnace Charge Weight Hopper

Scrap metal is placed in weighing hoppers to prepare charges for the melting furnaces. Magotteaux operates two weighing hoppers. One cyclone is set up to draw dust off both of the weighing hoppers. This cyclone has a forced draft fan. The cyclone is 80% efficient in the removal of particulates from the air stream. Particulates removed in the cyclone drop out into a container. This container collects a maximum of 3.5 pounds of fines per hour. This collection rate results in actual emissions of 0.875 pounds per hour or 3.8 tons per year.

Magotteaux has agreed to a maximum allowable limit of 1.75 lbs/hr or 7.7 tons/yr.

Cyclone Efficiency = 80%

Cyclone Collects 3.5 lb/hr

Emissions = ((1 - Collection Eff.)(Collected Material))/Collection Eff.

E = ((1-0.80)(3.5lb/hr))/(0.80) = 0.875 lbs/hr = 3.8 tons/yr

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Department of Environment and Conservation
Division of Air Pollution Control
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Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
STACK IDENTIFICATION

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Emission source (identify):**
(28-0025-62) Sand and Bentonite receiving

STACK DESCRIPTION

3. Stack ID (or flow diagram point identification):

4. Stack height above grade in feet:

5. Velocity (data at exit conditions):
_____ (Actual feet per second)

6. Inside dimensions at outlet in feet:

7. Exhaust flow rate at exit conditions (ACFM):

8. Flow rate at standard conditions (DSCFM):

9. Exhaust temperature:
ambient _____ Degrees Fahrenheit (°F)

10. Moisture content (data at exit conditions):
ambient _____ Percent _____ Grains per dry standard cubic foot (gr./dscf.)

11. Exhaust temperature that is equaled or exceeded during ninety (90) percent or more of the operating time (for stacks subject to diffusion equation only):
ambient _____ (°F)

12. If this stack is equipped with continuous pollutant monitoring equipment required for compliance, what pollutant(s) does this equipment monitor (e.g., Opacity, SO_2, NO_x, etc.)?
N/A

Complete the appropriate APC form(s) 4, 5, 7, 8, 9, or 10 for each source exhausting through this stack.

BYPASS STACK DESCRIPTION

13. Do you have a bypass stack?
_____ Yes X No

If yes, describe the conditions which require its use & complete APC form 4 for the bypass stack. Please identify the stack number(s) of flow diagram point number(s) exhausting through this bypass stack.

14. Page number: 203 Revision Number: Date of Revision: 04/17/19

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TITLE V PERMIT APPLICATION
MISCELLANEOUS PROCESSES

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Process emission source (identify):**
(28-0025-62) Sand and Bentonite receiving

3. Stack ID or flowdiagram point identification (s):
N/A Outside source

4. Year of construction or last modification:
1972

If the emissions are controlled for compliance, attach an appropriate Air Pollution Control system form.

5. Normal operating schedule: 24 Hrs./Day 7 Days/Wk. 365 Days/Yr.

6. Location of this process emission source in UTM coordinates: UTM Vertical: 3896.88 N UTM Horizontal: 494.57 E

7. Describe this process (Please attach a flowdiagram of this process) and check one of the following:

[✓] Batch [ ] Continuous

PROCESS MATERIAL INPUT AND OUTPUT

8. List the types and amounts of raw materials input to this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Sand & Bentonite Clay			2500 tons/month

9. List the types and amounts of primary products produced by this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)

10. Process fuel usage:

Type of fuel	Max heat input (10^6 BTU/Hr.)	Average usage (units)	Maximum usage (units)
N/A			

11. List any solvents, cleaners, etc., associated with this process:
N/A

If the emissions and/or operations of this process are monitored for compliance, please attach the appropriate Compliance Demonstration form.

12. Describe any fugitive emissions associated with this process, such as outdoor storage piles, open conveyors, open air sand blasting, material handling operations, etc. (please attach a separate sheet if necessary).
N/A

13. Page number: 204 Revision Number: Date of Revision: 04/17/19

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
COMPLIANCE CERTIFICATION - MONITORING AND REPORTING
DESCRIPTION OF METHODS USED FOR DETERMINING COMPLIANCE

All sources that are subject to 1200-03-09-.02(11) of the Tennessee Air Pollution Control Regulations are required to certify compliance with all applicable requirements by including a statement within the permit application of the methods used for determining compliance. This statement must include a description of the monitoring, recordkeeping, and reporting requirements and test methods. In addition, the application must include a schedule for compliance certification submittals during the permit term. These submittals must be no less frequent than annually and may need to be more frequent if specified by the underlying applicable requirement or the Technical Secretary.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.
2. Process emission source, fuel burning installation, or incinerator (identify): (28-0025-62) Sand and Bentonite Receiving
3. Stack ID or flowdiagram point identification(s): 65, No dedicated stack

METHODS OF DETERMINING COMPLIANCE

4. This source as described under Item #2 of this application will use the following method(s) for determining compliance with applicable requirements (and special operating conditions from an existing permit). Check all that apply and attach the appropriate form(s)

- [ ] Continuous Emission Monitoring (CEM) - APC 20
  Pollutant(s):
- [ ] Emission Monitoring Using Portable Monitors - APC 21
  Pollutant(s):
- [✓] Monitoring Control System Parameters or Operating Parameters of a Process - APC 22
  Pollutant(s): Opacity
- [ ] Monitoring Maintenance Procedures - APC 23
  Pollutant(s):
- [ ] Stack Testing - APC 24
  Pollutant(s):
- [ ] Fuel Sampling & Analysis (FSA) - APC 25
  Pollutant(s):
- [✓] Recordkeeping - APC 26
  Pollutant(s): Particulates
- [ ] Other (please describe) - APC 27
  Pollutant(s):

5. Compliance certification reports will be submitted to the Division according to the following schedule:

   Start date: Per the Title V permit.

   And every _____ days thereafter.

6. Compliance monitoring reports will be submitted to the Division according to the following schedule:

   Start date: Per the Title V permit.

   And every _____ days thereafter.

7. Page number: 205 Revision number: Date of revision: 04/17/19

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION - COMPLIANCE DEMONSTRATION BY MONITORING CONTROL SYSTEM PARAMETERS OR OPERATING PARAMETERS OF A PROCESS

The monitoring of a control system parameter or a process parameter shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value and the emission rate of a particular pollutant is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s)
62 Sand and Bentonite Receiving

3. Emission source:
(28-0025-62) Sand and Bentonite Receiving

MONITORING DESCRIPTION

4. Pollutant(s) being monitored:
Opacity

5. Description of the method of monitoring and establishment of correlation between the parameter value and the emission rate of a particular pollutant:

Based on the opacity matrix decision tree for TVEE Method 2, no opacity readings are required for sources with an allowable limit of less than 10 tons per year.

6. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
In accordance with the opacity matrix, no readings are required.

7. Page number: 206 | Revision number: | Date of revision: 04/17/19

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
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Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY RECORDKEEPING

Recordkeeping shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value recorded and the applicable requirement is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s):
62 Sand Bentonite Receiving

3. Emission source (identify):
(28-0025-62) Sand Bentonite Receiving

MONITORING AND RECORDKEEPING DESCRIPTION

4. Pollutant(s) or parameter being monitored:
Particulate matter emissions

5. Material or parameter being monitored and recorded:
Sand Bentonite Receiving

6. Method of monitoring and recording:
Monthly records will be kept of the Sand Bentonite Received.

7. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
Monthly

8. Page number: 207
Revision number:
Date of revision: 04/17/19

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
EMISSIONS FROM PROCESS EMISSION SOURCE / FUEL BURNING INSTALLATION / INCINERATOR

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flowdiagram point identification(s):
62 Sand Bentonite Receiving

3. Process emission source / Fuel burning installation / Incinerator (identify):
(28-0025-62) 62 Sand Bentonite Receiving

EMISSIONS SUMMARY TABLE – CRITERIA AND FUGITIVE EMISSIONS

4. Complete the following emissions summary for regulated air pollutants. Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Particulate Matter (TSP)	0.6			
(Fugitive Emissions)				
Sulfur Dioxide				
(Fugitive Emissions)				
Volatile Organic Compounds				
(Fugitive Emissions)				
Carbon Monoxide				
(Fugitive Emissions)				
Lead				
(Fugitive Emissions)				
Nitrogen Oxides				
(Fugitive Emissions)				
Total Reduced Sulfur				
(Fugitive Emissions)				
Mercury				
(Fugitive Emissions)				

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(Continued from last page)

AIR POLLUTANT	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Asbestos				
(Fugitive Emissions)				
Beryllium				
(Fugitive Emissions)				
Vinyl Chloride				
(Fugitive Emissions)				
Fluorides				
(Fugitive Emissions)				
Gaseous Fluorides				
(Fugitive Emissions)				
Greenhouse Gases in CO_2 Equivalents				

EMISSIONS SUMMARY TABLE – FUGITIVE HAZARDOUS AIR POLLUTANTS

5. Complete the following emissions summary for regulated air pollutants that are hazardous air pollutant(s). Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant & CAS	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
N/A				

6. Page number: 209 Revision number: Date of revision 04/17/19

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Department of Environment and Conservation
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TITLE V PERMIT APPLICATION
CURRENT EMISSIONS REQUIREMENTS AND STATUS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Emission source number
Magotteaux Inc.	28-0025-62 Sand and Bentonite Receiving

3. Describe the process emission source / fuel burning installation / incinerator.

Sand and Bentonite Receiving - Received by ralicar & truck & conveyed to silos for use in the molding operations

EMISSIONS AND REQUIREMENTS

4. Identify if only a part of the source is subject to this requirement	5. Pollutant	6. Applicable requirement(s): TN Air Pollution Control Regulations, 40 CFR, permit restrictions, air quality based standards	7. Limitation	8. Maximum actual emissions	9. Compliance status (In/Out)
		Permit Condition E25-1	NTE 25000 T/mo.	NTE 25000 T/mo.	IN
	Opacity	Permit Condition E3-20	20%	< 20%	IN

10. Other applicable requirements (new requirements that apply to this source during the term of this permit)

11. Page number: 210 Revision number: Date of revision: 04/17/19

Attachment to APC V.28
Calculations and Emission Factor References (28-0025-62)

Magotteaux Inc. receives Sand and Bentonite Clay that is used in the molding operations. According to Table 5-14 of EPA-600/2-78-050, 0.062 lb PM/Ton is emitted for unloading. Using this emission factor, the emissions can be calculated as follows:

Based on a throughput of 2,500 tons/month and 20,000 tons/year (Total) sand and Bentonite received, emissions are estimated as shown below.

Magotteaux Inc. has agreed to a maximum allowable input limit of 2500 tons/month and 20,000 tons/year.

(20,000 Sand & BentoniteTons/Yr) x (0.062 Lb PM/Ton) x (1 Ton/2000 Lb) = 0.6 TPY

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Department of Environment and Conservation
Division of Air Pollution Control
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Nashville, TN 37243
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TITLE V PERMIT APPLICATION
MISCELLANEOUS PROCESSES

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Process emission source (identify):**
(28-0025-66) Waste Sand Load-Out

3. Stack ID or flowdiagram point identification (s):
N/A Outside source

4. Year of construction or last modification:
1972

If the emissions are controlled for compliance, attach an appropriate Air Pollution Control system form.

5. Normal operating schedule: 24 Hrs./Day 7 Days/Wk. 365 Days/Yr.

6. Location of this process emission source in UTM coordinates: UTM Vertical: 3896.88 N UTM Horizontal: 494.57 E

7. Describe this process (Please attach a flowdiagram of this process) and check one of the following:

[✓] Batch [ ] Continuous

PROCESS MATERIAL INPUT AND OUTPUT

8. List the types and amounts of raw materials input to this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Waste Sand	Front-end Loader and Truck	2,500 ton/month	2,500 ton/month

9. List the types and amounts of primary products produced by this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
	Waste sand is landfilled		

10. Process fuel usage:

Type of fuel	Max heat input (10^6 BTU/Hr.)	Average usage (units)	Maximum usage (units)
N/A			

11. List any solvents, cleaners, etc., associated with this process:
N/A

If the emissions and/or operations of this process are monitored for compliance, please attach the appropriate Compliance Demonstration form.

12. Describe any fugitive emissions associated with this process, such as outdoor storage piles, open conveyors, open air sand blasting, material handling operations, etc. (please attach a separate sheet if necessary).
N/A

13. Page number: 2/2 Revision Number: Date of Revision: 04/17/19

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Department of Environment and Conservation
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Nashville, TN 37243
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TITLE V PERMIT APPLICATION
COMPLIANCE CERTIFICATION - MONITORING AND REPORTING
DESCRIPTION OF METHODS USED FOR DETERMINING COMPLIANCE

All sources that are subject to 1200-03-09-.02(11) of the Tennessee Air Pollution Control Regulations are required to certify compliance with all applicable requirements by including a statement within the permit application of the methods used for determining compliance. This statement must include a description of the monitoring, recordkeeping, and reporting requirements and test methods. In addition, the application must include a schedule for compliance certification submittals during the permit term. These submittals must be no less frequent than annually and may need to be more frequent if specified by the underlying applicable requirement or the Technical Secretary.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.
2. Process emission source, fuel burning installation, or incinerator (identify): (28-0025-66) Waste Sand Load-out
3. Stack ID or flowdiagram point identification(s): 66, No dedicated stack

METHODS OF DETERMINING COMPLIANCE

4. This source as described under Item #2 of this application will use the following method(s) for determining compliance with applicable requirements (and special operating conditions from an existing permit). Check all that apply and attach the appropriate form(s)

- [ ] Continuous Emission Monitoring (CEM) - APC 20
  Pollutant(s):
- [ ] Emission Monitoring Using Portable Monitors - APC 21
  Pollutant(s):
- [✓] Monitoring Control System Parameters or Operating Parameters of a Process - APC 22
  Pollutant(s): Opacity
- [ ] Monitoring Maintenance Procedures - APC 23
  Pollutant(s):
- [ ] Stack Testing - APC 24
  Pollutant(s):
- [ ] Fuel Sampling & Analysis (FSA) - APC 25
  Pollutant(s):
- [✓] Recordkeeping - APC 26
  Pollutant(s): Particulates
- [ ] Other (please describe) - APC 27
  Pollutant(s):

5. Compliance certification reports will be submitted to the Division according to the following schedule:

   Start date: Per the Title V permit.

   And every _____ days thereafter.

6. Compliance monitoring reports will be submitted to the Division according to the following schedule:

   Start date: Per the Title V permit.

   And every _____ days thereafter.

7. Page number: 213 Revision number: Date of revision: 04/17/19

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
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TITLE V PERMIT APPLICATION - COMPLIANCE DEMONSTRATION BY MONITORING CONTROL SYSTEM PARAMETERS OR OPERATING PARAMETERS OF A PROCESS

The monitoring of a control system parameter or a process parameter shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value and the emission rate of a particular pollutant is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s)
66 Waste Sand Loadout

3. Emission source:
(28-0025-66) Waste Sand Loadout

MONITORING DESCRIPTION

4. Pollutant(s) being monitored:
Opacity

5. Description of the method of monitoring and establishment of correlation between the parameter value and the emission rate of a particular pollutant:

Based on the opacity matrix decision tree for TVEE Method 2, no opacity readings are required for sources with an allowable limit of less than 10 tons per year.

6. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):

In accordance with the opacity matrix, no readings are required.

7. Page number: 214

Revision number:

Date of revision: 04/17/19

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
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Nashville, TN 37243
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TITLE V PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY RECORDKEEPING

Recordkeeping shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value recorded and the applicable requirement is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s):
66 Waste Sand Load-out

3. Emission source (identify):
(28-0025-66) Waste Sand Load-out

MONITORING AND RECORDKEEPING DESCRIPTION

4. Pollutant(s) or parameter being monitored:
Particulate matter emissions

5. Material or parameter being monitored and recorded:
Waste Sand Loaded out

6. Method of monitoring and recording:

Monthly records will be kept of the sand loaded on trucks. Emissions can be estimated as shown on the attachment to APC V.28.

7. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
Monthly

8. Page number: 215 | Revision number: | Date of revision: 04/17/19

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
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TITLE V PERMIT APPLICATION
EMISSIONS FROM PROCESS EMISSION SOURCE / FUEL BURNING INSTALLATION / INCINERATOR

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s):
66 Waste Sand Load-out

3. Process emission source / Fuel burning installation / Incinerator (identify):
(28-0025-66) Waste Sand Load-out

EMISSIONS SUMMARY TABLE – CRITERIA AND FUGITIVE EMISSIONS

4. Complete the following emissions summary for regulated air pollutants. Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Particulate Matter (TSP)	8.45			
(Fugitive Emissions)				
Sulfur Dioxide				
(Fugitive Emissions)				
Volatile Organic Compounds				
(Fugitive Emissions)				
Carbon Monoxide				
(Fugitive Emissions)				
Lead				
(Fugitive Emissions)				
Nitrogen Oxides				
(Fugitive Emissions)				
Total Reduced Sulfur				
(Fugitive Emissions)				
Mercury				
(Fugitive Emissions)				

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AIR POLLUTANT	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Asbestos				
(Fugitive Emissions)				
Beryllium				
(Fugitive Emissions)				
Vinyl Chloride				
(Fugitive Emissions)				
Fluorides				
(Fugitive Emissions)				
Gaseous Fluorides				
(Fugitive Emissions)				
Greenhouse Gases in CO_2 Equivalents				

EMISSIONS SUMMARY TABLE – FUGITIVE HAZARDOUS AIR POLLUTANTS

5. Complete the following emissions summary for regulated air pollutants that are hazardous air pollutant(s). Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant & CAS	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
N/A				

6. Page number: 217 Revision number: Date of revision 04/17/19

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TITLE V PERMIT APPLICATION
CURRENT EMISSIONS REQUIREMENTS AND STATUS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Emission source number
Magotteaux Inc.	28-0025-66 Waste Sand Load-out

3. Describe the process emission source / fuel burning installation / incinerator.

Waste sand fines are conveyed to a waste sand bin equipped with bin vents.

EMISSIONS AND REQUIREMENTS

4. Identify if only a part of the source is subject to this requirement	5. Pollutant	6. Applicable requirement(s): TN Air Pollution Control Regulations, 40 CFR, permit restrictions, air quality based standards	7. Limitation	8. Maximum actual emissions	9. Compliance status (In/Out)
		Permit Condition E26-1	NTE 2,500 T/mo	< 2,500 T/mo	IN
	Particulate	Permit Condition E26-2	32.4 lbs/hr	< 32.4 lbs/hr	IN
	Opacity	Permit Condition E26-3	20%	< 20%	IN

10. Other applicable requirements (new requirements that apply to this source during the term of this permit)

11. Page number: 2/8 Revision number: Date of revision: 04/17/19

Attachment to APC V.28
Calculations and Emission Factor References (28-0025-66)

Magotteaux Inc. loads waste sand into a dump truck for transportation to a landfill. Waste sand fines are collected in the sand bin. This operation has water spray control, and in enclosed on four sides. Waste sand not collected in the bin is dumped into a waste sand pile and loaded with a front end loader. This portion of the load-out operation does not have any form of pollution control. Although the 'Waste Sand Load-out is equipped with particulate emission control devices, Magotteaux Inc. has elected to ignore their effect, and to permit this source as though it was not equipped with any control measures. Using Emission Factor SCC 3-04-007-06: 0.65 lb particulates per ton of sand processed, the emissions can be calculated as follows:

Based on a throughput of 2,500 ton/month of used sand using a design capacity limited by the load time and distance traveled to load trucks

Allowable Particulate Emissions:

E = (26,000 tons/yr)(0.65 lb/ton) = 16,900 lb/yr = 8.45 TPY

Magotteaux Inc. has agreed to a maximum allowable input limit of 2,500 tons/month and 26,000 tons/year.

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TITLE V PERMIT APPLICATION
MISCELLANEOUS PROCESSES

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Process emission source (identify):**
(28-0025-67) Particulate Fugitive Emissions

3. Stack ID or flowdiagram point identification(s):
67 - (No Stack)

4. Year of construction or last modification:
1972

If the emissions are controlled for compliance, attach an appropriate Air Pollution Control system form.

5. Normal operating schedule: 24 Hrs./Day 7 Days/Wk. 365 Days/Yr.

6. Location of this process emission source in UTM coordinates: UTM Vertical: 3896.88 N UTM Horizontal: 494.57 E

7. Describe this process (Please attach a flowdiagram of this process) and check one of the following:

[ ] Batch [✓] Continuous

PROCESS MATERIAL INPUT AND OUTPUT

8. List the types and amounts of raw materials input to this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
N/A	Fugitive Emissions		

9. List the types and amounts of primary products produced by this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
N/A			

10. Process fuel usage:

Type of fuel	Max heat input (10^6 BTU/Hr.)	Average usage (units)	Maximum usage (units)
N/A			

11. List any solvents, cleaners, etc., associated with this process:
N/A

If the emissions and/or operations of this process are monitored for compliance, please attach the appropriate Compliance Demonstration form.

12. Describe any fugitive emissions associated with this process, such as outdoor storage piles, open conveyors, open air sand blasting, material handling operations, etc. (please attach a separate sheet if necessary).
N/A

13. Page number: 220 Revision Number: Date of Revision: 04/17/19

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Department of Environment and Conservation
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TITLE V PERMIT APPLICATION
COMPLIANCE CERTIFICATION - MONITORING AND REPORTING
DESCRIPTION OF METHODS USED FOR DETERMINING COMPLIANCE

All sources that are subject to 1200-03-09-.02(11) of the Tennessee Air Pollution Control Regulations are required to certify compliance with all applicable requirements by including a statement within the permit application of the methods used for determining compliance. This statement must include a description of the monitoring, recordkeeping, and reporting requirements and test methods. In addition, the application must include a schedule for compliance certification submittals during the permit term. These submittals must be no less frequent than annually and may need to be more frequent if specified by the underlying applicable requirement or the Technical Secretary.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.
2. Process emission source, fuel burning installation, or incinerator (identify): (28-0025-67) Facility-Wide particulate Fugitive Emissions
3. Stack ID or flow diagram point identification(s): 67 No dedicated stack

METHODS OF DETERMINING COMPLIANCE

4. This source as described under Item #2 of this application will use the following method(s) for determining compliance with applicable requirements (and special operating conditions from an existing permit). Check all that apply and attach the appropriate form(s)

- [ ] Continuous Emission Monitoring (CEM) - APC 20
  Pollutant(s):
- [ ] Emission Monitoring Using Portable Monitors - APC 21
  Pollutant(s):
- [✓] Monitoring Control System Parameters or Operating Parameters of a Process - APC 22
  Pollutant(s): Opacity
- [ ] Monitoring Maintenance Procedures - APC 23
  Pollutant(s):
- [ ] Stack Testing - APC 24
  Pollutant(s):
- [ ] Fuel Sampling & Analysis (FSA) - APC 25
  Pollutant(s):
- [✓] Recordkeeping - APC 26
  Pollutant(s): Fugitive Particulate
- [ ] Other (please describe) - APC 27
  Pollutant(s):

5. Compliance certification reports will be submitted to the Division according to the following schedule:

   Start date: Per the Title V permit.

   And every _____ days thereafter.

6. Compliance monitoring reports will be submitted to the Division according to the following schedule:

   Start date: Per the Title V permit.

   And every _____ days thereafter.

7. Page number: 221 Revision number: Date of revision: 04/17/19

State of Tennessee
Department of Environment and Conservation
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TITLE V PERMIT APPLICATION - COMPLIANCE DEMONSTRATION BY MONITORING CONTROL SYSTEM PARAMETERS OR OPERATING PARAMETERS OF A PROCESS

The monitoring of a control system parameter or a process parameter shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value and the emission rate of a particular pollutant is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s)
67 Particulate Fugitive Emissions

3. Emission source:
(28-0025-67) Facility-Wide Fugitive Particulate Emissions

MONITORING DESCRIPTION

4. Pollutant(s) being monitored:
Opacity

5. Description of the method of monitoring and establishment of correlation between the parameter value and the emission rate of a particular pollutant:
Fugitive visible emissions will be observed once a year using Tennessee Visible Emission Evaluation Method 4.

6. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
Annually

7. Page number: 222 Revision number: Date of revision: 04/17/19

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TITLE V PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY RECORDKEEPING

Recordkeeping shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value recorded and the applicable requirement is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s):
67 Particulate Fugitive Emissions

3. Emission source (identify):
(28-0025-67) Facility-Wide Fugitive Particulate Emissions

MONITORING AND RECORDKEEPING DESCRIPTION

4. Pollutant(s) or parameter being monitored:
Fugitive Particulate

5. Material or parameter being monitored and recorded:
Operator will maintain monthly records of hours of operation and the weight of metal melted.

6. Method of monitoring and recording:

Monthly records will be kept of the hours of operation and the weight of metal melted. The emissions will be estimated using the method shown on the attachment to APC V .28.

7. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
Monthly

8. Page number: 223
Revision number:
Date of revision: 04/17/19

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
EMISSIONS FROM PROCESS EMISSION SOURCE / FUEL BURNING INSTALLATION / INCINERATOR

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flowdiagram point identification(s):
67 Particulate Fugitive Emissions

3. Process emission source / Fuel burning installation / Incinerator (identify):
(28-0025-67) Facility-Wide Fugitive Particulate Emissions

EMISSIONS SUMMARY TABLE – CRITERIA AND FUGITIVE EMISSIONS

4. Complete the following emissions summary for regulated air pollutants. Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Particulate Matter (TSP)				
(Fugitive Emissions)	30.6			
Sulfur Dioxide				
(Fugitive Emissions)				
Volatile Organic Compounds				
(Fugitive Emissions)				
Carbon Monoxide				
(Fugitive Emissions)				
Lead				
(Fugitive Emissions)				
Nitrogen Oxides				
(Fugitive Emissions)				
Total Reduced Sulfur				
(Fugitive Emissions)				
Mercury				
(Fugitive Emissions)				

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AIR POLLUTANT	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Asbestos				
(Fugitive Emissions)				
Beryllium				
(Fugitive Emissions)				
Vinyl Chloride				
(Fugitive Emissions)				
Fluorides				
(Fugitive Emissions)				
Gaseous Fluorides				
(Fugitive Emissions)				
Greenhouse Gases in CO_2 Equivalents				

EMISSIONS SUMMARY TABLE – FUGITIVE HAZARDOUS AIR POLLUTANTS

5. Complete the following emissions summary for regulated air pollutants that are hazardous air pollutant(s). Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant & CAS	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)

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TITLE V PERMIT APPLICATION
CURRENT EMISSIONS REQUIREMENTS AND STATUS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Emission source number
Magotteaux Inc.	28-0025-67 Facility-Wide Fugitive Particulate Emissions

3. Describe the process emission source / fuel burning installation / incinerator.

67, Facility-Wide Fugitive Particulate Emissions

EMISSIONS AND REQUIREMENTS

4. Identify if only a part of the source is subject to this requirement	5. Pollutant	6. Applicable requirement(s): TN Air Pollution Control Regulations, 40 CFR, permit restrictions, air quality based standards	7. Limitation	8. Maximum actual emissions	9. Compliance status (In/Out)
	Particulate	Permit Condition E27-1	13.6 lbs/hr	< 13.6 lbs/hr	IN
	Opacity	Permit Condition D7	NTE 5 min/hr	NTE 5 min/hr	IN

10. Other applicable requirements (new requirements that apply to this source during the term of this permit)

		MACT Standard for Secondary Steel	Unknown - To be		Unknown
		and Iron Foundrie	promulgated		

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Attachment to APC V. 28
Magotteaux Inc.
Emission Calculation
Fugitive Emissions (28-0025-67)

The fugitive emissions are estimated using an emissions factor of 0.68 lbs/ton of metal processed. This factor was determined from a fugitive study conducted at Magotteaux Inc. during December 1995.

Maximum Allowable Emissions

(90000 tons of metal processed/yr)(0.68 lbs/ton of metal processed)(1 ton/2000 lbs) = 30.6 tons/yr

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TITLE V PERMIT APPLICATION
STACK IDENTIFICATION

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**

Magotteaux Inc.

2. **Emission source (identify):**

(28-0025-68) Emergency Generator

STACK DESCRIPTION

3. Stack ID (or flowdiagram point identification):

68-S1

4. Stack height above grade in feet:

11 feet

5. Velocity (data at exit conditions): 150 (Actual feet per second)	6. Inside dimensions at outlet in feet: 0.5
7. Exhaust flowrate at exit conditions (ACFM): 1825	8. Flow rate at standard conditions (DSCFM): 1580
9. Exhaust temperature: 160 Degrees Fahrenheit (°F)	10. Moisture content (data at exit conditions): 5% Percent ____ Grains per dry standard cubic foot (gr./dscf.)

11. Exhaust temperature that is equaled or exceeded during ninety (90) percent or more of the operating time (for stacks subject to diffusion equation only):

N/A (°F)

12. If this stack is equipped with continuous pollutant monitoring equipment required for compliance, what pollutant(s) does this equipment monitor (e.g., Opacity, SO_2, NO_x, etc.)?

N/A

Complete the appropriate APC form(s) 4, 5, 7, 8, 9, or 10 for each source exhausting through this stack.

BYPASS STACK DESCRIPTION

13. Do you have a bypass stack?

____ Yes X No

If yes, describe the conditions which require its use & complete APC form 4 for the bypass stack. Please identify the stack number(s) of flowdiagram point number(s) exhausting through this bypass stack.

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TITLE V PERMIT APPLICATION
FUEL BURNING NON-PROCESS EQUIPMENT

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Stack ID or flow diagram point identification (s):**
68-S1

FUEL BURNING EQUIPMENT DESCRIPTION

3. List all fuel burning equipment that is at this fuel burning installation (please complete an APC 4 form for each piece of fuel burning equipment).
(28-0025-68) Emergency Generator

4. Fuel burning equipment identification number:
68-B1

5. Fuel burning equipment description:
Backup Diesel Generator - Generator will provide backup electrical power when TVA suppy is curtailed. The generator only produces 400 kW and is not capable of providing power for melting furnace operation.

6. Year of installation or last modification of fuel burning equipment.
2002

7. Furnace type:
Diesel Fired Emergency Generator

8. Manufacturer model number (if available):
Model SR-4

9. Location of this fuel burning installation in UTM coordinates: UTM Vertical: 3896.88 N UTM Horizontal: 494.57 E

10. Normal operating schedule: _____ Hrs./Day _____ Days/Wk. 250hr/yr Days/Yr.

FUELS, CONTROLS, AND MONITORING DESCRIPTION

11. Maximum rated heat input capacity (in million BTU/Hour)
4.27

12. If wood is used as a fuel, specify the amount of wood used as a fraction of total heat input.
N/A

13. Fuels:	Primary fuel	Backup fuel #1	Backup fuel #2	Backup fuel #3
Fuel name	No. 2 Fuel Oil	N/A	N/A	N/A
Actual yearly consumption	7725 Gal			

14. If emissions from this fuel burning equipment are controlled for compliance, please specify the type of control:
N/A

15. If emissions from this fuel burning equipment are monitored for compliance, please specify the type of monitoring:
N/A

16. Describe any fugitive emissions associated with this process, such as outdoor storage piles, open conveyors, material handling operations, etc. (please attach a separate sheet if necessary).
N/A

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TITLE V PERMIT APPLICATION
COMPLIANCE CERTIFICATION - MONITORING AND REPORTING
DESCRIPTION OF METHODS USED FOR DETERMINING COMPLIANCE

All sources that are subject to 1200-03-09-.02(11) of the Tennessee Air Pollution Control Regulations are required to certify compliance with all applicable requirements by including a statement within the permit application of the methods used for determining compliance. This statement must include a description of the monitoring, recordkeeping, and reporting requirements and test methods. In addition, the application must include a schedule for compliance certification submittals during the permit term. These submittals must be no less frequent than annually and may need to be more frequent if specified by the underlying applicable requirement or the Technical Secretary.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.
2. Process emission source, fuel burning installation, or incinerator (identify): (28-0025-68) Emergency Generator
3. Stack ID or flow diagram point identification(s): 68-S1

METHODS OF DETERMINING COMPLIANCE

4. This source as described under Item #2 of this application will use the following method(s) for determining compliance with applicable requirements (and special operating conditions from an existing permit). Check all that apply and attach the appropriate form(s)

- [ ] Continuous Emission Monitoring (CEM) - APC 20
  Pollutant(s):
- [ ] Emission Monitoring Using Portable Monitors - APC 21
  Pollutant(s):
- [✓] Monitoring Control System Parameters or Operating Parameters of a Process - APC 22
  Pollutant(s): Opacity
- [ ] Monitoring Maintenance Procedures - APC 23
  Pollutant(s):
- [ ] Stack Testing - APC 24
  Pollutant(s):
- [ ] Fuel Sampling & Analysis (FSA) - APC 25
  Pollutant(s):
- [✓] Recordkeeping - APC 26
  Pollutant(s): Particulate Sulfur Dioxide, Nitrogen Oxides, VOCs, Carbon Monoxide
- [ ] Other (please describe) - APC 27
  Pollutant(s):

5. Compliance certification reports will be submitted to the Division according to the following schedule:
   Start date: Per the Title V permit.
   And every _____ days thereafter.
6. Compliance monitoring reports will be submitted to the Division according to the following schedule:
   Start date: Per the Title V permit.
   And every _____ days thereafter.
7. Page number: 230 Revision number: Date of revision: 04/17/19

State of Tennessee
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TITLE V PERMIT APPLICATION - COMPLIANCE DEMONSTRATION BY MONITORING CONTROL SYSTEM PARAMETERS OR OPERATING PARAMETERS OF A PROCESS

The monitoring of a control system parameter or a process parameter shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value and the emission rate of a particular pollutant is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Stack ID or flow diagram point identification(s)
Magotteaux Inc.	68-S1 Emergency Generator

3. Emission source:

(28-0025-68) Emergency Generator

MONITORING DESCRIPTION

4. Pollutant(s) being monitored:

Opacity

5. Description of the method of monitoring and establishment of correlation between the parameter value and the emission rate of a particular pollutant:

Based on the opacity matrix decision tree for EPA Method 9, no opacity readings are required for No. 2 oil combustion sources.

6. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):

In accordance with the opacity matrix, no readings are required.

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TITLE V PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY RECORDKEEPING

Recordkeeping shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value recorded and the applicable requirement is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s):
68-S1 Emergency Generator

3. Emission source (identify):
(28-0025-68) Emergency Generator

MONITORING AND RECORDKEEPING DESCRIPTION

4. Pollutant(s) or parameter being monitored:
Particulate, SOx, NOx, CO, VOC

5. Material or parameter being monitored and recorded:
Operator will maintain monthly records of the annual operating hours.

6. Method of monitoring and recording:
Monthly records will be kept of the operating hours. The emissions will be estimated using AP-42 factors as shown on the attachment to APC V.28.

7. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
Monthly

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TITLE V PERMIT APPLICATION
EMISSIONS FROM PROCESS EMISSION SOURCE / FUEL BURNING INSTALLATION / INCINERATOR

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s):
68-S1 Emergency Generator

3. Process emission source / Fuel burning installation / Incinerator (identify):
(28-0025-68) Emergency Generator

EMISSIONS SUMMARY TABLE – CRITERIA AND FUGITIVE EMISSIONS

4. Complete the following emissions summary for regulated air pollutants. Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Particulate Matter (TSP)	0.17			
(Fugitive Emissions)				
Sulfur Dioxide	0.16			
(Fugitive Emissions)				
Volatile Organic Compounds	0.20			
(Fugitive Emissions)				
Carbon Monoxide	0.51			
(Fugitive Emissions)				
Lead				
(Fugitive Emissions)				
Nitrogen Oxides	2.39			
(Fugitive Emissions)				
Total Reduced Sulfur				
(Fugitive Emissions)				
Mercury				
(Fugitive Emissions)				

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AIR POLLUTANT	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Asbestos				
(Fugitive Emissions)				
Beryllium				
(Fugitive Emissions)				
Vinyl Chloride				
(Fugitive Emissions)				
Fluorides				
(Fugitive Emissions)				
Gaseous Fluorides				
(Fugitive Emissions)				
Greenhouse Gases in CO_2 Equivalents				

EMISSIONS SUMMARY TABLE – FUGITIVE HAZARDOUS AIR POLLUTANTS

5. Complete the following emissions summary for regulated air pollutants that are hazardous air pollutant(s). Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant & CAS	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)

6. Page number: 234 Revision number: Date of revision 04/17/19

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TITLE V PERMIT APPLICATION
CURRENT EMISSIONS REQUIREMENTS AND STATUS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Emission source number
Magotteaux Inc.	28-0025-68 Emergency Generator

3. Describe the process emission source / fuel burning installation / incinerator.

Diesel Fired Emergency Generator

EMISSIONS AND REQUIREMENTS

4. Identify if only a part of the source is subject to this requirement	5. Pollutant	6. Applicable requirement(s): TN Air Pollution Control Regulations, 40 CFR, permit restrictions, air quality based standards	7. Limitation	8. Maximum actual emissions	9. Compliance status (In/Out)
	Particulate	Permit Condition E28-2	0.6 lbs/MM Btu	< 0.6 lbs/MM Btu	IN
	SO2	Permit Condition E328-3 and E28-8	1.25 lbs/hr	< 1.25 lbs/hr	IN
	NOx	Permit Condition E28-5	19.08 lbs/hr	< 19.08 lbs/hr	IN
	CO	Permit Condition E28-6	4.11	< 4.11	IN
	VOC	Permit Condition E28-4	1.56 lbs/hr	< 1.56 lbs/hr	IN
		Permit Condition E28-1	NTE 250 hrs.	NTE 250 hrs.	IN
	Opacity	Permit Condition E3-20	20 %	< 20 %	IN
		40 CFR 63 Subpart ZZZZ	Recordkeeping	N/A	IN

10. Other applicable requirements (new requirements that apply to this source during the term of this permit)

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Magotteaux Inc. 28-0025-68
Emissions from Uncontrolled Diesel Industrial Engine for Backup Electric Generator

MAX #2 Fuel Oil Comsumption at full load (gal/hr): 30.9

specific gravity of #2 fuel oil: 0.86
Diesel heating value (Btu/lb): 19,300

Average brake-specific fuel comsumption (BSFC) (Btu/hp-hr): 7,000
Estimated engine power output (hp-hr): 611

Agreed limit on hours of operation, assuming full load (hrs/yr): 250

Pollutant	* Diesel Fuel Emission Factor (lb/MMBtu) (fuel input)	Emissions at full load (lbs/hr)	Emissions at full load and agreed limited hours of operation (tons/yr)
NO_X	4.41	18.86	2.36
CO	0.95	4.06	0.51
SO_X	0.29	1.24	0.16
PM10	0.31	1.33	0.17
TOC	0.36	1.54	0.19

*** AP-42 emission factors - "Table 3.3-1. Emission factors for uncontrolled gasoline and diesel industrial engines"**

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TITLE V PERMIT APPLICATION
STACK IDENTIFICATION

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Emission source (identify):**
Mold Wash/Coating Operations

STACK DESCRIPTION

3. Stack ID (or flow diagram point identification):
Flow Coat Application Side-draft Hood Stack (70-S1)

4. Stack height above grade in feet:
40

5. Velocity (data at exit conditions):
52 (Actual feet per second)

6. Inside dimensions at outlet in feet:
2.67 feet

7. Exhaust flow rate at exit conditions (ACFM):
17,500

8. Flow rate at standard conditions (DSCFM):
17,100

9. Exhaust temperature:
ambient Degrees Fahrenheit (°F)

10. Moisture content (data at exit conditions):
2 Percent _____ Grains per dry standard cubic foot (gr./dscf.)

11. Exhaust temperature that is equaled or exceeded during ninety (90) percent or more of the operating time (for stacks subject to diffusion equation only):
_____ (°F)

12. If this stack is equipped with continuous pollutant monitoring equipment required for compliance, what pollutant(s) does this equipment monitor (e.g., Opacity, SO_2, NO_x, etc.)?
No

Complete the appropriate APC form(s) 4, 5, 7, 8, 9, or 10 for each source exhausting through this stack.

BYPASS STACK DESCRIPTION

13. Do you have a bypass stack?
_____ Yes X No

If yes, describe the conditions which require its use & complete APC form 4 for the bypass stack. Please identify the stack number(s) of flow diagram point number(s) exhausting through this bypass stack.

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TITLE V PERMIT APPLICATION
PAINTING AND COATING OPERATIONS

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:** Magotteaux Inc.
2. Process description: Mold Wash Operation
3. Year of construction or last modification: 2011
4. Stack ID or flowdiagram point identification (s): 70-S1 and 70-S2

If the emissions are controlled for compliance, attach an appropriate Air Pollution Control system form.
If this printing operation is monitored for compliance, please attach the appropriate compliance demonstration form.

5. Normal operating schedule 24 Hrs./Day 7 Days/Wk. 365 Days/Yr.
6. Location of this operation in UTM coordinates: UTM Vertical: _____ UTM Horizontal: _____
7. Oven curing (complete if applicable): Number of ovens: N/A Temperature of air contacting coated material as it leaves the oven (°F): _____
   Specify oven fuels: _____ Total maximum heat input to each oven: _____
8. Application technique and transfer efficiency (%):

COATINGS AND SOLVENTS

9. Complete the following table – Attach additional tables as needed – Fill in only the items necessary for determination of compliance with emission standard(s).

Identify coatings	Maximum Usage		Normal Usage	Coating Composition: Volume and weight percent as applied							Density of Solvent Fraction	Coating Density
				Solids		Solvents (VOCs)	Water		Exempt Solvent			
	Gal./Hr.	Gal./Mo.	Gal./Mo.	Vol. %	Wt. %	Wt.%	Vol.	Wt.	Vol.	Wt.	Lbs./Gal.	Lbs./Gal.
Refcohol 1010			1980			30	0		0			14.4
Total coatings												
List the Thinning Solvents used with the coatings identified above:												
(1):			660			100	0		0			6.67
(2):												
Clean-up solvents:												
Other (specify):												

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TITLE V PERMIT APPLICATION
COMPLIANCE CERTIFICATION - MONITORING AND REPORTING
DESCRIPTION OF METHODS USED FOR DETERMINING COMPLIANCE

All sources that are subject to 1200-03-09-.02(11) of the Tennessee Air Pollution Control Regulations are required to certify compliance with all applicable requirements by including a statement within the permit application of the methods used for determining compliance. This statement must include a description of the monitoring, recordkeeping, and reporting requirements and test methods. In addition, the application must include a schedule for compliance certification submittals during the permit term. These submittals must be no less frequent than annually and may need to be more frequent if specified by the underlying applicable requirement or the Technical Secretary.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.
2. Process emission source, fuel burning installation, or incinerator (identify): Mold Wash Operation
3. Stack ID or flow diagram point identification(s): 70-S1 and 70-S2

METHODS OF DETERMINING COMPLIANCE

4. This source as described under Item #2 of this application will use the following method(s) for determining compliance with applicable requirements (and special operating conditions from an existing permit). Check all that apply and attach the appropriate form(s)

- [ ] Continuous Emission Monitoring (CEM) - APC 20
  Pollutant(s):
- [ ] Emission Monitoring Using Portable Monitors - APC 21
  Pollutant(s):
- [ ] Monitoring Control System Parameters or Operating Parameters of a Process - APC 22
  Pollutant(s):
- [ ] Monitoring Maintenance Procedures - APC 23
  Pollutant(s):
- [ ] Stack Testing - APC 24
  Pollutant(s):
- [ ] Fuel Sampling & Analysis (FSA) - APC 25
  Pollutant(s):
- [✓] Recordkeeping - APC 26
  Pollutant(s):
- [✓] Other (please describe) - APC 27
  Pollutant(s):

5. Compliance certification reports will be submitted to the Division according to the following schedule:
   Start date: In accordance with schedule in Title V permit
   And every _____ days thereafter.
6. Compliance monitoring reports will be submitted to the Division according to the following schedule:
   Start date: In accordance with schedule in Title V permit
   And every _____ days thereafter.
7. Page number: 239 Revision number: Date of revision: 04/17/19

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TITLE V PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY RECORDKEEPING

Recordkeeping shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value recorded and the applicable requirement is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s):
70-S1 and 70-S2

3. Emission source (identify):
Mold Wash Operations

MONITORING AND RECORDKEEPING DESCRIPTION

4. Pollutant(s) or parameter being monitored:
VOCs, CO, NOx

5. Material or parameter being monitored and recorded:
Mold Wash Compound and Mixing Solvent Usages

6. Method of monitoring and recording:
Actual Gallons of each material used will be monitored on a monthly basis

7. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
Monthly

8. Page number: 240 | Revision number: | Date of revision: 04/17/19

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TITLE V PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY OTHER METHOD(S)

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Stack ID or flowdiagram point identification(s):
Magotteaux Inc.	70-S1 and 70-S2

3. Emission source (identify):

Mold Wash Operation

MONITORING DESCRIPTION

4. Pollutant(s) or parameter being monitored:

Opacity

5. Description of the method of monitoring:

Opacity Matrix

6. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):

As required by the Title V permit

7. Page number:	Revision number:	Date of revision:
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TITLE V PERMIT APPLICATION
EMISSIONS FROM PROCESS EMISSION SOURCE / FUEL BURNING INSTALLATION / INCINERATOR

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.

2. Stack ID or flowdiagram point identification(s): 70-S1 and 70-S2

3. Process emission source / Fuel burning installation / Incinerator (identify): Mold Wash Operation

EMISSIONS SUMMARY TABLE – CRITERIA AND FUGITIVE EMISSIONS

4. Complete the following emissions summary for regulated air pollutants. Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Particulate Matter (TSP)				
(Fugitive Emissions)				
Sulfur Dioxide				
(Fugitive Emissions)				
Volatile Organic Compounds	52.6			
(Fugitive Emissions)				
Carbon Monoxide				
(Fugitive Emissions)				
Lead				
(Fugitive Emissions)				
Nitrogen Oxides				
(Fugitive Emissions)				
Total Reduced Sulfur				
(Fugitive Emissions)				
Mercury				
(Fugitive Emissions)				

(Continued on next page)

(Continued from last page)

AIR POLLUTANT	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Asbestos				
(Fugitive Emissions)				
Beryllium				
(Fugitive Emissions)				
Vinyl Chloride				
(Fugitive Emissions)				
Fluorides				
(Fugitive Emissions)				
Gaseous Fluorides				
(Fugitive Emissions)				
Greenhouse Gases in CO_2 Equivalents				

EMISSIONS SUMMARY TABLE – FUGITIVE HAZARDOUS AIR POLLUTANTS

5. Complete the following emissions summary for regulated air pollutants that are hazardous air pollutant(s). Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant & CAS	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)

6. Page number: 243 Revision number: Date of revision 04/17/19

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
CURRENT EMISSIONS REQUIREMENTS AND STATUS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Emission source number
Magotteaux Inc.	Source 70

3. Describe the process emission source / fuel burning installation / incinerator.

Mold Wash

EMISSIONS AND REQUIREMENTS

4. Identify if only a part of the source is subject to this requirement	5. Pollutant	6. Applicable requirement(s): TN Air Pollution Control Regulations, 40 CFR, permit restrictions, air quality based standards	7. Limitation	8. Maximum actual emissions	9. Compliance status (In/Out)
	VOC	Permit Condition SM1-E30-1	52.6 T/yr	52.6 T/yr	
	Opacity	Permit Condition SM1-E30-5	20%	< 20%	

10. Other applicable requirements (new requirements that apply to this source during the term of this permit)

11. Page number: 244 Revision number: Date of revision: 04/17/19

Estimated Emissions for Mold Wash

	gal/wk	wk/yr	gal/yr	lb/gal	% VOC/gal	VOC T/yr	VOC Lb/hr
REFCOHOL 1010	495	50	24750	14.4	30%	53.42	
REFCOSOLV 3000	165	50	8250	6.67	100%	27.51	
Total VOC			33000			**80.9**	

Estimated % Burned Off Conservative Engineering Estimate) 35%

Estimated VOC Emissions from Evaporation **52.6** 52.6

Estimated Emissions from Flash Off--

1) assumes balance of material burned (using No. 2 fuel oil factors except for CO)
2) all flash off burning over 2 hrs per shift

8 Hr Shifts/day	1	
Operating Hours	2000	year
Total Flash Hours:	500	per year
Max. Annual Solvent Burned:	33,000	Gallons
Max. Annual Solvent Burned:	161,873	Pounds
Sulfur Content:	0	

EMISSION FACTORS FOR SOLVENT COMBUSTION

	PM	SO_2	NO_x	CO	VOC	Pb	Units
#2 Oil Factor*	2.0	142 * S	20		0.2	0.00151	Lb/10^3 Gal
AFS**				0.061			Lb/lb

* AP-42, 5th Ed. #2 Oil factors dated 9/98
**Calculated from Table 4 in Attached AFS Article

Combustion Emissions **33000 gals/yr**

	PM	SO_2	NO_x	CO	VOC	Pb
Lb/Hr	0.000066	0.000000	0.000660	0.009874	0.000007	0.000000
Tons/Yr	0.0330	0.0000	0.330	4.94	0.0033	0.0000

Total Emissions

	PM	SO_2	NO_x	CO	VOC	Pb
Lb/Hr	0.000066	0.000000	0.000660	0.009874	52.6	0.000000
Tons/Yr	0.033	0.0000	0.33	4.94	52.6	0.0000

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Department of Environment and Conservation
Division of Air Pollution Control
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TITLE V PERMIT APPLICATION
STACK IDENTIFICATION

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Emission source (identify):**
(28-0025-71) Rotating Drum

STACK DESCRIPTION

3. Stack ID (or flow diagram point identification):
71-S1

4. Stack height above grade in feet:
25 feet

5. Velocity (data at exit conditions):
55.1 (Actual feet per second)

6. Inside dimensions at outlet in feet:
3.4 ft

7. Exhaust flow rate at exit conditions (ACFM):
30,000

8. Flow rate at standard conditions (DSCFM):
29,311

9. Exhaust temperature:
ambient Degrees Fahrenheit (°F)

10. Moisture content (data at exit conditions):
ambient Percent _____ Grains per dry standard cubic foot (gr./dscf)

11. Exhaust temperature that is equaled or exceeded during ninety (90) percent or more of the operating time (for stacks subject to diffusion equation only):
N/A (°F)

12. If this stack is equipped with continuous pollutant monitoring equipment required for compliance, what pollutant(s) does this equipment monitor (e.g., Opacity, SO_2, NO_x, etc.)?
N/A

Complete the appropriate APC form(s) 4, 5, 7, 8, 9, or 10 for each source exhausting through this stack.

BYPASS STACK DESCRIPTION

13. Do you have a bypass stack?
_____ Yes X No

If yes, describe the conditions which require its use & complete APC form 4 for the bypass stack. Please identify the stack number(s) of flow diagram point number(s) exhausting through this bypass stack.

14. Page number: 246 Revision Number: Date of Revision: 04/16/19

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
MISCELLANEOUS PROCESSES

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Process emission source (identify):**
28-0025-71 Rotating Drum

3. Stack ID or flow diagram point identification (s):
71-S1

4. Year of construction or last modification:
2015

If the emissions are controlled for compliance, attach an appropriate Air Pollution Control system form.

5. Normal operating schedule: 24 Hrs./Day 6 Days/Wk. 312 Days/Yr.

6. Location of this process emission source in UTM coordinates: UTM Vertical: 3896.88 N UTM Horizontal: 494.57 E

7. Describe this process (Please attach a flow diagram of this process) and check one of the following:

[✓] Batch [ ] Continuous

PROCESS MATERIAL INPUT AND OUTPUT

8. List the types and amounts of raw materials input to this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Slag, sand &metal casting	Recovery of metal fragments and sand	~25,000 TPY	

9. List the types and amounts of primary products produced by this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Recycled metal and sand			

10. Process fuel usage:

Type of fuel	Max heat input (10^6 BTU/Hr.)	Average usage (units)	Maximum usage (units)
N/A			

11. List any solvents, cleaners, etc., associated with this process:
N/A

If the emissions and/or operations of this process are monitored for compliance, please attach the appropriate Compliance Demonstration form.

12. Describe any fugitive emissions associated with this process, such as outdoor storage piles, open conveyors, open air sand blasting, material handling operations, etc. (please attach a separate sheet if necessary).
N/A

13. Page number: 247 Revision Number: Date of Revision: 04/16/19

State of Tennessee
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TITLE V PERMIT APPLICATION
CONTROL EQUIPMENT - BAGHOUSES/FABRIC FILTERS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Emission source (identify):
28-0025-71 Rotating Drum

3. Stack ID or flowdiagram point identification (s):
71-S1

BAGHOUSE/FABRIC FILTER DESCRIPTION

4. Describe the device in use. List the key operating parameters of this device and their normal operating range.

The 30,000 acfm baghouses are used to control particulate emissions from Rotating drum which are used to break materials into smaller pieces.

5. Manufacturer and model number (if available):
Unknown

6. Year of installation:
2015

7. List of pollutant(s) to be controlled and the expected control efficiency for each pollutant (see instructions).

Pollutant	Efficiency (%)	Source of data
Particulate	99	Engineering Estimate

8. Discuss how collected material is handled for reuse or disposal.
Captured particulate is trucked to landfill.

9. If the bags are coated, specify the material used for coating and frequency of coating
N/A

10. Does the baghouse collect asbestos containing material?
Yes ☐ No ☑
If "Yes", provide data as outlined in Item 10, Instructions for this form.

11. If this control equipment is in series with some other control equipment, state and specify the overall efficiency.
N/A

12. Page number: 248 Revision Number: Date of Revision: 04/16/19

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Department of Environment and Conservation
Division of Air Pollution Control
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Nashville, TN 37243
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TITLE V PERMIT APPLICATION
COMPLIANCE CERTIFICATION - MONITORING AND REPORTING
DESCRIPTION OF METHODS USED FOR DETERMINING COMPLIANCE

All sources that are subject to 1200-03-09-.02(11) of the Tennessee Air Pollution Control Regulations are required to certify compliance with all applicable requirements by including a statement within the permit application of the methods used for determining compliance. This statement must include a description of the monitoring, recordkeeping, and reporting requirements and test methods. In addition, the application must include a schedule for compliance certification submittals during the permit term. These submittals must be no less frequent than annually and may need to be more frequent if specified by the underlying applicable requirement or the Technical Secretary.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.
2. Process emission source, fuel burning installation, or incinerator (identify): (28-0025-71) Rotating Drum
3. Stack ID or flow diagram point identification(s): 71-S1

METHODS OF DETERMINING COMPLIANCE

4. This source as described under Item #2 of this application will use the following method(s) for determining compliance with applicable requirements (and special operating conditions from an existing permit). Check all that apply and attach the appropriate form(s)

- [ ] Continuous Emission Monitoring (CEM) - APC 20
  Pollutant(s):
- [ ] Emission Monitoring Using Portable Monitors - APC 21
  Pollutant(s):
- [✓] Monitoring Control System Parameters or Operating Parameters of a Process - APC 22
  Pollutant(s): Opacity
- [ ] Monitoring Maintenance Procedures - APC 23
  Pollutant(s):
- [ ] Stack Testing - APC 24
  Pollutant(s):
- [ ] Fuel Sampling & Analysis (FSA) - APC 25
  Pollutant(s):
- [✓] Recordkeeping - APC 26
  Pollutant(s): Particulate
- [ ] Other (please describe) - APC 27
  Pollutant(s):

5. Compliance certification reports will be submitted to the Division according to the following schedule:

   Start date: Per the Title V permit.

   And every _____ days thereafter.

6. Compliance monitoring reports will be submitted to the Division according to the following schedule:

   Start date: Per the Title V permit.

   And every _____ days thereafter.

7. Page number: 249 Revision number: Date of revision: 04/16/19

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
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TITLE V PERMIT APPLICATION - COMPLIANCE DEMONSTRATION BY MONITORING CONTROL SYSTEM PARAMETERS OR OPERATING PARAMETERS OF A PROCESS

The monitoring of a control system parameter or a process parameter shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value and the emission rate of a particular pollutant is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s)
71-S1 Rotating Drum

3. Emission source:
(28-0025-71) Rotating Drum

MONITORING DESCRIPTION

4. Pollutant(s) being monitored:
Opacity

5. Description of the method of monitoring and establishment of correlation between the parameter value and the emission rate of a particular pollutant:

Based on the opacity matrix decision tree for EPA Mehtod 9, no opacity readings are required.

6. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
In accordance with the opacity matrix, no readings are required.

7. Page number: 250 Revision number: Date of revision: 04/16/19

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TITLE V PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY RECORDKEEPING

Recordkeeping shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value recorded and the applicable requirement is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s):
71-S1 Rotating Drum

3. Emission source (identify):
(28-0025-71) Rotating Drum

MONITORING AND RECORDKEEPING DESCRIPTION

4. Pollutant(s) or parameter being monitored:
Particulate Emissions

5. Material or parameter being monitored and recorded:
Operator will maintain records of the hours of operation and the pressure differential across the baghouse.

6. Method of monitoring and recording:

A daily log of the pressure differential will be kept in addition to the hours of operation. A log of the maintenance performed on the baghouse will be maintained as part of the PM compliance demonstration. Based on the hours of operation, maximum flow, and grain loading, the emissions can be estimated as shown on the attachment to APC 28.

7. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
Daily

8. Page number: 251
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State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
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TITLE V PERMIT APPLICATION
EMISSIONS FROM PROCESS EMISSION SOURCE / FUEL BURNING INSTALLATION / INCINERATOR

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.

2. Stack ID or flowdiagram point identification(s): 71-S1 Rotating Drum

3. Process emission source / Fuel burning installation / Incinerator (identify): (28-0025-71) Rotating Drum

EMISSIONS SUMMARY TABLE – CRITERIA AND FUGITIVE EMISSIONS

4. Complete the following emissions summary for regulated air pollutants. Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Particulate Matter (TSP)	9.9			
(Fugitive Emissions)				
Sulfur Dioxide				
(Fugitive Emissions)				
Volatile Organic Compounds				
(Fugitive Emissions)				
Carbon Monoxide				
(Fugitive Emissions)				
Lead				
(Fugitive Emissions)				
Nitrogen Oxides				
(Fugitive Emissions)				
Total Reduced Sulfur				
(Fugitive Emissions)				
Mercury				
(Fugitive Emissions)				

(Continued on next page)

(Continued from last page)

AIR POLLUTANT	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Asbestos				
(Fugitive Emissions)				
Beryllium				
(Fugitive Emissions)				
Vinyl Chloride				
(Fugitive Emissions)				
Fluorides				
(Fugitive Emissions)				
Gaseous Fluorides				
(Fugitive Emissions)				
Greenhouse Gases in CO_2 Equivalents				

EMISSIONS SUMMARY TABLE – FUGITIVE HAZARDOUS AIR POLLUTANTS

5. Complete the following emissions summary for regulated air pollutants that are hazardous air pollutant(s). Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant & CAS	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)

6. Page number: 253 Revision number: Date of revision 04/16/19

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
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TITLE V PERMIT APPLICATION
CURRENT EMISSIONS REQUIREMENTS AND STATUS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Emission source number
Magotteaux Inc.	28-0025-71 Rotating Drum

3. Describe the process emission source / fuel burning installation / incinerator.

Rotating Drum - Process slag and other sand and metal waste streams with one 30,000 acfm baghouse for PM control.

EMISSIONS AND REQUIREMENTS

4. Identify if only a part of the source is subject to this requirement	5. Pollutant	6. Applicable requirement(s): TN Air Pollution Control Regulations, 40 CFR, permit restrictions, air quality based standards	7. Limitation	8. Maximum actual emissions	9. Compliance status (In/Out)
	Particulate	1200-3-6-.01(7)	0.01 gr/dscf	< 0.01 gr/dscf	IN
	Opacity	1200-3-5-.01(3)	10%	< 10%	IN

10. Other applicable requirements (new requirements that apply to this source during the term of this permit)

11. Page number: 254 Revision number: Date of revision: 04/16/19

Attachment to APC V. 28

Magotteaux Inc.
Particulate Emission Calculations
71 - Rotating Drum

Potential Particulate Emissions Uncontrolled:

Anticipated Maximum Process Rate: **25.0** T/hr

Emission Factor: 2.0 lb/T
(Extrapolated from Rotary Sand Dryer, AP-42, Table 11.19.1-1)

Uncontrolled Emission Rate: 50 lb/hr

Estimated Emission Rate (Controlled at 99%):

PM	0.50 lb/hr	2.19	T/yr
PM_{10}	0.50 lb/hr	2.19	T/yr
$PM_{2.5}$	0.50 lb/hr	2.19	T/yr

Proposed Allowable Particulate (PM, PM_{10}, $PM_{2.5}$) Emissions:

lb/hr= $(gr/ft^3)(Q)(60)/7000$

gr/ft^3	0.0090	
Q=	29311	cfm
lb/hr=	2.26	

Qstd= (Qa)((528)/Ta))(1-%M)

Qa=	30000	cfm
Ta	75	degree F
Moisture	0.01	fraction
Qstd	**29311**	cfm

TDEC Process Rate Table, new sources.

Allowable Emissions Per 1200-3-7-.03(1):

$$E = 3.59P^{0.62}$$

Where:
E= Emissions in pound per hour
P= Process weight rate in tons per hour = **25.0**

E = 26.41 lb/hr

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TITLE V PERMIT APPLICATION
STACK IDENTIFICATION

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Emission source (identify):**
28-0025-72 Induction Furnace [IF #7]

STACK DESCRIPTION

3. Stack ID (or flow diagram point identification):
72-S1 (previously 01-S1)

4. Stack height above grade in feet:
29 feet

5. Velocity (data at exit conditions):
49 (Actual feet per second)

6. Inside dimensions at outlet in feet:
4.0 feet

7. Exhaust flow rate at exit conditions (ACFM):
37,000

8. Flow rate at standard conditions (DSCFM):
~33,000

9. Exhaust temperature:
140 Degrees Fahrenheit (°F)

10. Moisture content (data at exit conditions):
n/a Percent _____ Grains per dry standard cubic foot (gr./dscf.)

11. Exhaust temperature that is equaled or exceeded during ninety (90) percent or more of the operating time (for stacks subject to diffusion equation only):
_____ (°F)

12. If this stack is equipped with continuous pollutant monitoring equipment required for compliance, what pollutant(s) does this equipment monitor (e.g., Opacity, SO_2, NO_x, etc.)?
N/A

Complete the appropriate APC form(s) 4, 5, 7, 8, 9, or 10 for each source exhausting through this stack.

BYPASS STACK DESCRIPTION

13. Do you have a bypass stack?
_____ Yes X No

If yes, describe the conditions which require its use & complete APC form 4 for the bypass stack. Please identify the stack number(s) of flow diagram point number(s) exhausting through this bypass stack.

14. Page number: 25b Revision Number: Date of Revision:

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
MISCELLANEOUS PROCESSES

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Process emission source (identify):**
28-0025-72

3. Stack ID or flow diagram point identification (s):
72-S1 (previously 01-S1)

4. Year of construction or last modification:
2018

If the emissions are controlled for compliance, attach an appropriate Air Pollution Control system form.

5. Normal operating schedule: 24 Hrs./Day 7 Days/Wk. 365 Days/Yr.

6. Location of this process emission source in UTM coordinates: UTM Vertical: 494633.16 m UTM Horizontal: 3897174.96 r

7. Describe this process (Please attach a flow diagram of this process) and check one of the following:

[✓] Batch [ ] Continuous

PROCESS MATERIAL INPUT AND OUTPUT

8. List the types and amounts of raw materials input to this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Scrap Metal	Induction Melting	~18,000 lb/hr	20,400 lb/hr

9. List the types and amounts of primary products produced by this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Molten Metal	Tapping to ladles prior to pouring	~18,000 lb/hr	20,400 lb/hr

10. Process fuel usage:

Type of fuel	Max heat input (10^6 BTU/Hr.)	Average usage (units)	Maximum usage (units)
N/A			

11. List any solvents, cleaners, etc., associated with this process:
N/A

If the emissions and/or operations of this process are monitored for compliance, please attach the appropriate Compliance Demonstration form.

12. Describe any fugitive emissions associated with this process, such as outdoor storage piles, open conveyors, open air sand blasting, material handling operations, etc. (please attach a separate sheet if necessary).
N/A

13. Page number: 257 Revision Number: Date of Revision:

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
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Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
CONTROL EQUIPMENT - BAGHOUSES/FABRIC FILTERS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Emission source (identify):
Magotteaux Inc.	28-0025-72

3. Stack ID or flowdiagram point identification (s):
72-S1 (previously 01-S1)

BAGHOUSE/FABRIC FILTER DESCRIPTION

4. Describe the device in use. List the key operating parameters of this device and their normal operating range.
Currently permitted at 01-S1, the 37,000 acfm baghouse will be used to control particulate emissions from the new Induction Furnace #7 [IF #7]. Gaseous emissions from this source are uncontrolled.

5. Manufacturer and model number (if available):	6. Year of installation:
Dustex	2005

7. List of pollutant(s) to be controlled and the expected control efficiency for each pollutant (see instructions).

Pollutant	Efficiency (%)	Source of data
Particulate	99%	Engineering Estimate

8. Discuss how collected material is handled for reuse or disposal.
Captured particulate is disposed of in a landfill.

9. If the bags are coated, specify the material used for coating and frequency of coating
N/A

10. Does the baghouse collect asbestos containing material?
Yes [ ] No [✓]
If "Yes", provide data as outlined in Item 10, Instructions for this form.

11. If this control equipment is in series with some other control equipment, state and specify the overall efficiency.
N/A

12. Page number: 258 Revision Number: Date of Revision:

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
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Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
COMPLIANCE CERTIFICATION - MONITORING AND REPORTING
DESCRIPTION OF METHODS USED FOR DETERMINING COMPLIANCE

All sources that are subject to 1200-03-09-.02(11) of the Tennessee Air Pollution Control Regulations are required to certify compliance with all applicable requirements by including a statement within the permit application of the methods used for determining compliance. This statement must include a description of the monitoring, recordkeeping, and reporting requirements and test methods. In addition, the application must include a schedule for compliance certification submittals during the permit term. These submittals must be no less frequent than annually and may need to be more frequent if specified by the underlying applicable requirement or the Technical Secretary.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.
2. Process emission source, fuel burning installation, or incinerator (identify): 28-0025-72
3. Stack ID or flow diagram point identification(s): 72-S1

METHODS OF DETERMINING COMPLIANCE

4. This source as described under Item #2 of this application will use the following method(s) for determining compliance with applicable requirements (and special operating conditions from an existing permit). Check all that apply and attach the appropriate form(s)

[ ] Continuous Emission Monitoring (CEM) - APC 20
Pollutant(s):

[ ] Emission Monitoring Using Portable Monitors - APC 21
Pollutant(s):

[✓] Monitoring Control System Parameters or Operating Parameters of a Process - APC 22
Pollutant(s): Opacity

[ ] Monitoring Maintenance Procedures - APC 23
Pollutant(s):

[ ] Stack Testing - APC 24
Pollutant(s):

[ ] Fuel Sampling & Analysis (FSA) - APC 25
Pollutant(s):

[✓] Recordkeeping - APC 26
Pollutant(s): Particulate and HAPs

[ ] Other (please describe) - APC 27
Pollutant(s):

5. Compliance certification reports will be submitted to the Division according to the following schedule:

Start date: Per the Title V Permit

And every _____ days thereafter.

6. Compliance monitoring reports will be submitted to the Division according to the following schedule:

Start date: Per the Title V Permit

And every _____ days thereafter.

7. Page number: 259 Revision number: Date of revision:

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
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TITLE V PERMIT APPLICATION - COMPLIANCE DEMONSTRATION BY MONITORING CONTROL SYSTEM PARAMETERS OR OPERATING PARAMETERS OF A PROCESS

The monitoring of a control system parameter or a process parameter shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value and the emission rate of a particular pollutant is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc

2. Stack ID or flow diagram point identification(s)
72-S1

3. Emission source:
28-0025-72 Induction Furnace [IF #7]

MONITORING DESCRIPTION

4. Pollutant(s) being monitored:
Opacity

5. Description of the method of monitoring and establishment of correlation between the parameter value and the emission rate of a particular pollutant:

As per the initial Title V Permit term, and based on the opacity matrix decision tree, an initial 30 minute visible emission evaluation will be made using EPA Method 9 within one year of issuance. The number and timing of the subsequent observations will be based on the results of the initial readings.

6. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):

The frequency of visible emission evaluations will be determined as indicated in the Method 9 opacity decision tree.

7. Page number: 2600 Revision number: Date of revision:

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY RECORDKEEPING

Recordkeeping shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value recorded and the applicable requirement is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s):
72-S1

3. Emission source (identify):
28-0025-72 Induction Furnace [IF #7]

MONITORING AND RECORDKEEPING DESCRIPTION

4. Pollutant(s) or parameter being monitored:
Particulate Emissions

5. Material or parameter being monitored and recorded:
Operator will maintain records of the weight of scrap steel melted, differential pressure across the baghouse and the hours of operation.

6. Method of monitoring and recording:
Monthly records will be kept of the weight of the scrap steel melted and the hours of operation. A daily log of the differential pressure across the baghouse will be kept. A log of the baghouse will be maintained as part of the PM compliance demonstration. The emissions are estimated using the method shown on Attachment to APC 28.

7. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
Daily

8. Page number: 261 Revision number: Date of revision:

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
EMISSIONS FROM PROCESS EMISSION SOURCE / FUEL BURNING INSTALLATION / INCINERATOR

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flowdiagram point identification(s):
72-S1

3. Process emission source / Fuel burning installation / Incinerator (identify):
28-0025-72 Induction Furnace [IF #7]

EMISSIONS SUMMARY TABLE – CRITERIA AND FUGITIVE EMISSIONS

4. Complete the following emissions summary for regulated air pollutants. Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Particulate Matter (TSP)	4.5			
(Fugitive Emissions)				
Sulfur Dioxide				
(Fugitive Emissions)				
Volatile Organic Compounds				
(Fugitive Emissions)				
Carbon Monoxide				
(Fugitive Emissions)				
Lead	See item 5			
(Fugitive Emissions)				
Nitrogen Oxides				
(Fugitive Emissions)				
Total Reduced Sulfur				
(Fugitive Emissions)				
Mercury	See item 5			
(Fugitive Emissions)				

(Continued on next page)

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AIR POLLUTANT	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Asbestos				
(Fugitive Emissions)				
Beryllium	See item 5			
(Fugitive Emissions)				
Vinyl Chloride				
(Fugitive Emissions)				
Fluorides				
(Fugitive Emissions)				
Gaseous Fluorides				
(Fugitive Emissions)				
Greenhouse Gases in CO_2 Equivalents				

EMISSIONS SUMMARY TABLE – FUGITIVE HAZARDOUS AIR POLLUTANTS

5. Complete the following emissions summary for regulated air pollutants that are hazardous air pollutant(s). Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant & CAS	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
* Particulate HAP	0.36			
* Particulate HAP emissions are				
included in the total for particulate				
in item 4 above.				

6. Page number: 263 Revision number: Date of revision

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
CURRENT EMISSIONS REQUIREMENTS AND STATUS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Emission source number
Magotteaux Inc.	28-0025-72

3. Describe the process emission source / fuel burning installation / incinerator.

Induction Furnace - Induction melting of scrap steel with one 37,000 acfm baghouse for particulate emission control

EMISSIONS AND REQUIREMENTS

4. Identify if only a part of the source is subject to this requirement	5. Pollutant	6. Applicable requirement(s): TN Air Pollution Control Regulations, 40 CFR, permit restrictions, air quality based standards	7. Limitation	8. Maximum actual emissions	9. Compliance status (In/Out)
	Opacity	Permit Condition E3-21	20%	<20%	IN
	Particulate	Subpart ZZZZZ 63.10895(c)(2)	0.1 lb/Ton	0.1 lb/Ton	IN
	PM HAPs	Subpart ZZZZZ 63.10895(c)(2)	0.008 lb/Ton	0.008 lb/Ton	IN
	Opacity	40 CFR 63 Subpart ZZZZZ	20%	20%	IN

10. Other applicable requirements (new requirements that apply to this source during the term of this permit)

11. Page number: 264 Revision number: Date of revision:

Attachment to APC V. 28

Magotteaux Inc.
Particulate and Particulate HAP Emission Calcul: (28-0025-72 & 73)
New Induction Furnaces

Allowable Particulate Emissions / Estimated HAP Emissions

Source#	Metal Input Tons/hr	Operation Hrs/yr	Total Thruput tons/yr	Particulate Emissions lbs/hr	Particulate Emissions Tons/yr	Particulate HAP Emission lbs/hr	Particulate HAP Emission Tons/yr
72	10.2	8760	89,352	1.02	4.5	0.082	0.36

Source#	Metal Input Tons/hr	Operation Hrs/yr	Thruput tons/yr	Particulate Emissions lbs/hr	Particulate Emissions Tons/yr	Particulate HAP Emission lbs/hr	Particulate HAP Emission Tons/yr
73	10.2	8760	89,352	1.02	4.5	0.082	0.36

Annual PM Limit Based on MACT Allowable Emissions of 0.1 lb/T of Metal Char
Particulate HAP limit based on MACT Allowable Emissions of 0.008 lb/T of Meta

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Nashville, TN 37243
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TITLE V PERMIT APPLICATION
STACK IDENTIFICATION

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Emission source (identify):**
28-0025-73 Induction Furnace [IF #8]

STACK DESCRIPTION

3. Stack ID (or flow diagram point identification):
73-S1 (previously 31-S1)

4. Stack height above grade in feet:
31 feet

5. Velocity (data at exit conditions):
64 (Actual feet per second)

6. Inside dimensions at outlet in feet:
3.5 feet

7. Exhaust flowrate at exit conditions (ACFM):
37,000

8. Flow rate at standard conditions (DSCFM):
~33,000

9. Exhaust temperature:
140 Degrees Fahrenheit (°F)

10. Moisture content (data at exit conditions):
n/a Percent _____ Grains per dry standard cubic foot (gr./dscf.)

11. Exhaust temperature that is equaled or exceeded during ninety (90) percent or more of the operating time (for stacks subject to diffusion equation only):
_____ (°F)

12. If this stack is equipped with continuous pollutant monitoring equipment required for compliance, what pollutant(s) does this equipment monitor (e.g., Opacity, SO_2, NO_x, etc.)?
N/A

Complete the appropriate APC form(s) 4, 5, 7, 8, 9, or 10 for each source exhausting through this stack.

BYPASS STACK DESCRIPTION

13. Do you have a bypass stack?
_____ Yes X No

If yes, describe the conditions which require its use & complete APC form 4 for the bypass stack. Please identify the stack number(s) of flow diagram point number(s) exhausting through this bypass stack.

14. Page number: 26b Revision Number: Date of Revision:

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Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
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Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
MISCELLANEOUS PROCESSES

GENERAL IDENTIFICATION AND DESCRIPTION

1. **Facility name:**
Magotteaux Inc.

2. **Process emission source (identify):**
28-0025-73

3. Stack ID or flow diagram point identification (s):
73-S1 (previously 31-S1)

4. Year of construction or last modification:
2018

If the emissions are controlled for compliance, attach an appropriate Air Pollution Control system form.

5. Normal operating schedule: 24 Hrs./Day 7 Days/Wk. 365 Days/Yr.

6. Location of this process emission source in UTM coordinates: UTM Vertical: 494633.16 m UTM Horizontal: 3897174.96 m

7. Describe this process (Please attach a flow diagram of this process) and check one of the following:

[✓] Batch [ ] Continuous

PROCESS MATERIAL INPUT AND OUTPUT

8. List the types and amounts of raw materials input to this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Scrap Metal	Induction Melting	~18,000 lb/hr	20,400 lb/hr

9. List the types and amounts of primary products produced by this process:

Material	Storage/Material handling process	Average usage (units)	Maximum usage (units)
Molten Metal	Tapping to ladles prior to pouring	~18,000 lb/hr	20,400 lb/hr

10. Process fuel usage:

Type of fuel	Max heat input (10^6 BTU/Hr.)	Average usage (units)	Maximum usage (units)
N/A			

11. List any solvents, cleaners, etc., associated with this process:
N/A

If the emissions and/or operations of this process are monitored for compliance, please attach the appropriate Compliance Demonstration form.

12. Describe any fugitive emissions associated with this process, such as outdoor storage piles, open conveyors, open air sand blasting, material handling operations, etc. (please attach a separate sheet if necessary).
N/A

13. Page number: 267 Revision Number: Date of Revision:

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
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Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
CONTROL EQUIPMENT - BAGHOUSES/FABRIC FILTERS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Emission source (identify):
28-0025-73

3. Stack ID or flowdiagram point identification(s):
73-S1 (previously 31-S1)

BAGHOUSE/FABRIC FILTER DESCRIPTION

4. Describe the device in use. List the key operating parameters of this device and their normal operating range.
Currently permitted at 31-S1, the 37,000 acfm baghouse will be used to control particulate emissions from the new Induction Furnace #8 [IF #8]. Gaseous emissions from this source are uncontrolled.

5. Manufacturer and model number (if available):
Steelcraft

6. Year of installation:
2003

7. List of pollutant(s) to be controlled and the expected control efficiency for each pollutant (see instructions).

Pollutant	Efficiency (%)	Source of data
Particulate	99%	Engineering Estimate

8. Discuss how collected material is handled for reuse or disposal.
Captured particulate is disposed of in a landfill.

9. If the bags are coated, specify the material used for coating and frequency of coating
N/A

10. Does the baghouse collect asbestos containing material?
Yes [ ] No [✓]
If "Yes", provide data as outlined in Item 10, Instructions for this form.

11. If this control equipment is in series with some other control equipment, state and specify the overall efficiency.
N/A

12. Page number: 268 Revision Number: Date of Revision:

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
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Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
COMPLIANCE CERTIFICATION - MONITORING AND REPORTING
DESCRIPTION OF METHODS USED FOR DETERMINING COMPLIANCE

All sources that are subject to 1200-03-09-.02(11) of the Tennessee Air Pollution Control Regulations are required to certify compliance with all applicable requirements by including a statement within the permit application of the methods used for determining compliance. This statement must include a description of the monitoring, recordkeeping, and reporting requirements and test methods. In addition, the application must include a schedule for compliance certification submittals during the permit term. These submittals must be no less frequent than annually and may need to be more frequent if specified by the underlying applicable requirement or the Technical Secretary.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.
2. Process emission source, fuel burning installation, or incinerator (identify): 28-0025-73
3. Stack ID or flow diagram point identification(s): 73-S1

METHODS OF DETERMINING COMPLIANCE

4. This source as described under Item #2 of this application will use the following method(s) for determining compliance with applicable requirements (and special operating conditions from an existing permit). Check all that apply and attach the appropriate form(s)

[ ] Continuous Emission Monitoring (CEM) - APC 20
Pollutant(s):

[ ] Emission Monitoring Using Portable Monitors - APC 21
Pollutant(s):

[✓] Monitoring Control System Parameters or Operating Parameters of a Process - APC 22
Pollutant(s): Opacity

[ ] Monitoring Maintenance Procedures - APC 23
Pollutant(s):

[ ] Stack Testing - APC 24
Pollutant(s):

[ ] Fuel Sampling & Analysis (FSA) - APC 25
Pollutant(s):

[✓] Recordkeeping - APC 26
Pollutant(s): Particulate and HAPs

[ ] Other (please describe) - APC 27
Pollutant(s):

5. Compliance certification reports will be submitted to the Division according to the following schedule:

Start date: Per the Title V Permit

And every _____ days thereafter.

6. Compliance monitoring reports will be submitted to the Division according to the following schedule:

Start date: Per the Title V Permit

And every _____ days thereafter.

7. Page number: 269 Revision number: Date of revision:

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION - COMPLIANCE DEMONSTRATION BY MONITORING CONTROL SYSTEM PARAMETERS OR OPERATING PARAMETERS OF A PROCESS

The monitoring of a control system parameter or a process parameter shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value and the emission rate of a particular pollutant is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc

2. Stack ID or flow diagram point identification(s)
73-S1

3. Emission source:
28-0025-73 Induction Furnace [IF #8]

MONITORING DESCRIPTION

4. Pollutant(s) being monitored:
Opacity

5. Description of the method of monitoring and establishment of correlation between the parameter value and the emission rate of a particular pollutant:
As per the initial Title V Permit term, and based on the opacity matrix decision tree, an initial 30 minute visible emission evaluation will be made using EPA Method 9 within one year of issuance. The number and timing of the subsequent observations will be based on the results of the initial readings.

6. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
The frequency of visible emission evaluations will be determined as indicated in the Method 9 opacity decision tree.

7. Page number: 270 Revision number: Date of revision:

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY RECORDKEEPING

Recordkeeping shall be acceptable as a compliance demonstration method provided that a correlation between the parameter value recorded and the applicable requirement is established.

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:
Magotteaux Inc.

2. Stack ID or flow diagram point identification(s):
73-S1

3. Emission source (identify):
28-0025-73 Induction Furnace [IF #8]

MONITORING AND RECORDKEEPING DESCRIPTION

4. Pollutant(s) or parameter being monitored:
Particulate Emissions

5. Material or parameter being monitored and recorded:
Operator will maintain records of the weight of scrap steel melted, differential pressure across the baghouse and the hours of operation.

6. Method of monitoring and recording:
Monthly records will be kept of the weight of the scrap steel melted and the hours of operation. A daily log of the differential pressure across the baghouse will be kept. A log of the baghouse will be maintained as part of the PM compliance demonstration. The emissions are estimated using the method shown on Attachment to APC 28.

7. Compliance demonstration frequency (specify the frequency with which compliance will be demonstrated):
Daily

8. Page number: 271 Revision number: Date of revision:

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
EMISSIONS FROM PROCESS EMISSION SOURCE / FUEL BURNING INSTALLATION / INCINERATOR

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name: Magotteaux Inc.

2. Stack ID or flowdiagram point identification(s): 73-S1

3. Process emission source / Fuel burning installation / Incinerator (identify): 28-0025-73 Induction Furnace [IF #8]

EMISSIONS SUMMARY TABLE -- CRITERIA AND FUGITIVE EMISSIONS

4. Complete the following emissions summary for regulated air pollutants. Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Particulate Matter (TSP)	4.5			
(Fugitive Emissions)				
Sulfur Dioxide				
(Fugitive Emissions)				
Volatile Organic Compounds				
(Fugitive Emissions)				
Carbon Monoxide				
(Fugitive Emissions)				
Lead	See item 5			
(Fugitive Emissions)				
Nitrogen Oxides				
(Fugitive Emissions)				
Total Reduced Sulfur				
(Fugitive Emissions)				
Mercury	See item 5			
(Fugitive Emissions)				

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(Continued from last page)

AIR POLLUTANT	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
Asbestos				
(Fugitive Emissions)				
Beryllium	See item 5			
(Fugitive Emissions)				
Vinyl Chloride				
(Fugitive Emissions)				
Fluorides				
(Fugitive Emissions)				
Gaseous Fluorides				
(Fugitive Emissions)				
Greenhouse Gases in CO_2 Equivalents				

EMISSIONS SUMMARY TABLE – FUGITIVE HAZARDOUS AIR POLLUTANTS

5. Complete the following emissions summary for regulated air pollutants that are hazardous air pollutant(s). Fugitive emissions shall be included. Attach calculations and emission factor references.

Air Pollutant & CAS	Maximum Allowable Emissions		Actual Emissions	
	Tons per Year	Reserved for State use (Pounds per Hour - Item 7, APC 30)	Tons per Year	Reserved for State use (Pounds per Hour- Item 8, APC 30)
* Particulate HAP	0.36			
* Particulate HAP emissions are				
included in the total for particulate				
in item 4 above.				

6. Page number: 273 Revision number: Date of revision

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243
Telephone: (615) 532-0554

TITLE V PERMIT APPLICATION
CURRENT EMISSIONS REQUIREMENTS AND STATUS

GENERAL IDENTIFICATION AND DESCRIPTION

1. Facility name:	2. Emission source number
Magotteaux Inc.	28-0025-73

3. Describe the process emission source / fuel burning installation / incinerator.

Induction Furnace - Induction melting of scrap steel with one 37,000 acfm baghouse for particulate emission control

EMISSIONS AND REQUIREMENTS

4. Identify if only a part of the source is subject to this requirement	5. Pollutant	6. Applicable requirement(s): TN Air Pollution Control Regulations, 40 CFR, permit restrictions, air quality based standards	7. Limitation	8. Maximum actual emissions	9. Compliance status (In/Out)
	Opacity	Permit Condition E3-21	20%	<20%	IN
	Particulate	Subpart ZZZZZ 63.10895(c)(2)	0.1 lb/Ton	0.1 lb/Ton	IN
	PM HAPs	Subpart ZZZZZ 63.10895(c)(2)	0.008 lb/Ton	0.008 lb/Ton	IN
	Opacity	40 CFR 63 Subpart ZZZZZ	20%	20%	IN

10. Other applicable requirements (new requirements that apply to this source during the term of this permit)

11. Page number: 274 Revision number: Date of revision:

Attachment to APC V. 28

Magotteaux Inc.
Particulate and Particulate HAP Emission Calcul: (28-0025-72 & 73)
New Induction Furnaces

Allowable Particulate Emissions / Estimated HAP Emissions

Source#	Metal Input Tons/hr	Operation Hrs/yr	Total Thruput tons/yr	Particulate Emissions lbs/hr	Particulate Emissions Tons/yr	Particulate HAP Emission: lbs/hr	Particulate HAP Emission: Tons/yr
72	10.2	8760	89,352	1.02	4.5	0.082	0.36

Source#	Metal Input Tons/hr	Operation Hrs/yr	Thruput tons/yr	Particulate Emissions lbs/hr	Particulate Emissions Tons/yr	Particulate HAP Emission: lbs/hr	Particulate HAP Emission: Tons/yr
73	10.2	8760	89,352	1.02	4.5	0.082	0.36

Annual PM Limit Based on MACT Allowable Emissions of 0.1 lb/T of Metal Char
Particulate HAP limit based on MACT Allowable Emissions of 0.008 lb/T of Meta