Ohio Environmental Protection Agency
John R. Kasich, Governor
Mary Taylor, Lt. Governor
Scott J. Nally, Director

3/21/2012

Certified Mail

No	TOXIC REVIEW
No	PSD
No	SYNTHETIC MINOR TO AVOID MAJOR NSR
No	CEMS
No	MACT/GACT
No	NSPS
No	NESHAPS
No	NETTING
No	MAJOR NON-ATTAINMENT
No	MODELING SUBMITTED
No	MAJOR GHG
No	SYNTHETIC MINOR TO AVOID MAJOR GHG

Mr. Todd Rouse
GM Defiance Casting Operations
26427 State Route 281 East
Defiance, OH 43512

RE: FINALAIR POLLUTION PERMIT-TO-INSTALL
Facility ID: 0320010001
Permit Number: P0109485
Permit Type: Administrative Modification
County: Defiance

Dear Permit Holder:

Enclosed please find a final Air Pollution Permit-to-Install (PTI) which will allow you to install or modify the described emissions unit(s) in a manner indicated in the permit. Because this permit contains several conditions and restrictions, we urge you to read it carefully.Please complete a survey at www.epa.ohio.gov/dapc/permitsurvey.aspx and give us feedback on your permitting experience. We value your opinion.

The issuance of this PTI is a final action of the Director and may be appealed to the Environmental Review Appeals Commission pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. The appeal must be filed with the Commission within thirty (30) days after notice of the Director's action. The appeal must be accompanied by a filing fee of $70.00, made payable to "Ohio Treasurer Josh Mandel," which the Commission, in its discretion, may reduce if by affidavit you demonstrate that payment of the full amount of the fee would cause extreme hardship. Notice of the filing of the appeal shall be filed with the Director within three (3) days of filing with the Commission. Ohio EPA requests that a copy of the appeal be served upon the Ohio Attorney General's Office, Environmental Enforcement Section. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission
309 South Fourth Street, Room 222
Columbus, OH 43215

The Ohio EPA is encouraging companies to investigate pollution prevention and energy conservation. Not only will this reduce pollution and energy consumption, but it can also save you money. If you would like to learn ways you can save money while protecting the environment, please contact our Office of Compliance Assistance and Pollution Prevention at (614) 644-3469. If you have any questions regarding this permit, please contact the Ohio EPA DAPC, Northwest District Office. This permit can be accessed electronically on the Division of Air Pollution Control (DAPC) Web page,www.epa.ohio.gov/dapc by clicking the "Issued Air Pollution Control Permits" link.

Sincerely,

Michael W. Ahern

Michael W. Ahern, Manager
Permit Issuance and Data Management Section, DAPC

Cc: U.S. EPA
Ohio EPA-NWDO; Michigan; Indiana

50 West Town Street, Suite 700
P.O. Box 1049
Columbus, OH 43216-1049

614 | 644 3020
614 | 644 3184 (fax)
www.epa.ohio.gov

Ohio Environmental Protection Agency

FINAL

Division of Air Pollution Control
Permit-to-Install
for
GM Defiance Casting Operations

Facility ID:	0320010001
Permit Number:	P0109485
Permit Type:	Administrative Modification
Issued:	3/21/2012
Effective:	3/21/2012

Ohio Environmental Protection Agency

Division of Air Pollution Control
Permit-to-Install
for
GM Defiance Casting Operations

Table of Contents

Authorization

Facility ID:	0320010001
Facility Description:	Foundry.
Application Number(s):	M0001519
Permit Number:	P0109485
Permit Description:	Administrative modification of PTI 03-14001 to modify the scrubber parametric monitoring terms and conditions.
Permit Type:	Administrative Modification
Permit Fee:	$2,700.00
Issue Date:	3/21/2012
Effective Date:	3/21/2012

This document constitutes issuance to:

GM Defiance Casting Operations
State Route 281 East
Defiance, OH 43512

of a Permit-to-Install for the emissions unit(s) identified on the following page.

Ohio EPA District Office or local air agency responsible for processing and administering your permit:

Ohio EPA DAPC, Northwest District Office
347 North Dunbridge Road
Bowling Green, OH 43402
(419)352-8461

The above named entity is hereby granted a Permit-to-Install for the emissions unit(s) listed in this section pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this permit does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the emissions unit(s) of environmental pollutants will operate in compliance with applicable State and Federal laws and regulations, and does not constitute expressed or implied assurance that if constructed or modified in accordance with those plans and specifications, the above described emissions unit(s) of pollutants will be granted the necessary permits to operate (air) or NPDES permits as applicable.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

Scott J. Nally
Director

Authorization (continued)

Permit Number: P0109485
Permit Description: Administrative modification of PTI 03-14001 to modify the scrubber parametric monitoring terms and conditions.

Permits for the following Emissions Unit(s) or groups of Emissions Units are in this document as indicated below:

Emissions Unit ID:	**P321**
Company Equipment ID:	CB CORE MACH #66-67
Superseded Permit Number:	03-14001
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P358**
Company Equipment ID:	CB CORE MACH #69-70
Superseded Permit Number:	03-14001
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P369**
Company Equipment ID:	CR5 CB CORE MACH #68
Superseded Permit Number:	03-14001
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P387**
Company Equipment ID:	CB CORE MACH #93-95
Superseded Permit Number:	03-14001
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P436**
Company Equipment ID:	CB CORE MACH 122
Superseded Permit Number:	03-14001
General Permit Category and Type:	Not Applicable

Group Name: Cold box core machines group 1

Emissions Unit ID:	**P370**
Company Equipment ID:	CR3 CB CORE MACH #92
Superseded Permit Number:	03-14001
General Permit Category andType:	Not Applicable
Emissions Unit ID:	**P371**
Company Equipment ID:	CR3 CB CORE MACH #91
Superseded Permit Number:	03-14001
General Permit Category andType:	Not Applicable
Emissions Unit ID:	**P403**
Company Equipment ID:	CR3 CB CORE MACH 116
Superseded Permit Number:	03-14001
General Permit Category andType:	Not Applicable
Emissions Unit ID:	**P404**
Company Equipment ID:	CR3 CB CORE MACH 117
Superseded Permit Number:	03-14001
General Permit Category andType:	Not Applicable
Emissions Unit ID:	**P405**
Company Equipment ID:	CR3 CB CORE MACH 118
Superseded Permit Number:	03-14001
General Permit Category andType:	Not Applicable

Emissions Unit ID:	**P430**
Company Equipment ID:	CR3 CB CORE MACH 119
Superseded Permit Number:	03-14001
General Permit Category andType:	Not Applicable

Group Name: Cold box core machines group 2

Emissions Unit ID:	**P372**
Company Equipment ID:	CR8 CB CORE MACH #85
Superseded Permit Number:	03-14001
General Permit Category andType:	Not Applicable
Emissions Unit ID:	**P374**
Company Equipment ID:	CR8 CB CORE MACH #87
Superseded Permit Number:	03-14001
General Permit Category andType:	Not Applicable
Emissions Unit ID:	**P375**
Company Equipment ID:	CR8 CB CORE MACH #88
Superseded Permit Number:	03-14001
General Permit Category andType:	Not Applicable

Group Name: Cold box core machines group 3

Emissions Unit ID:	**P394**
Company Equipment ID:	CB CORE MACH 104-106
Superseded Permit Number:	03-14001
General Permit Category andType:	Not Applicable
Emissions Unit ID:	**P395**
Company Equipment ID:	CB CORE MACH 107-109
Superseded Permit Number:	03-14001
General Permit Category andType:	Not Applicable
Emissions Unit ID:	**P397**
Company Equipment ID:	CB CORE MACH 110-112
Superseded Permit Number:	03-14001
General Permit Category andType:	Not Applicable
Emissions Unit ID:	**P398**
Company Equipment ID:	CB CORE MACH 113-115
Superseded Permit Number:	03-14001
General Permit Category andType:	Not Applicable

Group Name: Cold box core machines group 4

Emissions Unit ID:	**P434**
Company Equipment ID:	CB CORE MACH 120
Superseded Permit Number:	03-14001
General Permit Category andType:	Not Applicable
Emissions Unit ID:	**P435**
Company Equipment ID:	CB CORE MACH 121
Superseded Permit Number:	03-14001
General Permit Category andType:	Not Applicable

Group Name: Cold box core machines group 5

Emissions Unit ID:	**P442**
Company Equipment ID:	CR1 CB CORE MACH #55
Superseded Permit Number:	03-14001

General Permit Category andType:	Not Applicable
Emissions Unit ID:	**P443**
Company Equipment ID:	CR1 CB CORE MACH #56
Superseded Permit Number:	03-14001
General Permit Category andType:	Not Applicable
Emissions Unit ID:	**P444**
Company Equipment ID:	CR1 CB CORE MACH #57
Superseded Permit Number:	03-14001
General Permit Category andType:	Not Applicable
Emissions Unit ID:	**P445**
Company Equipment ID:	CR1 CB CORE MACH #58
Superseded Permit Number:	03-14001
General Permit Category andType:	Not Applicable
Emissions Unit ID:	**P446**
Company Equipment ID:	CR1 CB CORE MACH #59
Superseded Permit Number:	03-14001
General Permit Category andType:	Not Applicable

Group Name: Cold box core machines group 6

Emissions Unit ID:	**P379**
Company Equipment ID:	CR9 CB CORE MACH #89
Superseded Permit Number:	03-14001
General Permit Category andType:	Not Applicable
Emissions Unit ID:	**P401**
Company Equipment ID:	CR9 CB CORE MACH #90
Superseded Permit Number:	03-14001
General Permit Category andType:	Not Applicable

A. Standard Terms and Conditions

1. Federally Enforceable Standard Terms and Conditions

a) All Standard Terms and Conditions are federally enforceable, with the exception of those listed below which are enforceable under State law only:

(1) Standard Term and Condition A.2.a), Severability Clause

(2) Standard Term and Condition A.3.c) through A. 3.e)General Requirements

(3) Standard Term and Condition A.6.c) and A. 6.d), Compliance Requirements

(4) Standard Term and Condition A.9., Reporting Requirements

(5) Standard Term and Condition A.10., Applicability

(6) Standard Term and Condition A.11.b) through A.11.e), Construction of New Source(s) and Authorization to Install

(7) Standard Term and Condition A.14., Public Disclosure

(8) Standard Term and Condition A.15., Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations

(9) Standard Term and Condition A.16., Fees

(10) Standard Term and Condition A.17., Permit Transfers

2. Severability Clause

a) A determination that any term or condition of this permit is invalid shall not invalidate the force or effect of any other term or condition thereof, except to the extent that any other term or condition depends in whole or in part for its operation or implementation upon the term or condition declared invalid.

b) All terms and conditions designated in parts B and C of this permit are federally enforceable as a practical matter, if they are required under the Act, or any of its applicable requirements, including relevant provisions designed to limit the potential to emit of a source, are enforceable by the Administrator of the U.S. EPA and the State and by citizens (to the extent allowed by section 304 of the Act) under the Act. Terms and conditions in parts B and C of this permit shall not be federally enforceable and shall be enforceable under State law only, only if specifically identified in this permit as such.

3. General Requirements

a) The permittee must comply with all terms and conditions of this permit. Any noncompliance with the federally enforceable terms and conditions of this permit constitutes a violation of the Act, and is grounds for enforcement action or for permit revocation, revocation and re-issuance, or modification.

b) It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the federally enforceable terms and conditions of this permit.

c) This permit may be modified, revoked, or revoked and reissued, for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or revocation, or of a notification of planned changes or anticipated noncompliance does not stay any term and condition of this permit.

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

e) The permittee shall furnish to the Director of the Ohio EPA, or an authorized representative of the Director, upon receipt of a written request and within a reasonable time, any information that may be requested to determine whether cause exists for modifying or revoking this permit or to determine compliance with this permit. Upon request, the permittee shall also furnish to the Director or an authorized representative of the Director, copies of records required to be kept by this permit. For information claimed to be confidential in the submittal to the Director, if the Administrator of the U.S. EPA requests such information, the permittee may furnish such records directly to the Administrator along with a claim of confidentiality.

4. Monitoring and Related Record Keeping and Reporting Requirements

a) Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall maintain records that include the following, where applicable, for any required monitoring under this permit:

(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 analyses.

(4) The analytical techniques or methods used.

(5) The results of such analyses.

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

b) Each record of any monitoring data, testing data, and support information required pursuant to this permit shall be retained for a period of five years from the date the record was created. Support information shall include, but not be limited to all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Such records may be maintained in computerized form.

c) Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall submit required reports in the following manner:

(1) Reports of any required monitoring and/or recordkeeping of federally enforceable information shall be submitted to the Ohio EPA DAPC, Northwest District Office.

(2) Quarterly written reports of (i) any deviations from federally enforceable emissionlimitations, operationalrestrictions, andcontroldeviceoperatingparameterlimitations, excluding deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06, that have been detected by the testing, monitoring and recordkeeping requirements specified in this permit, (ii) the probable cause of such deviations, and (iii) any corrective actions or preventive measures taken, shall be made to the Ohio EPA DAPC, Northwest District Office. The written reports shall be submitted (i.e., postmarked) quarterly, by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. See A.15. below if no deviations occurred during the quarter.

(3) Written reports, which identify any deviations from the federally enforceable monitoring, recordkeeping, andreportingrequirements contained in this permit shall be submitted (i.e., postmarked) to the Ohio EPA DAPC, Northwest District Office every six months, by January 31 and July 31 of each year for the previous six calendar months. If no deviations occurred during a six-month period, the permittee shall submit a semi-annual report, which states that no deviations occurred during that period.

(4) This permit is for an emissions unit located at a Title V facility. Each written report shall be signed by a responsible official certifying that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.

d) The permittee shall report actual emissions pursuant to OAC Chapter 3745-78 for the purpose of collecting Air Pollution Control Fees.

5. Scheduled Maintenance/Malfunction Reporting

Any scheduled maintenance of air pollution control equipment shall be performed in accordance with paragraph (A) of OAC rule 3745-15-06. The malfunction, i.e., upset, of any emissions units or any associated air pollution control system(s) shall be reported to the Ohio EPA DAPC, Northwest District Office in accordance with paragraph (B) of OAC rule 3745-15-06. (The definition of an upset condition shall be the same as that used in OAC rule 3745-15-06(B)(1) for a malfunction.) The verbal and written reports shall be submitted pursuant to OAC rule 3745-15-06.

Except as provided in that rule, any scheduled maintenance or malfunction necessitating the shutdown or bypassing of any air pollution control system(s) shall be accompanied by the shutdown of the emission unit(s) that is (are) served by such control system(s).

6. Compliance Requirements

a) The emissions unit(s) identified in this Permit shall remain in full compliance with all applicable State laws and regulations and the terms and conditions of this permit.

b) Any document (including reports) required to be submitted and required by a federally applicable requirement in this permit shall include a certification by a responsible official that, based on information and belief formed after reasonable inquiry, the statements in the document are true, accurate, and complete.

c) Upon presentation of credentials and other documents as may be required by law, the permittee shall allow the Director of the Ohio EPA or an authorized representative of the Director to:

(1) At reasonable times, enter upon the permittee's premises where a source is located or the emissions-related activity is conducted, or where records must be kept under the conditions of this permit.

(2) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit, subject to the protection from disclosure to the public of confidential information consistent with ORC section 3704.08.

(3) Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit.

(4) As authorized by the Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit and applicable requirements.

d) The permittee shall submit progress reports to the Ohio EPA DAPC, Northwest District Office concerning any schedule of compliance for meeting an applicable requirement. Progress reports shall be submitted semiannually or more frequently if specified in the applicable requirement or by the Director of the Ohio EPA. Progress reports shall contain the following:

(1) Dates for achieving the activities, milestones, or compliance required in any schedule of compliance, and dates when such activities, milestones, or compliance were achieved.

(2) An explanation of why any dates in any schedule of compliance were not or will not be met, and any preventive or corrective measures adopted.

7. Best Available Technology

As specified in OAC Rule 3745-31-05, new sources that must employ Best Available Technology (BAT) shall comply with the Applicable Emission Limitations/Control Measures identified as BAT for each subject emissions unit.

8. Air Pollution Nuisance

The air contaminants emitted by the emissions units covered by this permit shall not cause a public nuisance, in violation of OAC rule 3745-15-07.

9. Reporting Requirements

The permittee shall submit required reports in the following manner:

a) Reports of any required monitoring and/or recordkeeping of state-only enforceable information shall be submitted to the Ohio EPA DAPC, Northwest District Office.

b) Except as otherwise may be provided in the terms and conditions for a specific emissions unit, quarterly written reports of (a) any deviations (excursions) from state-only required emission limitations, operational restrictions, and control device operating parameter limitations that have

been detected by the testing, monitoring, and recordkeeping requirements specified in this permit, (b) the probable cause of such deviations, and (c) any corrective actions or preventive measures which have been or will be taken, shall be submitted to the Ohio EPA DAPC, Northwest District Office. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted (i.e., postmarked) quarterly, by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

10. Applicability

This Permit-to-Install is applicable only to the emissions unit(s) identified in the Permit-to-Install. Separate application must be made to the Director for the installation or modification of any other emissions unit(s).

11. Construction of New Sources(s) and Authorization to Install

a) This permit does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. This permit does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the application and terms and conditions of this permit. The action of beginning and/or completing construction prior to obtaining the Director's approval constitutes a violation of OAC rule 3745-31-02. Furthermore, issuance of this permit does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Issuance of this permit is not to be construed as a waiver of any rights that the Ohio Environmental Protection Agency (or other persons) may have against the applicant for starting construction prior to the effective date of the permit. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed facilities cannot meet the requirements of this permit or cannot meet applicable standards.

b) If applicable, authorization to install any new emissions unit included in this permit shall terminate within eighteen months of the effective date of the permit if the owner or operator has not undertaken a continuing program of installation or has not entered into a binding contractual obligation to undertake and complete within a reasonable time a continuing program of installation. This deadline may be extended by up to 12 months if application is made to the Director within a reasonable time before the termination date and the party shows good cause for any such extension.

c) The permittee may notify Ohio EPA of any emissions unit that is permanently shut down (i.e., the emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31) by submitting a certification from the authorized official that identifies the date on which the emissions unit was permanently shut down. Authorization to operate the affected emissions unit shall cease upon the date certified by the authorized official that the emissions unit was permanently shut down. At a minimum, notification of permanent shut down shall be made or confirmed by marking the affected emissions unit(s) as “permanently shut down” in Ohio EPA’s “Air Services” along with the date the emissions unit(s) was permanently removed and/or disabled. Submitting the facility profile update will constitute notifying of the permanent shutdown of the affected emissions unit(s).

d) The provisions of this permit shall cease to be enforceable for each affected emissions unit after the date on which an emissions unit is permanently shut down (i.e., emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31). All records relating to any permanently shutdown emissions unit, generated while the emissions unit was in operation, must be maintained in accordance with law. All reports required by this permit must be submitted for any period an affected emissions unit operated prior to permanent shut down. At a minimum, the permit requirements must be evaluated as part of the reporting requirements identified in this permit covering the last period the emissions unit operated.

No emissions unit certified by the authorized official as being permanently shut down may resume operation without first applying for and obtaining a permit pursuant to OAC Chapter 3745-31.

e) The permittee shall comply with any residual requirements related to this permit, such as the requirement to submit a deviation report, air fee emission report, or other any reporting required by this permit for the period the operating provisions of this permit were enforceable, or as required by regulation or law. All reports shall be submitted in a form and manner prescribed by the Director. All records relating to this permit must be maintained in accordance with law.

12. Permit-To-Operate Application

The permittee is required to apply for a Title V permit pursuant to OAC Chapter 3745-77. The permittee shall submit a complete Title V permit application or a complete Title V permit modification application within twelve (12) months after commencing operation of the emissions units covered by this permit. However, if the proposed new or modified source(s) would be prohibited by the terms and conditions of an existing Title V permit, a Title V permit modification must be obtained before the operation of such new or modified source(s) pursuant to OAC rule 3745-77-04(D) and OAC rule 3745-77-08(C)(3)(d).

13. Construction Compliance Certification

The applicant shall identify the following dates in the online facility profile for each new emissions unit identified in this permit.

a) Completion of initial installation date shall be enteredupon completion of construction and prior to start-up.

b) Commence operation after installation or latest modification date shall be entered within 90 days after commencing operation of the applicable emissions unit.

14. Public Disclosure

The facility is hereby notified that this permit, and all agency records concerning the operation of this permitted source, are subject to public disclosure in accordance with OAC rule 3745-49-03.

15. Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations

If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly (i.e., postmarked), by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters.

16. Fees

The permittee shall pay fees to the Director of the Ohio EPA in accordance with ORC section 3745.11 and OAC Chapter 3745-78. The permittee shall pay all applicable permit-to-install fees within 30 days after the issuance of any permit-to-install. The permittee shall pay all applicable permit-to-operate fees within thirty days of the issuance of the invoice.

17. Permit Transfers

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The new owner must update and submit the ownership information via the “Owner/Contact Change” functionality in Air Services once the transfer is legally completed.The change must be submitted through Air Services within thirty days of the ownership transfer date.

18. Risk Management Plans

If the permittee is required to develop and register a risk management plan pursuant to section 112(r) of the Clean Air Act, as amended, 42 U.S.C. 7401 et seq. ("Act"), the permittee shall comply with the requirement to register such a plan.

19. Title IV Provisions

If the permittee is subject to the requirements of 40 CFR Part 72 concerning acid rain, the permittee shall ensure that any affected emissions unit complies with those requirements. Emissions exceeding any allowances that are lawfully held under Title IV of the Act, or any regulations adopted thereunder, are prohibited.

B. Facility-Wide Terms and Conditions

1. All the following facility-wide terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only:

   a) None.

C. Emissions Unit Terms and Conditions

1. P321, CB CORE MACH #66-67

Operations, Property and/or Equipment Description:

CR5 (Plant 1) - Core Cold Box #66-67

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3)	The requirements of this rule also include compliance with the requirements of OAC rules 3745-17-07(A). Organic compound (OC) emissions shall not exceed 1207.90 tons per rolling 12-month period, for all the emissions units identified in b)(2)a., combined Particulate emissions (PE) shall not exceed151.56 tons per rolling 12-month period, for all the emissions units identified in b)(2)a., combined. OC emissions shall not exceed 5.95 pounds per hour (lbs/hr) and 5.48 tons per year (tpy). PE shall not exceed 1.25 lbs/hr and 1.13 tpy. See b)(2)b., b)(2)c. and b)(2)d.
b.	OAC rule 3745-17-07(A)	Visible PE from the stack(s) serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by rule.
c.	OAC rule 3745-17-11(B)	The emission limitation established by this rule is less stringent than the limitation established pursuant to OAC

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		rule 3745-31-05(A)(3).

(2) Additional Terms and Conditions

a. The total PE and OC emission limitations shall apply to the following emissions units, combined: P122, P320, P321, P323, P324, P325, P329, P330, P331, P332, P333, P334, P335, P336, P337, P338, P339, P340, P353, P354, P355, P356, P358, P369, P370, P371, P372, P374, P375, P379, P383, P384, P385, P386, P387, P388, P390, P394, P395, P396, P397, P398, P399, P401, P402, P403, P404, P405, P406, P430, P434, P435, P436, P442, P443, P444, P445, P446, P448, P449, P450, P451. These emissions units comprise the Plant 1 core room operations.

b. Best available technology (BAT) has been determined to be the use of a catalyst gas scrubber designed for the control of catalyst gas on cold box core machines.

c. For the purposes of federal enforceability, all OC emissions shall be considered to be volatile organic compounds (VOC) emissions.

d. The hourly and annual PE and OC emission limitations were established for PTI purposes to reflect the emissions unit's potentials to emit. Therefore, it is not necessary to develop monitoring, record keeping and/or reporting requirements to ensure compliance with these emission limitations.

c) Operational Restrictions

(1) The annual quantity of sand processed for Plant 1 core room operations (i.e., all the emissions units listed in b)(2)a., combined) shall not exceed 1,024,555 tons, based upon a rolling, 12-month summation of the monthly rates of sand throughput.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall collect and record the following each month for the Plant 1 core room operations (i.e., all the emissions units listed in b)(2)a., combined):

a. the total quantity of sand processed, in tons; and

b. the quantity of sand processed, in tons, based on a rolling, 12-month summation of the monthly rates of sand processed.

(2) In addition to the above information, the permittee shall also record the following information each month for all the emissions units listed in b)(2)a., combined:

a. the quantity of sand processed in the hot box core machines (i.e., the amount from d)(1)a. used in the hot box core machines), in tons;

b. the quantity of sand processed in the cold box core machines (i.e., the amount from d)(1)a. used in the cold box core machines), in tons;

c. the calculated emission rate for OC, in tons, determined by the following equation:

TOCE = [{d)(2)a.} x {Q + R}] + [{d)(2)b.} x {S}] + [{d)(1)a.} x {T}]

where:

TOCE = total organic compound emissions, in tons

Q* = OC emission factor, 0.001347 ton OC/ton sand processed (for hot box core machine operations)

R* = OC emission factor, 0.000416 ton OC/ton sand processed (for hot box conveyors)

S* = OC emission factor, 0.000313 ton OC/ton sand processed (for cold box core machine operations)

T* = OC emission factor for OC, 0.000148 ton OC/ton sand processed (for core oven operations)

d. the calculated emission rate for PE, in tons, determined by the following equation:

TPE = [{d)(2)a.} x {U}] + [{d)(2)b.} x {V}] + [{d)(1)a.} x {W}]

where:

TPE = total PE, in tons

U** = PE emission factor, 0.000153 ton PE/ton sand processed (for hot box core machine operations)

V** = PE emission factor, 0.0000643 ton PE/ton sand processed (for cold box core machine operations)

W** = PE emission factor, 0.0000396 ton PE/ton sand processed (for core oven operations)

e. the rolling, 12-month OC emission rate, in tons; and

f. the rolling, 12-month PE rate, in tons.

*These emission factors were contained in the BAT document submitted and approved in 2002 as part of permit application #03-14001. The OC emission factors reflected in this permit are derived from various emission test runs for the hot and cold box core machines and core dip drying ovens. These tests were conducted using USEPA Method 25A, 40 CFR, Part 60, Appendix A, calibrated to propane, for OC emissions.

**These emission factors were contained in the BAT document submitted and approved in 2002 as part of permit application #03-14001. The OC emission factors reflected in

this permit are derived from various emission test runs for the hot and cold box core machines and core dip drying ovens. These tests were conducted using USEPA Methods 1 - 5, 40 CFR, Part 60, Appendix A for PE.

(3) The permittee shall properly operate and maintain equipment to continuously monitor the liquor pH and the scrubber liquor flow rate while the emissions unit is in operation. The monitoring devices and any recorders shall be calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.

The permittee shall collect and record the following information each day:

a. the catalyst gas scrubber liquor pH, on a once-per-shift basis;

b. the catalyst gas scrubber liquor flow rate, in gallons per minute, on a once-per-shift basis; and

c. the operating times for the capture (collection) system, control device, monitoring equipment, and the associated emissions unit.

(4) Whenever the monitored values for the catalyst gas scrubber liquor pH and catalyst gas scrubber liquor flow rate deviate from the range specified below, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

a. the date and time the deviation began;

b. the magnitude of the deviation at that time;

c. the date(s) the investigation was conducted;

d. the names of the personnel who conducted the investigation; and

e. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable ranges specified below, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

a. a description of the corrective action;

b. the date the corrective action was completed;

c. the date and time the deviation ended;

d. the total period of time (in minutes) during which there was a deviation;

e. the catalyst gas scrubber liquor pH and catalyst gas scrubber liquor flow rate immediately after the corrective action; and

f. the names of the personnel who performed the work.

Investigation and records required by this paragraph does not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

The catalyst gas scrubber recirculating liquor pH shall be continuously maintained at a value of less than or equal to 5 at all times while the emissions unit is in operation, or as established during the most recent performance test that demonstrated the emissions unit was in compliance.

The catalyst gas scrubber liquor flow rate shall be continuously maintained at a value of not less than 3 gallons per minute per 1,000 cfm of gas flow at all times while the emissions unit is in operation, or as established during the most recent performance test that demonstrated the emissions unit was in compliance.

These ranges are effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the appropriate Ohio EPA District Office or local air agency. The permittee may request revisions to the ranges based upon information obtained during future tests that demonstrate compliance with the allowable VOC emission rate for this emissions unit. In addition, approved revisions to the ranges will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that identify the following:

a. all exceedances of the rolling, 12-month sand throughput restriction of 1,024,555 tons;

b. all exceedances of the rolling, 12-month emission limitations for PE and OC of 151.56 tons and 1207.90 tons, respectively;

c. each period of time (start time and date, and end time and date)when the liquid flow rate, or the liquid pH was/were outside of the appropriate range or exceeded the applicable limit contained in this permit;

d. any period of time (start time and date, and end time and date)when the emissions unit(s) was/were in operation and the process emissions were not vented to the scrubber;

e. each incident of deviation described in “c” or “d” (above) where a prompt investigation was not conducted;

f. each incident of deviation described in “c” or “d” where prompt corrective action, that would bring the liquid flow rate,and/or scrubber liquid pH into compliance

with the acceptable range, was determined to be necessary and was not taken; and

g. each incident of deviation described in "c" or "d" where proper records were not maintained for the investigation and/or the corrective action(s), as identified in the monitoring and record keeping requirements of this permit.

The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.

(2) Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.

f) Testing Requirements

(1) Compliance with the emission limitations specified in b)(1) shall be determined in accordance with the following compliance methods:

a. Emission Limitation:

1,024,555 tons of sand per rolling 12-month period

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d)(1) of this permit.

b. Emission Limitation:

OC emissions shall not exceed 1,207.90 tons per rolling 12-month period.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d)(2) of this permit.

c. Emission Limitation:

PE shall not exceed 151.56 tons per rolling 12-month period.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d)(2) of this permit.

d. Emission Limitations:

CO emissions shall not exceed 5.95 lbs/hr and 5.48 tpy.

Applicable Compliance Method:

The hourly OC emission limitation was established by multiplying the maximum hourly sand usage rate (lbs/hr) by an emission factor of 0.00085 lb OC/lb sand.

The annual OC emission limitation was established by multiplying the maximum annual sand usage rate (tons/yr) by an emission factor of 0.000313 ton OC/ton of sand.

If required, the permittee shall demonstrate compliance with the hourly OC emission limitation by testing in accordance with Methods 1-4, and 18, 25, or 25A, as appropriate, of 40 CFR Part 60, Appendix A.

e. Emission Limitations:

PE shall not exceed 1.25 lbs/hr and 1.13 tpy.

Applicable Compliance Method:

The hourly PE limitation was established by multiplying the maximum hourly sand usage rate (lbs/hr) by an emission factor of 0.000178 lb PE/lb sand.

The annual PE limitation was established by multiplying the maximum annual sand usage rate (tons/yr) by an emission factor of 0.0000643 ton PE/ton of sand.

If required, the permittee shall demonstrate compliance with the hourly PE limitation by testing in accordance with Methods 1 - 5 of 40 CFR Part 60, Appendix A.

f. Emission Limitation:

Visible PE from the stack(s) serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by rule.

Applicable Compliance Method:

If required, compliance shall be demonstrated in accordance with OAC rule 3745-17-03(B)(1).

g) Miscellaneous Requirements

(1) None.

2. P358, CB CORE MACH #69-70

Operations, Property and/or Equipment Description:

CR5 (Plant 1) - Core Cold Box #69-70

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3)	The requirements of this rule also include compliance with the requirements of OAC rules 3745-17-07(A). Organic compound (OC) emissions shall not exceed 1207.90 tons per rolling 12-month period, for all the emissions units identified in b)(2)a., combined Particulate emissions (PE) shall not exceed 151.56 tons rolling 12-month period, for all the emissions units identified in b)(2)a., combined OC emissions shall not exceed 7.93 pounds per hour (lbs/hr) and 7.30 tons per year (tpy). [see b)(2)c.)]. PE shall not exceed 6.02 lbs/hr and4.18 tpy [see b)(2)c.].
b.	OAC rule 3745-17-07(A)	Visible PE from the stack(s) serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by rule.
c.	OAC rule 3745-17-11(B)	The emission limitation established by this rule is less stringent than the limitation established pursuant to OAC rule 3745-31-05(A)(3).

(2) Additional Terms and Conditions

a. The total PE and OC emission limitations shall apply to the following emissions units, combined: P122, P320, P321, P323, P324, P325, P329, P330, P331, P332, P333, P334, P335, P336, P337, P338, P339, P340, P353, P354, P355, P356, P358, P369, P370, P371, P372, P374, P375, P379, P383, P384, P385, P386, P387, P388, P390, P394, P395, P396, P397, P398, P399, P401, P402, P403, P404, P405, P406, P430, P434, P435, P436, P442, P443, P444, P445, P446, P448, P449, P450 and P451. These emissions units comprise the Plant 1 core room operations.

b. Best available technology (BAT) has been determined to be the use of a catalyst gas scrubber designed for the control of catalyst gas on cold box core machines.

c. For the purposes of federal enforceability, all OC emissions shall be considered to be volatile organic compounds (VOC) emissions.

The hourly and annual PE and OC emission limitations were established for PTI purposes to reflect the emissions unit's potentials to emit. Therefore, it is not necessary to develop monitoring, record keeping and/or reporting requirements to ensure compliance with these emission limitations.

c) Operational Restrictions

(1) The annual quantity of sand processed for Plant 1 core room operations (i.e., all the emissions units listed in b)(2)a., combined) shall not exceed 1,024,555 tons, based upon a rolling, 12-month summation of the monthly rates of sand throughput.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall collect and record the following each month for the Plant 1 core room operations (i.e., all the emissions units listed in b)(2)a., combined):

a. the total quantity of sand processed, in tons; and

b. the quantity of sand processed, in tons, based on a rolling, 12-month summation of the monthly rates of sand processed.

(2) In addition to the above information, the permittee shall also record the following information each month for all the emissions units listed in b)(2)a., combined:

a. the quantity of sand processed in the hot box core machines (i.e., the amount from d)(1)a. used in the hot box core machines), in tons;

b. the quantity of sand processed in the cold box core machines (i.e., the amount from d)(1)a. used in the cold box core machines), in tons;

c. the calculated emission rate for OC, in tons, determined by the following equation:

TOCE = [{d)(2)a.} x {Q + R}] + [{d)(2)b.} x {S}] + [{d)(1)a.} x {T}]

where:

TOCE = total organic compound emissions, in tons

Q* = OC emission factor, 0.001347 ton OC/ton sand processed (for hot box core machine operations)

R* = OC emission factor, 0.000416 ton OC/ton sand processed (for hot box conveyors)

S* = OC emission factor, 0.000313 ton OC/ton sand processed (for cold box core machine operations)

T* = OC emission factor for OC, 0.000148 ton OC/ton sand processed (for core oven operations)

d. the calculated emission rate for PE, in tons, determined by the following equation:

TPE = [{d)(2)a.} x {U}] + [{d)(2)b.} x {V}] + [{d)(1)a.} x {W}]

where:

TPE = total PE, in tons

U** = PE emission factor, 0.000153 ton PE/ton sand processed (for hot box core machine operations)

V** = PE emission factor, 0.0000643 ton PE/ton sand processed (for cold box core machine operations)

W** = PE emission factor, 0.0000396 ton PE/ton sand processed (for core oven operations)

e. the rolling, 12-month OC emission rate, in tons; and

f. the rolling, 12-month PE rate, in tons.

*These emission factors were contained in the BAT document submitted and approved in 2002 as part of permit application #03-14001. The OC emission factors reflected in this permit are derived from various emission test runs for the hot and cold box core machines and core dip drying ovens. These tests were conducted using USEPA Method 25A, 40 CFR, Part 60, Appendix A, calibrated to propane, for OC emissions.

**These emission factors were contained in the BAT document submitted and approved in 2002 as part of permit application #03-14001. The OC emission factors reflected in this permit are derived from various emission test runs for the hot and cold box core machines and core dip drying ovens. These tests were conducted using USEPA Methods 1 - 5, 40 CFR, Part 60, Appendix A for PE.

(3) The permittee shall properly operate and maintain equipment to continuously monitor the liquor pH and the scrubber liquor flow rate while the emissions unit is in operation. The monitoring devices and any recorders shall be calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.

The permittee shall collect and record the following information each day:

a. the catalyst gas scrubber liquor pH, on a once-per-shift basis;

b. the catalyst gas scrubber liquor flow rate, in gallons per minute, on a once-per-shift basis; and

c. the operating times for the capture (collection) system, control device, monitoring equipment, and the associated emissions unit.

(4) Whenever the monitored values for the catalyst gas scrubber liquor pH and catalyst gas scrubber liquor flow rate deviate from the range specified below, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

a. the date and time the deviation began;

b. the magnitude of the deviation at that time;

c. the date(s) the investigation was conducted;

d. the names of the personnel who conducted the investigation; and

e. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable ranges specified below, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

a. a description of the corrective action;

b. the date the corrective action was completed;

c. the date and time the deviation ended;

d. the total period of time (in minutes) during which there was a deviation;

e. the catalyst gas scrubber liquor pH and catalyst gas scrubber liquor flow rate immediately after the corrective action; and

f. the names of the personnel who performed the work.

Investigation and records required by this paragraph does not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

The catalyst gas scrubber recirculating liquor pH shall be continuously maintained at a value of less than or equal to 5 at all times while the emissions unit is in operation, or as established during the most recent performance test that demonstrated the emissions unit was in compliance.

The catalyst gas scrubber liquor flow rate shall be continuously maintained at a value of not less than 3 gallons per minute per 1,000 cfm of gas flow at all times while the emissions unit is in operation, or as established during the most recent performance test that demonstrated the emissions unit was in compliance.

These ranges are effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the appropriate Ohio EPA District Office or local air agency. The permittee may request revisions to the ranges based upon information obtained during future tests that demonstrate compliance with the allowable VOC emission rate for this emissions unit. In addition, approved revisions to the ranges will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that identify the following:

a. all exceedances of the rolling, 12-month sand throughput restriction of 1,024,555 tons;

b. all exceedances of the rolling, 12-month emission limitations for PE and OC of 151.56 tons and 1207.90 tons, respectively;

c. each period of time (start time and date, and end time and date)when the liquid flow rate, or the liquid pH was/were outside of the appropriate range or exceeded the applicable limit contained in this permit;

d. any period of time (start time and date, and end time and date)when the emissions unit(s) was/were in operation and the process emissions were not vented to the scrubber;

e. each incident of deviation described in “c” or “d” (above) where a prompt investigation was not conducted;

f. each incident of deviation described in “c” or “d” where prompt corrective action, that would bring the liquid flow rate,and/or scrubber liquid pH into compliance with the acceptable range, was determined to be necessary and was not taken; and

g. each incident of deviation described in “c” or “d” where proper records were not maintained for the investigation and/or the corrective action(s), as identified in the monitoring and record keeping requirements of this permit.

The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.

(2) Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.

f) Testing Requirements

(1) Compliance with the emission limitations specified in b)(1) shall be determined in accordance with the following compliance methods:

a. Emission Limitation:

1,024,555 tons of sand per rolling 12-month period

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d)(1) of this permit.

b. Emission Limitation:

OC emissions shall not exceed 1,207.90 tons per rolling 12-month period.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d)(2) of this permit.

c. Emission Limitation:

PE shall not exceed 151.56 tons per rolling 12-month period.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d)(2) of this permit.

d. Emission Limitations:

OC emissions shall not exceed 7.93 lbs/hr and 7.30 tpy.

Applicable Compliance Method:

The hourly OC emission limitation was established by multiplying the maximum hourly sand usage rate (lbs/hr) by an emission factor of 0.00085 lb OC/lb sand.

The annual OC emission limitation was established by multiplying the maximum annual sand usage rate (tons/yr) by an emission factor of 0.000313 ton OC/ton of sand.

If required, the permittee shall demonstrate compliance with the hourly OC emission limitation by testing in accordance with Methods 1-4, and 18, 25, or 25A, as appropriate, of 40 CFR Part 60, Appendix A.

e. Emission Limitations:

PE shall not exceed 6.02 lbs/hr and 4.18 tpy.

Applicable Compliance Method:

The hourly PE limitation was established by multiplying the maximum hourly sand usage rate (lbs/hr) by an emission factor of 0.000178 lb PE/lb sand.

The annual PE limitation was established by multiplying the maximum annual sand usage rate (tons/yr) by an emission factor of 0.0000643 ton PE/ton of sand and 0.000153 lb OC/lb sand.

If required, the permittee shall demonstrate compliance with the hourly PE limitation by testing in accordance with Methods 1 - 5 of 40 CFR Part 60, Appendix A.

f. Emission Limitation:

Visible PE from the stack(s) serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by rule.

Applicable Compliance Method:

If required, compliance shall be demonstrated in accordance with OAC rule 3745-17-03(B)(1).

g) Miscellaneous Requirements

(1) None.

3. P369, CR5 CB CORE MACH #68

Operations, Property and/or Equipment Description:

CR5 (Plant 1) - Core Cold Box #68

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3)	The requirements of this rule also include compliance with the requirements of OAC rules 3745-17-07(A). Organic compound (OC) emissions shall not exceed 1207.90 tons per rolling 12-month period, for all the emissions units identified in b)(2)a., combined Particulate emissions (PE) shall not exceed 151.56 tons per rolling 12-month period, for all the emissions units identified in b)(2)a., combined OC emissions shall not exceed 4.02 pounds per hour (lbs/hr) and 3.70 tons per year (tpy). PE shall not exceed 3.05 lbs/hr and 2.12 tpy. See b)(2)b., b)(2)c. and b)(2)d.
b.	OAC rule 3745-17-07(A)	Visible PE from the stack(s) serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by rule.
c.	OAC rule 3745-17-11(B)	The emission limitation established by this rule is less stringent than the limitation established pursuant to OAC

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		rule 3745-31-05(A)(3).

(2) Additional Terms and Conditions

a. The total PE and OC emission limitations shall apply to the following emissions units, combined: P122, P320, P321, P323, P324, P325, P329, P330, P331, P332, P333, P334, P335, P336, P337, P338, P339, P340, P353, P354, P355, P356, P358, P369, P370, P371, P372, P374, P375, P379, P383, P384, P385, P386, P387, P388, P389, P390, P394, P395, P396, P397, P398, P399, P401, P402, P403, P404, P405, P406, P430, P434, P435, P436, P442, P443, P444, P445, P446, P448, P449, P450 and P451. These emissions units comprise the Plant 1 core room operations.

b. Best available technology (BAT) has been determined to be the use of a catalyst gas scrubber designed for the control of catalyst gas on cold box core machines.

c. For the purposes of federal enforceability, all OC emissions shall be considered to be volatile organic compounds (VOC) emissions.

d. The hourly and annual PE and OC emission limitations were established for PTI purposes to reflect the emissions unit's potentials to emit. Therefore, it is not necessary to develop monitoring, record keeping and/or reporting requirements to ensure compliance with these emission limitations.

c) Operational Restrictions

(1) The annual quantity of sand processed for Plant 1 core room operations (i.e., all the emissions units listed in b)(2)a., combined) shall not exceed 1,024,555 tons, based upon a rolling, 12-month summation of the monthly rates of sand throughput.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall collect and record the following each month for the Plant 1 core room operations (i.e., all the emissions units listed in b)(2)a., combined):

a. the total quantity of sand processed, in tons; and

b. the quantity of sand processed, in tons, based on a rolling, 12-month summation of the monthly rates of sand processed.

(2) In addition to the above information, the permittee shall also record the following information each month for all the emissions units listed in b)(2)a., combined:

a. the quantity of sand processed in the hot box core machines (i.e., the amount from d)(1)a. used in the hot box core machines), in tons;

b. the quantity of sand processed in the cold box core machines (i.e., the amount from d)(1)a. used in the cold box core machines), in tons;

c. the calculated emission rate for OC, in tons, determined by the following equation:

TOCE = [{d)(2)a.} x {Q + R}] + [{d)(2)b.} x {S}] + [{d)(1)a.} x {T}]

where:

TOCE = total organic compound emissions, in tons

Q* = OC emission factor, 0.001347 ton OC/ton sand processed (for hot box core machine operations)

R* = OC emission factor, 0.000416 ton OC/ton sand processed (for hot box conveyors)

S* = OC emission factor, 0.000313 ton OC/ton sand processed (for cold box core machine operations)

T* = OC emission factor for OC, 0.000148 ton OC/ton sand processed (for core oven operations)

d. the calculated emission rate for PE, in tons, determined by the following equation:

TPE = [{d)(2)a.} x {U}] + [{d)(2)b.} x {V}] + [{d)(1)a.} x {W}]

where:

TPE = total PE, in tons

U** = PE emission factor, 0.000153 ton PE/ton sand processed (for hot box core machine operations)

V** = PE emission factor, 0.0000643 ton PE/ton sand processed (for cold box core machine operations)

W** = PE emission factor, 0.0000396 ton PE/ton sand processed (for core oven operations)

e. the rolling, 12-month OC emission rate, in tons; and

f. the rolling, 12-month PE rate, in tons.

*These emission factors were contained in the BAT document submitted and approved in 2002 as part of permit application #03-14001. The OC emission factors reflected in this permit are derived from various emission test runs for the hot and cold box core machines and core dip drying ovens. These tests were conducted using USEPA Method 25A, 40 CFR, Part 60, Appendix A, calibrated to propane, for OC emissions.

**These emission factors were contained in the BAT document submitted and approved in 2002 as part of permit application #03-14001. The OC emission factors reflected in

this permit are derived from various emission test runs for the hot and cold box core machines and core dip drying ovens. These tests were conducted using USEPA Methods 1 - 5, 40 CFR, Part 60, Appendix A for PE.

(3) The permittee shall properly operate and maintain equipment to continuously monitor the liquor pH and the scrubber liquor flow rate while the emissions unit is in operation. The monitoring devices and any recorders shall be calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.

The permittee shall collect and record the following information each day:

a. the catalyst gas scrubber liquor pH, on a once-per-shift basis;

b. the catalyst gas scrubber liquor flow rate, in gallons per minute, on a once-per-shift basis; and

c. the operating times for the capture (collection) system, control device, monitoring equipment, and the associated emissions unit.

(4) Whenever the monitored values for the catalyst gas scrubber liquor pH and catalyst gas scrubber liquor flow rate deviate from the range specified below, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

a. the date and time the deviation began;

b. the magnitude of the deviation at that time;

c. the date(s) the investigation was conducted;

d. the names of the personnel who conducted the investigation; and

e. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable ranges specified below, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

a. a description of the corrective action;

b. the date the corrective action was completed;

c. the date and time the deviation ended;

d. the total period of time (in minutes) during which there was a deviation;

e. the catalyst gas scrubber liquor pH and catalyst gas scrubber liquor flow rate immediately after the corrective action; and

f. the names of the personnel who performed the work.

Investigation and records required by this paragraph does not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

The catalyst gas scrubber recirculating liquor pH shall be continuously maintained at a value of less than or equal to 5 at all times while the emissions unit is in operation, or as established during the most recent performance test that demonstrated the emissions unit was in compliance.

The catalyst gas scrubber liquor flow rate shall be continuously maintained at a value of not less than 3 gallons per minute per 1,000 cfm of gas flow at all times while the emissions unit is in operation, or as established during the most recent performance test that demonstrated the emissions unit was in compliance.

These ranges are effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the appropriate Ohio EPA District Office or local air agency. The permittee may request revisions to the ranges based upon information obtained during future tests that demonstrate compliance with the allowable VOC emission rate for this emissions unit. In addition, approved revisions to the ranges will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that identify the following:

a. all exceedances of the rolling, 12-month sand throughput restriction of 1,024,555 tons;

b. all exceedances of the rolling, 12-month emission limitations for PE and OC of 151.56 tons and 1207.90 tons, respectively;

c. each period of time (start time and date, and end time and date)when the liquid flow rate, or the liquid pH was/were outside of the appropriate range or exceeded the applicable limit contained in this permit;

d. any period of time (start time and date, and end time and date)when the emissions unit(s) was/were in operation and the process emissions were not vented to the scrubber;

e. each incident of deviation described in “c” or “d” (above) where a prompt investigation was not conducted;

f. each incident of deviation described in “c” or “d” where prompt corrective action, that would bring the liquid flow rate,and/or scrubber liquid pH into compliance

with the acceptable range, was determined to be necessary and was not taken; and

g. each incident of deviation described in "c" or "d" where proper records were not maintained for the investigation and/or the corrective action(s), as identified in the monitoring and record keeping requirements of this permit.

The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.

(2) Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.

f) Testing Requirements

(1) Compliance with the emission limitations specified in b)(1) shall be determined in accordance with the following compliance methods:

a. Emission Limitation:

1,024,555 tons of sand per rolling 12-month period

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d)(1) of this permit.

b. Emission Limitation:

OC emissions shall not exceed 1,207.90 tons per rolling 12-month period.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d)(2) of this permit.

c. Emission Limitation:

PE shall not exceed 151.56 tons per rolling 12-month period.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d)(2) of this permit.

d. Emission Limitations:

OC emissions shall not exceed 4.02 lbs/hr and 3.70 tpy.

Applicable Compliance Method:

The hourly OC emission limitation was established by multiplying the maximum hourly sand usage rate (lbs/hr) by an emission factor of 0.00085 lb OC/lb sand for the main stack.

The annual OC emission limitation was established by multiplying the maximum annual sand usage rate (tons/yr) by an emission factor of 0.000313 ton OC/ton of sand and 0.0000665 lb OC/lb sand.

If required, the permittee shall demonstrate compliance with the hourly OC emission limitation by testing in accordance with Methods 1-4, and 18, 25, or 25A, as appropriate, of 40 CFR Part 60, Appendix A.

e. Emission Limitations:

PE shall not exceed 3.05 lbs/hr and 2.12 tpy.

Applicable Compliance Method:

The hourly PE limitation was established by multiplying the maximum hourly sand usage rate (lbs/hr) by an emission factor of 0.000178 lb PE/lb sand.

The annual PE limitation was established by multiplying the maximum annual sand usage rate (tons/yr) by an emission factor of 0.0000643 ton PE/ton of sand.

If required, the permittee shall demonstrate compliance with the hourly PE limitation by testing in accordance with Methods 1 - 5 of 40 CFR Part 60, Appendix A.

f. Emission Limitation:

Visible PE from the stack(s) serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by rule.

Applicable Compliance Method:

If required, compliance shall be demonstrated in accordance with OAC rule 3745-17-03(B)(1).

g) Miscellaneous Requirements

(1) None.

4. P387, CB CORE MACH #93-95

Operations, Property and/or Equipment Description:

CR5 (Plant 1) - Core Cold Box #93, 94, 95

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3)	The requirements of this rule also include compliance with the requirements of OAC rules 3745-17-07(A). Organic compound (OC) emissions shall not exceed 1207.90 tons per rolling 12-month period, for all the emissions units identified in b)(2)a., combined PE shall not exceed 151.56 tons per rolling 12-month period, for all the emissions units identified in b)(2)a., combined OC emissions shall not exceed 8.03 pounds per hour (lbs/hr) and 7.40 tons per year (tpy). PE shall not exceed 6.10 lbs/hr and 4.24 tpy. See b(2)b., b)(2)c. and b)(2)d.
b.	OAC rule 3745-17-07(A)	Visible PE from the stack(s) serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by rule.
c.	OAC rule 3745-17-11(B)	The emission limitation established by this rule is less stringent than the limitation established pursuant to OAC

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		rule 3745-31-05(A)(3).

(2) Additional Terms and Conditions

a. The total PE and OC emission limitations shall apply to the following emissions units, combined: P122, P320, P321, P323, P324, P325, P329, P330, P331, P332, P333, P334, P335, P336, P337, P338, P339, P340, P353, P354, P355, P356, P358, P369, P370, P371, P372, P374, P375, P379, P383, P384, P385, P386, P387, P388, P390, P394, P395, P396, P397, P398, P399, P401, P402, P403, P404, P405, P406, P430, P434, P435, P436, P442, P443, P444, P445, P446, P448, P449, P450 and P451. These emissions units comprise the Plant 1 core room operations.

b. Best available technology (BAT) has been determined to be the use of a catalyst gas scrubber designed for the control of catalyst gas on cold box core machines.

c. For the purposes of federal enforceability, all OC emissions shall be considered to be volatile organic compounds (VOC) emissions.

d. The hourly and annual PE and OC emission limitations were established for PTI purposes to reflect the emissions unit's potentials to emit. Therefore, it is not necessary to develop monitoring, record keeping and/or reporting requirements to ensure compliance with these emission limitations.

c) Operational Restrictions

(1) The annual quantity of sand processed for Plant 1 core room operations (i.e., all the emissions units listed in b)(2)a., combined) shall not exceed 1,024,555 tons, based upon a rolling, 12-month summation of the monthly rates of sand throughput.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall collect and record the following each month for the Plant 1 core room operations (i.e., all the emissions units listed in b)(2)a., combined):

a. the total quantity of sand processed, in tons; and

b. the quantity of sand processed, in tons, based on a rolling, 12-month summation of the monthly rates of sand processed.

(2) In addition to the above information, the permittee shall also record the following information each month for all the emissions units listed in b)(2)a., combined:

a. the quantity of sand processed in the hot box core machines (i.e., the amount from d)(1)a. used in the hot box core machines), in tons;

b. the quantity of sand processed in the cold box core machines (i.e., the amount from d)(1)a. used in the cold box core machines), in tons;

c. the calculated emission rate for OC, in tons, determined by the following equation:

TOCE = [{d)(2)a.} x {Q + R}] + [{d)(2)b.} x {S}] + [{d)(1)a.} x {T}]

where:

TOCE = total organic compound emissions, in tons

Q* = OC emission factor, 0.001347 ton OC/ton sand processed (for hot box core machine operations)

R* = OC emission factor, 0.000416 ton OC/ton sand processed (for hot box conveyors)

S* = OC emission factor, 0.000313 ton OC/ton sand processed (for cold box core machine operations)

T* = OC emission factor for OC, 0.000148 ton OC/ton sand processed (for core oven operations)

d. the calculated emission rate for PE, in tons, determined by the following equation:

TPE = [{d)(2)a.} x {U}] + [{d)(2)b.} x {V}] + [{d)(1)a.} x {W}]

where:

TPE = total PE, in tons

U** = PE emission factor, 0.000153 ton PE/ton sand processed (for hot box core machine operations)

V** = PE emission factor, 0.0000643 ton PE/ton sand processed (for cold box core machine operations)

W** = PE emission factor, 0.0000396 ton PE/ton sand processed (for core oven operations)

e. the rolling, 12-month OC emission rate, in tons; and

f. the rolling, 12-month PE rate, in tons.

*These emission factors were contained in the BAT document submitted and approved in 2002 as part of permit application #03-14001. The OC emission factors reflected in this permit are derived from various emission test runs for the hot and cold box core machines and core dip drying ovens. These tests were conducted using USEPA Method 25A, 40 CFR, Part 60, Appendix A, calibrated to propane, for OC emissions.

**These emission factors were contained in the BAT document submitted and approved in 2002 as part of permit application #03-14001. The OC emission factors reflected in

this permit are derived from various emission test runs for the hot and cold box core machines and core dip drying ovens. These tests were conducted using USEPA Methods 1 - 5, 40 CFR, Part 60, Appendix A for PE.

(3) The permittee shall properly operate and maintain equipment to continuously monitor the liquor pH and the scrubber liquor flow rate while the emissions unit is in operation. The monitoring devices and any recorders shall be calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.

The permittee shall collect and record the following information each day:

a. the catalyst gas scrubber liquor pH, on a once-per-shift basis;

b. the catalyst gas scrubber liquor flow rate, in gallons per minute, on a once-per-shift basis; and

c. the operating times for the capture (collection) system, control device, monitoring equipment, and the associated emissions unit.

(4) Whenever the monitored values for the catalyst gas scrubber liquor pH and catalyst gas scrubber liquor flow rate deviate from the range specified below, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

a. the date and time the deviation began;

b. the magnitude of the deviation at that time;

c. the date(s) the investigation was conducted;

d. the names of the personnel who conducted the investigation; and

e. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable ranges specified below, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

a. a description of the corrective action;

b. the date the corrective action was completed;

c. the date and time the deviation ended;

d. the total period of time (in minutes) during which there was a deviation;

e. the catalyst gas scrubber liquor pH and catalyst gas scrubber liquor flow rate immediately after the corrective action; and

f. the names of the personnel who performed the work.

Investigation and records required by this paragraph does not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

The catalyst gas scrubber recirculating liquor pH shall be continuously maintained at a value of less than or equal to 5 at all times while the emissions unit is in operation, or as established during the most recent performance test that demonstrated the emissions unit was in compliance.

The catalyst gas scrubber liquor flow rate shall be continuously maintained at a value of not less than 3 gallons per minute per 1,000 cfm of gas flow at all times while the emissions unit is in operation, or as established during the most recent performance test that demonstrated the emissions unit was in compliance.

These ranges are effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the appropriate Ohio EPA District Office or local air agency. The permittee may request revisions to the ranges based upon information obtained during future tests that demonstrate compliance with the allowable VOC emission rate for this emissions unit. In addition, approved revisions to the ranges will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that identify the following:

a. all exceedances of the rolling, 12-month sand throughput restriction of 1,024,555 tons;

b. all exceedances of the rolling, 12-month emission limitations for PE and OC of 151.56 tons and 1207.90 tons, respectively;

c. each period of time (start time and date, and end time and date)when the liquid flow rate, or the liquid pH was/were outside of the appropriate range or exceeded the applicable limit contained in this permit;

d. any period of time (start time and date, and end time and date)when the emissions unit(s) was/were in operation and the process emissions were not vented to the scrubber;

e. each incident of deviation described in “c” or “d” (above) where a prompt investigation was not conducted;

f. each incident of deviation described in “c” or “d” where prompt corrective action, that would bring the liquid flow rate,and/or scrubber liquid pH into compliance

with the acceptable range, was determined to be necessary and was not taken; and

g. each incident of deviation described in "c" or "d" where proper records were not maintained for the investigation and/or the corrective action(s), as identified in the monitoring and record keeping requirements of this permit.

The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.

(2) Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) shall be determined in accordance with the following methods:

a. Emission Limitation:

1,024,555 tons of sand per rolling 12-month period

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d)(1) of this permit.

b. Emission Limitation:

OC emissions shall not exceed 1,207.90 tons OC per rolling 12-month period.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d)(2) of this permit.

c. Emission Limitation:

PE shall not exceed 151.56 tons per rolling 12-month period.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d)(2) of this permit.

d. Emission Limitations:

OC emissions shall not exceed 8.03 lbs/hr and 7.40 tpy.

Applicable Compliance Method:

The hourly OC emission limitation was established by multiplying the maximum hourly sand usage rate (lbs/hr) by an emission factor of 0.00085 lb OC/lb sand.

The annual OC emission limitation was established by multiplying the maximum annual sand usage rate (tons/yr) by an emission factor of 0.000313 ton OC/ton of sand.

If required, the permittee shall demonstrate compliance with the hourly OC emission limitation by testing in accordance with Methods 1-4, and 18, 25, or 25A, as appropriate, of 40 CFR Part 60, Appendix A.

e. Emission Limitations:

PE shall not exceed 6.10 lbs/hr and 4.24 tpy.

Applicable Compliance Method:

The hourly PE limitation was established by multiplying the maximum hourly sand usage rate (lbs/hr) by an emission factor of 0.000178 lb PE/lb sand.

The annual PE limitation was established by multiplying the maximum annual sand usage rate (tons/yr) by an emission factor of 0.0000643 ton PE/ton of sand.

If required, the permittee shall demonstrate compliance with the hourly PE limitation by testing in accordance with Methods 1 - 5 of 40 CFR Part 60, Appendix A.

f. Emission Limitation:

Visible PE from the stack(s) serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by rule.

Applicable Compliance Method:

If required, compliance shall be demonstrated in accordance with OAC rule 3745-17-03(B)(1).

g) Miscellaneous Requirements

(1) None.

5. P436, CB CORE MACH 122

Operations, Property and/or Equipment Description:

(Plant 1) - Core Cold Box #122

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3)	Organic compound (OC) emissions shall not exceed 1207.90 tons per rolling 12-month period, for all the emissions units identified in b)(2)a., combined Particulate emissions (PE) shall not exceed 151.56 tons per rolling 12-month period, for all the emissions units identified in b)(2)a., combined OC emissions shall not exceed 1.84 pounds per hour (lbs/hr) and 1.69 tons per year (tpy). PE shall not exceed 0.38 lb/hr and 0.35tpy. Visible PE from the stack(s) serving this emissions unit shall not exceed 10% opacity, as a 6-minute average, except as provided by rule. See b)(2)b., b)(2)c. and b)(2)d.
b.	OAC rule 3745-17-07(A)	The visible PE established by this rule is less stringent than the visible PE established pursuant to OAC rule 3745-31-05(A)(3).
c.	OAC rule 3745-17-11(B)	The emission limitation established by this rule is less stringent than the

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		limitation established pursuant to OAC rule 3745-31-05(A)(3).

(2) Additional Terms and Conditions

a. The total PE and OC emission limitations shall apply to the following emissions units, combined: P122, P320, P321, P323, P324, P325, P329, P330, P331, P332, P333, P334, P335, P336, P337, P338, P339, P340, P353, P354, P355, P356, P358, P369, P370, P371, P372, P374, P375, P379, P383, P384, P385, P386, P387, P388, P390, P394, P395, P396, P397, P398, P399, P401, P402, P403, P404, P405, P406, P430, P434, P435, P436, P442, P443, P444, P445, P446, P448, P449, P450 and P451. These emissions units comprise the Plant 1 core room operations.

b. Best available technology (BAT) has been determined to be the use of a catalyst gas scrubber designed for the control of catalyst gas on cold box core machines.

c. For the purposes of federal enforceability, all OC emissions shall be considered to be volatile organic compounds (VOC) emissions.

d. The hourly and annual PE and OC emission limitations were established for PTI purposes to reflect the emissions unit's potentials to emit. Therefore, it is not necessary to develop monitoring, record keeping and/or reporting requirements to ensure compliance with these emission limitations.

c) Operational Restrictions

(1) The annual quantity of sand processed for Plant 1 core room operations (i.e., all the emissions units listed in b)(2)a., combined) shall not exceed 1,024,555 tons, based upon a rolling, 12-month summation of the monthly rates of sand throughput.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall collect and record the following each month for the Plant 1 core room operations (i.e., all the emissions units listed in b)(2)a., combined):

a. the total quantity of sand processed, in tons; and

b. the quantity of sand processed, in tons, based on a rolling, 12-month summation of the monthly rates of sand processed.

(2) In addition to the above information, the permittee shall also record the following information each month for all the emissions units listed in b)(2)a., combined:

a. the quantity of sand processed in the hot box core machines (i.e., the amount from d)(1)a. used in the hot box core machines), in tons;

b. the quantity of sand processed in the cold box core machines (i.e., the amount from d)(1)a. used in the cold box core machines), in tons;

c. the calculated emission rate for OC, in tons, determined by the following equation:

TOCE = [{d)(2)a.} x {Q + R}] + [{d)(2)b.} x {S}] + [{d)(1)a.} x {T}]

where:

TOCE = total organic compound emissions, in tons

Q* = OC emission factor, 0.001347 ton OC/ton sand processed (for hot box core machine operations)

R* = OC emission factor, 0.000416 ton OC/ton sand processed (for hot box conveyors)

S* = OC emission factor, 0.000313 ton OC/ton sand processed (for cold box core machine operations)

T* = OC emission factor for OC, 0.000148 ton OC/ton sand processed (for core oven operations)

d. the calculated emission rate for PE, in tons, determined by the following equation:

TPE = [{d)(2)a.} x {U}] + [{d)(2)b.} x {V}] + [{d)(1)a.} x {W}]

where:

TPE = total PE, in tons

U** = PE emission factor, 0.000153 ton PE/ton sand processed (for hot box core machine operations)

V** = PE emission factor, 0.0000643 ton PE/ton sand processed (for cold box core machine operations)

W** = PE emission factor, 0.0000396 ton PE/ton sand processed (for core oven operations)

e. the rolling, 12-month OC emission rate, in tons; and

f. the rolling, 12-month PE rate, in tons.

*These emission factors were contained in the BAT document submitted and approved in 2002 as part of permit application #03-14001. The OC emission factors reflected in this permit are derived from various emission test runs for the hot and cold box core machines and core dip drying ovens. These tests were conducted using USEPA Method 25A, 40 CFR, Part 60, Appendix A, calibrated to propane, for OC emissions.

**These emission factors were contained in the BAT document submitted and approved in 2002 as part of permit application #03-14001. The OC emission factors reflected in this permit are derived from various emission test runs for the hot and cold box core machines and core dip drying ovens. These tests were conducted using USEPA Methods 1 - 5, 40 CFR, Part 60, Appendix A for PE.

(3) The permittee shall properly operate and maintain equipment to continuously monitor the liquor pH and the scrubber liquor flow rate while the emissions unit is in operation. The monitoring devices and any recorders shall be calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.

The permittee shall collect and record the following information each day:

a. the catalyst gas scrubber liquor pH, on a once-per-shift basis;

b. the catalyst gas scrubber liquor flow rate, in gallons per minute, on a once-per-shift basis; and

c. the operating times for the capture (collection) system, control device, monitoring equipment, and the associated emissions unit.

(4) Whenever the monitored values for the catalyst gas scrubber liquor pH and catalyst gas scrubber liquor flow rate deviate from the range specified below, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

a. the date and time the deviation began;

b. the magnitude of the deviation at that time;

c. the date(s) the investigation was conducted;

d. the names of the personnel who conducted the investigation; and

e. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable ranges specified below, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

a. a description of the corrective action;

b. the date the corrective action was completed;

c. the date and time the deviation ended;

d. the total period of time (in minutes) during which there was a deviation;

e. the catalyst gas scrubber liquor pH and catalyst gas scrubber liquor flow rate immediately after the corrective action; and

f. the names of the personnel who performed the work.

Investigation and records required by this paragraph does not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

The catalyst gas scrubber recirculating liquor pH shall be continuously maintained at a value of less than or equal to 5 at all times while the emissions unit is in operation, or as established during the most recent performance test that demonstrated the emissions unit was in compliance.

The catalyst gas scrubber liquor flow rate shall be continuously maintained at a value of not less than 3 gallons per minute per 1,000 cfm of gas flow at all times while the emissions unit is in operation, or as established during the most recent performance test that demonstrated the emissions unit was in compliance.

These ranges are effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the appropriate Ohio EPA District Office or local air agency. The permittee may request revisions to the ranges based upon information obtained during future tests that demonstrate compliance with the allowable VOC emission rate for this emissions unit. In addition, approved revisions to the ranges will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that identify the following:

a. all exceedances of the rolling, 12-month sand throughput restriction of 1,024,555 tons;

b. all exceedances of the rolling, 12-month emission limitations for PE and OC of 151.56 tons and 1207.90 tons, respectively;

c. each period of time (start time and date, and end time and date)when the liquid flow rate, or the liquid pH was/were outside of the appropriate range or exceeded the applicable limit contained in this permit;

d. any period of time (start time and date, and end time and date)when the emissions unit(s) was/were in operation and the process emissions were not vented to the scrubber;

e. each incident of deviation described in “c” or “d” (above) where a prompt investigation was not conducted;

f. each incident of deviation described in “c” or “d” where prompt corrective action, that would bring the liquid flow rate,and/or scrubber liquid pH into compliance

with the acceptable range, was determined to be necessary and was not taken; and

g. each incident of deviation described in "c" or "d" where proper records were not maintained for the investigation and/or the corrective action(s), as identified in the monitoring and record keeping requirements of this permit.

The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.

(2) Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) shall be determined in accordance with the following methods:

a. Emission Limitation:

1,024,555 tons of sand per rolling 12-month period

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d)(1) of this permit.

b. Emission Limitation:

OC emissions shall not exceed 1,207.90 tons per rolling 12-month period.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d)(2) of this permit.

c. Emission Limitation:

PE shall not exceed 151.56 tons per rolling 12-month period.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d)(2) of this permit.

d. Emission Limitations:

OC emissions shall not exceed 1.84 lbs/hr and 1.69 tpy.

Applicable Compliance Method:

The hourly OC emission limitation was established by multiplying the maximum hourly sand usage rate (lbs/hr) by an emission factor of 0.00085 lb OC/lbsand .

The annual OC emission limitation was established by multiplying the maximum annual sand usage rate (tons/yr) by an emission factor of 0.000313 ton OC/ton of sand.

If required, the permittee shall demonstrate compliance with the hourly OC emission limitation by testing in accordance with Methods 1-4, and 18, 25, or 25A, as appropriate, of 40 CFR Part 60, Appendix A.

e. Emission Limitations:

PE shall not exceed 0.38 lb/hr and 0.35 tpy.

Applicable Compliance Method:

The hourly PE limitation was established by multiplying the maximum hourly sand usage rate (lbs/hr) by an emission factor of 0.000178 lb PE/lb sand.

The annual PE limitation was established by multiplying the maximum annual sand usage rate (tons/yr) by an emission factor of 0.0000643 ton PE/ton of sand and 0.000153 lb OC/lb sand.

If required, the permittee shall demonstrate compliance with the hourly PE limitation by testing in accordance with Methods 1 - 5 of 40 CFR Part 60, Appendix A.

f. Emission Limitation:

Visible PE from the stack(s) serving this emissions unit shall not exceed 10% opacity as a 6-minute average, except as provided by rule.

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with the visible PE limitation in accordance with Method 9 of 40 CFR, Part 60, Appendix A.

g) Miscellaneous Requirements

(1) None.

6. Emissions Unit Group -Cold Box core machines group 1: P370, P371, P403, P404, P405, P430,

EU ID	Operations, Property and/or Equipment Description
P370	COLD BOX CORE MACHINE NO.92
P371	COLD BOX CORE MACHINE NO.91
P403	COLD BOX CORE MACHINE NO.116 (LORAMENDI CELL NO.8)
P404	COLD BOX CORE MACHINE NO.117 (LORAMENDI CELL NO.8)
P405	COLD BOX CORE MACHINE NO.118 (LORAMENDI CELL NO.8)
P430	COLD BOX CORE MACHINE NO.119 (LORAMENDI CELL NO.8)

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only:

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3)	The requirements of this rule also include compliance with the requirements of OAC rules 3745-17-07(A). Organic compound (OC) emissions shall not exceed 1207.90 tons per rolling 12-month period, for all the emissions units identified in b)(2)a., combined Particulate emissions (PE) shall not exceed 151.56 tons per rolling 12-month period, for all the emissions units identified in b)(2)a., combined. <u>From each emissions unit individually:</u> OC emissions shall not exceed 5.36 pounds per hour (lbs/hr) and 4.93 tons per year (tpy). PE shall not exceed 1.12 lbs/hr and 1.01 tpy. See b)(2)b., b)(2)c. and b)(2)d.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
b.	OAC rule 3745-17-07(A)	Visible PE from the stack(s) serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by rule.
c.	OAC rule 3745-17-11(B)	The emission limitation established by this rule is less stringent than the limitation established pursuant to OAC rule 3745-31-05(A)(3).

(2) Additional Terms and Conditions

a. The total PE and OC emission limitations shall apply to the following emissions units, combined: P122, P320, P321, P323, P324, P325, P329, P330, P331, P332, P333, P334, P335, P336, P337, P338, P339, P340, P353, P354, P355, P356, P358, P369, P370, P371, P372, P374, P375, P379, P383, P384, P385, P386, P387, P388, P390, P394, P395, P396, P397, P398, P399, P401, P402, P403, P404, P405, P406, P430, P434, P435, P436, P442, P443, P444, P445, P446, P448, P449, P450, P451. These emissions units comprise the Plant 1 core room operations.

b. Best available technology (BAT) has been determined to be the use of a catalyst gas scrubber designed for the control of catalyst gas on cold box core machines.

c. For the purposes of federal enforceability, all OC emissions shall be considered to be volatile organic compounds (VOC) emissions.

d. The hourly and annual PE and OC emission limitations were established for PTI purposes to reflect the emissions unit's potentials to emit. Therefore, it is not necessary to develop monitoring, record keeping and/or reporting requirements to ensure compliance with these emission limitations.

c) Operational Restrictions

(1) The annual quantity of sand processed for Plant 1 core room operations (i.e., all the emissions units listed in b)(2)a., combined) shall not exceed 1,024,555 tons, based upon a rolling, 12-month summation of the monthly rates of sand throughput.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall collect and record the following each month for the Plant 1 core room operations (i.e., all the emissions units listed in b)(2)a., combined):

a. the total quantity of sand processed, in tons; and

b. the quantity of sand processed, in tons, based on a rolling, 12-month summation of the monthly rates of sand processed.

(2) In addition to the above information, the permittee shall also record the following information each month for all the emissions units listed in b)(2)a., combined:

a. the quantity of sand processed in the hot box core machines (i.e., the amount from d)(1)a. used in the hot box core machines), in tons;

b. the quantity of sand processed in the cold box core machines (i.e., the amount from d)(1)a. used in the cold box core machines), in tons;

c. the calculated emission rate for OC, in tons, determined by the following equation:

TOCE = [{d)(2)a.} x {Q + R}] + [{d)(2)b.} x {S}] + [{d)(1)a.} x {T}]

where:

TOCE = total organic compound emissions, in tons

Q* = OC emission factor, 0.001347 ton OC/ton sand processed (for hot box core machine operations)

R* = OC emission factor, 0.000416 ton OC/ton sand processed (for hot box conveyors)

S* = OC emission factor, 0.000313 ton OC/ton sand processed (for cold box core machine operations)

T* = OC emission factor for OC, 0.000148 ton OC/ton sand processed (for core oven operations)

d. the calculated emission rate for PE, in tons, determined by the following equation:

TPE = [{d)(2)a.} x {U}] + [{d)(2)b.} x {V}] + [{d)(1)a.} x {W}]

where:

TPE = total PE, in tons

U** = PE emission factor, 0.000153 ton PE/ton sand processed (for hot box core machine operations)

V** = PE emission factor, 0.0000643 ton PE/ton sand processed (for cold box core machine operations)

W** = PE emission factor, 0.0000396 ton PE/ton sand processed (for core oven operations)

e. the rolling, 12-month OC emission rate, in tons; and

f. the rolling, 12-month PE rate, in tons.

*These emission factors were contained in the BAT document submitted and approved in 2002 as part of permit application #03-14001. The OC emission factors reflected in this permit are derived from various emission test runs for the hot and cold box core machines and core dip drying ovens. These tests were conducted using USEPA Method 25A, 40 CFR, Part 60, Appendix A, calibrated to propane, for OC emissions.

**These emission factors were contained in the BAT document submitted and approved in 2002 as part of permit application #03-14001. The OC emission factors reflected in this permit are derived from various emission test runs for the hot and cold box core machines and core dip drying ovens. These tests were conducted using USEPA Methods 1 - 5, 40 CFR, Part 60, Appendix A for PE.

(3) The permittee shall properly operate and maintain equipment to continuously monitor the liquor pH and the scrubber liquor flow rate while the emissions unit is in operation. The monitoring devices and any recorders shall be calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.

The permittee shall collect and record the following information each day:

a. the catalyst gas scrubber liquor pH, on a once-per-shift basis;

b. the catalyst gas scrubber liquor flow rate, in gallons per minute, on a once-per-shift basis; and

c. the operating times for the capture (collection) system, control device, monitoring equipment, and the associated emissions unit.

(4) Whenever the monitored values for the catalyst gas scrubber liquor pH and catalyst gas scrubber liquor flow rate deviate from the range specified below, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

a. the date and time the deviation began;

b. the magnitude of the deviation at that time;

c. the date(s) the investigation was conducted;

d. the names of the personnel who conducted the investigation; and

e. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable ranges specified below, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

a. a description of the corrective action;

b. the date the corrective action was completed;

c. the date and time the deviation ended;

d. the total period of time (in minutes) during which there was a deviation;

e. the catalyst gas scrubber liquor pH and catalyst gas scrubber liquor flow rate immediately after the corrective action; and

f. the names of the personnel who performed the work.

Investigation and records required by this paragraph does not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

The catalyst gas scrubber recirculating liquor pH shall be continuously maintained at a value of less than or equal to 5 at all times while the emissions unit is in operation, or as established during the most recent performance test that demonstrated the emissions unit was in compliance.

The catalyst gas scrubber liquor flow rate shall be continuously maintained at a value of not less than 3 gallons per minute per 1,000 cfm of gas flow at all times while the emissions unit is in operation, or as established during the most recent performance test that demonstrated the emissions unit was in compliance.

These ranges are effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the appropriate Ohio EPA District Office or local air agency. The permittee may request revisions to the ranges based upon information obtained during future tests that demonstrate compliance with the allowable VOC emission rate for this emissions unit. In addition, approved revisions to the ranges will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that identify the following:

a. all exceedances of the rolling, 12-month sand throughput restriction of 1,024,555 tons;

b. all exceedances of the rolling, 12-month emission limitations for PE and OC of 151.56 tons and 1207.90 tons, respectively;

c. each period of time (start time and date, and end time and date)when the liquid flow rate, or the liquid pH was/were outside of the appropriate range or exceeded the applicable limit contained in this permit;

d. any period of time (start time and date, and end time and date)when the emissions unit(s) was/were in operation and the process emissions were not vented to the scrubber;

e. each incident of deviation described in "c" or "d" (above) where a prompt investigation was not conducted;

f. each incident of deviation described in "c" or "d" where prompt corrective action, that would bring the liquid flow rate,and/or scrubber liquid pH into compliance with the acceptable range, was determined to be necessary and was not taken; and

g. each incident of deviation described in "c" or "d" where proper records were not maintained for the investigation and/or the corrective action(s), as identified in the monitoring and record keeping requirements of this permit.

The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.

(2) Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) shall be determined in accordance with the following methods:

a. Emission Limitation:

1,024,555 tons of sand per rolling 12-month period.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d)(1) of this permit.

b. Emission Limitation:

OC emissions shall not exceed 1,207.90 tons per rolling 12-month period.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d)(2) of this permit.

c. Emission Limitation:

PE shall not exceed 151.56 tons per rolling 12-month period.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d)(2) of this permit.

d. Emission Limitations:

OC emissions shall not exceed 5.36 lbs/hr and 4.93 tpy from each emissions unit individually.

Applicable Compliance Method:

The hourly OC emission limitation was established by multiplying the maximum hourly sand usage rate (lbs/hr) by an emission factor of 0.00085 lb OC/lb sand.

The annual OC emission limitation was established by multiplying the maximum annual sand usage rate (tons/yr) by an emission factor of 0.000313 ton OC/ton of sand.

If required, the permittee shall demonstrate compliance with the hourly OC emission limitation by testing in accordance with Methods 1-4, and 18, 25, or 25A, as appropriate, of 40 CFR Part 60, Appendix A.

e. Emission Limitations:

PE shall not exceed 1.12 lbs/hr and 1.01 tpy from each emissions unit individually.

Applicable Compliance Method:

The hourly PE limitation was established by multiplying the maximum hourly sand usage rate (lbs/hr) by an emission factor of 0.000178 lb PE/lb sand.

The annual PE limitation was established by multiplying the maximum annual sand usage rate (tons/yr) by an emission factor of 0.0000643 ton PE/ton of sand.

If required, the permittee shall demonstrate compliance with the hourly PE limitation by testing in accordance with Methods 1 - 5 of 40 CFR Part 60, Appendix A.

f. Emission Limitation:

Visible PE from the stack(s) serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by rule.

Applicable Compliance Method:

If required, compliance shall be demonstrated in accordance with OAC rule 3745-17-03(B)(1).

g) Miscellaneous Requirements

(1) None.

7. Emissions Unit Group -Cold box core machines group 2: P372, P374, P375,

EU ID	Operations, Property and/or Equipment Description
P372	COLD BOX CORE MACHINE NO.85
P374	COLD BOX CORE MACHINE 87
P375	COLD BOX CORE MACHINE 88

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3)	The requirements of this rule also include compliance with the requirements of OAC rules 3745-17-07(A). Organic compound (OC) emissions shall not exceed 1207.90 tons per rolling 12-month period, for all the emissions units identified in b)(2)a., combined. Particulate emissions (PE) shall not exceed 151.56 tons per rolling 12-month period, for all the emissions units identified in b)(2)a., combined. <u>From each emissions unit individually:</u> OC emissions shall not exceed 7.42 pounds per hour (lbs/hr) and 6.83 tons per year (tpy). PE shall not exceed 5.63 lbs/hr and 3.91 tpy. See b)(2)b., b)(2)c. and b)(2)d.
b.	OAC rule 3745-17-07(A)	Visible PE from the stack(s) serving this emissions unit shall not exceed 20%

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		opacity as a 6-minute average, except as provided by rule.
c.	OAC rule 3745-17-11(B)	The emission limitation established by this rule is less stringent than the limitation established pursuant to OAC rule 3745-31-05(A)(3).

(2) Additional Terms and Conditions

a. The total PE and OC emission limitations shall apply to the following emissions units, combined: P122, P320, P321, P323, P324, P325, P329, P330, P331, P332, P333, P334, P335, P336, P337, P338, P339, P340, P353, P354, P355, P356, P358, P369, P370, P371, P372, P374, P375, P379, P383, P384, P385, P386, P387, P388, P390, P394, P395, P396, P397, P398, P399, P401, P402, P403, P404, P405, P406, P430, P434, P435, P436, P442, P443, P444, P445, P446, P448, P449, P450 and P451. These emissions units comprise the Plant 1 core room operations.

b. Best available technology (BAT) has been determined to be the use of a catalyst gas scrubber designed for the control of catalyst gas on cold box core machines.

c. For the purposes of federal enforceability, all OC emissions shall be considered to be volatile organic compounds (VOC) emissions.

d. The hourly and annual PE and OC emission limitations were established for PTI purposes to reflect the emissions unit's potentials to emit. Therefore, it is not necessary to develop monitoring, record keeping and/or reporting requirements to ensure compliance with these emission limitations.

c) Operational Restrictions

(1) The annual quantity of sand processed for Plant 1 core room operations (i.e., all the emissions units listed in b)(2)a., combined) shall not exceed 1,024,555 tons, based upon a rolling, 12-month summation of the monthly rates of sand throughput.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall collect and record the following each month for the Plant 1 core room operations (i.e., all the emissions units listed in b)(2)a., combined):

a. the total quantity of sand processed, in tons; and

b. the quantity of sand processed, in tons, based on a rolling, 12-month summation of the monthly rates of sand processed.

(2) In addition to the above information, the permittee shall also record the following information each month for all the emissions units listed in b)(2)a., combined:

a. the quantity of sand processed in the hot box core machines (i.e., the amount from d)(1)a. used in the hot box core machines), in tons;

b. the quantity of sand processed in the cold box core machines (i.e., the amount from d)(1)a. used in the cold box core machines), in tons;

c. the calculated emission rate for OC, in tons, determined by the following equation:

TOCE = [{d)(2)a.} x {Q + R}] + [{d)(2)b.} x {S}] + [{d)(1)a.} x {T}]

where:

TOCE = total organic compound emissions, in tons

Q* = OC emission factor, 0.001347 ton OC/ton sand processed (for hot box core machine operations)

R* = OC emission factor, 0.000416 ton OC/ton sand processed (for hot box conveyors)

S* = OC emission factor, 0.000313 ton OC/ton sand processed (for cold box core machine operations)

T* = OC emission factor for OC, 0.000148 ton OC/ton sand processed (for core oven operations)

d. the calculated emission rate for PE, in tons, determined by the following equation:

TPE = [{d)(2)a.} x {U}] + [{d)(2)b.} x {V}] + [{d)(1)a.} x {W}]

where:

TPE = total PE, in tons

U** = PE emission factor, 0.000153 ton PE/ton sand processed (for hot box core machine operations)

V** = PE emission factor, 0.0000643 ton PE/ton sand processed (for cold box core machine operations)

W** = PE emission factor, 0.0000396 ton PE/ton sand processed (for core oven operations)

e. the rolling, 12-month OC emission rate, in tons; and

f. the rolling, 12-month PE rate, in tons.

*These emission factors were contained in the BAT document submitted and approved in 2002 as part of permit application #03-14001. The OC emission factors reflected in

this permit are derived from various emission test runs for the hot and cold box core machines and core dip drying ovens. These tests were conducted using USEPA Method 25A, 40 CFR, Part 60, Appendix A, calibrated to propane, for OC emissions.

**These emission factors were contained in the BAT document submitted and approved in 2002 as part of permit application #03-14001. The OC emission factors reflected in this permit are derived from various emission test runs for the hot and cold box core machines and core dip drying ovens. These tests were conducted using USEPA Methods 1 - 5, 40 CFR, Part 60, Appendix A for PE.

(3) The permittee shall properly operate and maintain equipment to continuously monitor the liquor pH and the scrubber liquor flow rate while the emissions unit is in operation. The monitoring devices and any recorders shall be calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.

The permittee shall collect and record the following information each day:

a. the catalyst gas scrubber liquor pH, on a once-per-shift basis;

b. the catalyst gas scrubber liquor flow rate, in gallons per minute, on a once-per-shift basis; and

c. the operating times for the capture (collection) system, control device, monitoring equipment, and the associated emissions unit.

(4) Whenever the monitored values for the catalyst gas scrubber liquor pH and catalyst gas scrubber liquor flow rate deviate from the range specified below, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

a. the date and time the deviation began;

b. the magnitude of the deviation at that time;

c. the date(s) the investigation was conducted;

d. the names of the personnel who conducted the investigation; and

e. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable ranges specified below, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

a. a description of the corrective action;

b. the date the corrective action was completed;

c. the date and time the deviation ended;

d. the total period of time (in minutes) during which there was a deviation;

e. the catalyst gas scrubber liquor pH and catalyst gas scrubber liquor flow rate immediately after the corrective action; and

f. the names of the personnel who performed the work.

Investigation and records required by this paragraph does not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

The catalyst gas scrubber recirculating liquor pH shall be continuously maintained at a value of less than or equal to 5 at all times while the emissions unit is in operation, or as established during the most recent performance test that demonstrated the emissions unit was in compliance.

The catalyst gas scrubber liquor flow rate shall be continuously maintained at a value of not less than 3 gallons per minute per 1,000 cfm of gas flow at all times while the emissions unit is in operation, or as established during the most recent performance test that demonstrated the emissions unit was in compliance.

These ranges are effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the appropriate Ohio EPA District Office or local air agency. The permittee may request revisions to the ranges based upon information obtained during future tests that demonstrate compliance with the allowable VOC emission rate for this emissions unit. In addition, approved revisions to the ranges will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that identify the following:

a. all exceedances of the rolling, 12-month sand throughput restriction of 1,024,555 tons;

b. all exceedances of the rolling, 12-month emission limitations for PE and OC of 151.56 tons and 1207.90 tons, respectively;

c. each period of time (start time and date, and end time and date)when the liquid flow rate, or the liquid pH was/were outside of the appropriate range or exceeded the applicable limit contained in this permit;

d. any period of time (start time and date, and end time and date)when the emissions unit(s) was/were in operation and the process emissions were not vented to the scrubber;

e. each incident of deviation described in "c" or "d" (above) where a prompt investigation was not conducted;

f. each incident of deviation described in "c" or "d" where prompt corrective action, that would bring the liquid flow rate,and/or scrubber liquid pH into compliance with the acceptable range, was determined to be necessary and was not taken; and

g. each incident of deviation described in "c" or "d" where proper records were not maintained for the investigation and/or the corrective action(s), as identified in the monitoring and record keeping requirements of this permit.

The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.

(2) Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.

f) Testing Requirements

(1) Compliance with the emission limitations specified in b)(1) shall be determined in accordance with the following compliance methods:

a. Emission Limitation:

1,024,555 tons of sand per rolling 12-month period

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d)(1) of this permit.

b. Emission Limitation:

OC emissions shall not exceed 1,207.90 tons per rolling 12-month period.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d)(2) of this permit.

c. Emission Limitation:

PE shall not exceed 151.56 tons per rolling 12-month period.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d)(2) of this permit.

d. Emission Limitations:

OC emissions shall not exceed 7.42 lbs/hr and 6.83 tpy from each emissions unit individually.

Applicable Compliance Method:

The hourly OC emission limitation was established by multiplying the maximum hourly sand usage rate (lbs/hr) by an emission factor of 0.00085 lb OC/lb sand.

The annual OC emission limitation was established by multiplying the maximum annual sand usage rate (tons/yr) by an emission factor of 0.000313 ton OC/ton of sand.

If required, the permittee shall demonstrate compliance with the hourly OC emission limitation by testing in accordance with Methods 1-4, and 18, 25, or 25A, as appropriate, of 40 CFR Part 60, Appendix A.

e. Emission Limitations:

PE shall not exceed 5.63 lbs/hr and 3.91 tpy from each emissions unit individually.

Applicable Compliance Method:

The hourly PE limitation was established by multiplying the maximum hourly sand usage rate (lbs/hr) by an emission factor of 0.000178 lb PE/lb sand.

The annual PE limitation was established by multiplying the maximum annual sand usage rate (tons/yr) by an emission factor of 0.0000643 ton PE/ton of sand.

If required, the permittee shall demonstrate compliance with the hourly PE limitation by testing in accordance with Methods 1 - 5 of 40 CFR Part 60, Appendix A.

f. Emission Limitation:

Visible PE from the stack(s) serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by rule.

Applicable Compliance Method:

If required, compliance shall be demonstrated in accordance with OAC rule 3745-17-03(B)(1).

g) Miscellaneous Requirements

(1) None.

8. Emissions Unit Group -Cold box core machines group 3: P394, P395, P397, P398,

EU ID	Operations, Property and/or Equipment Description
P394	COLD BOX CORE MACHINE NO.104/105/106 (LORAMENDI CELL NO. 4)
P395	COLD BOX CORE MACHINE NO.107/108/109 (LORAMENDI CELL NO. 5)
P397	COLD BOX CORE MACHINE NO.110/111/112 (LORAMENDI CELL NO.6)
P398	COLD BOX CORE MACHINE NO.113/114/115 (LORAMENDI CELL NO.7)

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only:

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3)	The requirements of this rule also include compliance with the requirements of OAC rules 3745-17-07(A). Organic compound (OC) emissions shall not exceed 1207.90 tons per rolling 12-month period, for all the emissions units identified in b)(2)a., combined. Particulate emissions (PE) shall not exceed 151.56 tons per rolling 12-month period, for all the emissions units identified in b)(2)a., combined. <u>From each emissions unit individually:</u> OC emissions shall not exceed 10.20 pounds per hour (lbs/hr) and 9.39 tons per year (tpy). PE shall not exceed 2.14 lbs/hr and 1.93 tpy. See b)(2)b., b)(2)c. and b)(2)d.
b.	OAC rule 3745-17-07(A)	Visible PE from the stack(s) serving this emissions unit shall not exceed 20%

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		opacity as a 6-minute average, except as provided by rule.
c.	OAC rule 3745-17-11(B)	The emission limitation established by this rule is less stringent than the limitation established pursuant to OAC rule 3745-31-05(A)(3).

(2) Additional Terms and Conditions

a. The total PE and OC emission limitations shall apply to the following emissions units, combined: P122, P320, P321, P323, P324, P325, P329, P330, P331, P332, P333, P334, P335, P336, P337, P338, P339, P340, P353, P354, P355, P356, P358, P369, P370, P371, P372, P374, P375, P379, P383, P384, P385, P386, P387, P388, P390, P394, P395, P396, P397, P398, P399, P401, P402, P403, P404, P405, P406, P430, P434, P435, P436, P442, P443, P444, P445, P446, P448, P449, P450 and P451. These emissions units comprise the Plant 1 core room operations.

b. Best available technology (BAT) has been determined to be the use of a catalyst gas scrubber designed for the control of catalyst gas on cold box core machines.

c. For the purposes of federal enforceability, all OC emissions shall be considered to be volatile organic compounds (VOC) emissions.

d. The hourly and annual PE and OC emission limitations were established for PTI purposes to reflect the emissions unit's potentials to emit. Therefore, it is not necessary to develop monitoring, record keeping and/or reporting requirements to ensure compliance with these emission limitations.

c) Operational Restrictions

(1) The annual quantity of sand processed for Plant 1 core room operations (i.e., all the emissions units listed in b)(2)a., combined) shall not exceed 1,024,555 tons, based upon a rolling, 12-month summation of the monthly rates of sand throughput.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall collect and record the following each month for the Plant 1 core room operations (i.e., all the emissions units listed in b)(2)a., combined):

a. the total quantity of sand processed, in tons; and

b. the quantity of sand processed, in tons, based on a rolling, 12-month summation of the monthly rates of sand processed.

(2) In addition to the above information, the permittee shall also record the following information each month for all the emissions units listed in b)(2)a., combined:

a. the quantity of sand processed in the hot box core machines (i.e., the amount from d)(1)a. used in the hot box core machines), in tons;

b. the quantity of sand processed in the cold box core machines (i.e., the amount from d)(1)a. used in the cold box core machines), in tons;

c. the calculated emission rate for OC, in tons, determined by the following equation:

TOCE = [{d)(2)a.} x {Q + R}] + [{d)(2)b.} x {S}] + [{d)(1)a.} x {T}]

where:

TOCE = total organic compound emissions, in tons

Q* = OC emission factor, 0.001347 ton OC/ton sand processed (for hot box core machine operations)

R* = OC emission factor, 0.000416 ton OC/ton sand processed (for hot box conveyors)

S* = OC emission factor, 0.000313 ton OC/ton sand processed (for cold box core machine operations)

T* = OC emission factor for OC, 0.000148 ton OC/ton sand processed (for core oven operations)

d. the calculated emission rate for PE, in tons, determined by the following equation:

TPE = [{d)(2)a.} x {U}] + [{d)(2)b.} x {V}] + [{d)(1)a.} x {W}]

where:

TPE = total PE, in tons

U** = PE emission factor, 0.000153 ton PE/ton sand processed (for hot box core machine operations)

V** = PE emission factor, 0.0000643 ton PE/ton sand processed (for cold box core machine operations)

W** = PE emission factor, 0.0000396 ton PE/ton sand processed (for core oven operations)

e. the rolling, 12-month OC emission rate, in tons; and

f. the rolling, 12-month PE rate, in tons.

*These emission factors were contained in the BAT document submitted and approved in 2002 as part of permit application #03-14001. The OC emission factors reflected in

this permit are derived from various emission test runs for the hot and cold box core machines and core dip drying ovens. These tests were conducted using USEPA Method 25A, 40 CFR, Part 60, Appendix A, calibrated to propane, for OC emissions.

**These emission factors were contained in the BAT document submitted and approved in 2002 as part of permit application #03-14001. The OC emission factors reflected in this permit are derived from various emission test runs for the hot and cold box core machines and core dip drying ovens. These tests were conducted using USEPA Methods 1 - 5, 40 CFR, Part 60, Appendix A for PE.

(3) The permittee shall properly operate and maintain equipment to continuously monitor the liquor pH and the scrubber liquor flow rate while the emissions unit is in operation. The monitoring devices and any recorders shall be calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.

The permittee shall collect and record the following information each day:

a. the catalyst gas scrubber liquor pH, on a once-per-shift basis;

b. the catalyst gas scrubber liquor flow rate, in gallons per minute, on a once-per-shift basis; and

c. the operating times for the capture (collection) system, control device, monitoring equipment, and the associated emissions unit.

(4) Whenever the monitored values for the catalyst gas scrubber liquor pH and catalyst gas scrubber liquor flow rate deviate from the range specified below, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

a. the date and time the deviation began;

b. the magnitude of the deviation at that time;

c. the date(s) the investigation was conducted;

d. the names of the personnel who conducted the investigation; and

e. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable ranges specified below, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

a. a description of the corrective action;

b. the date the corrective action was completed;

c. the date and time the deviation ended;

d. the total period of time (in minutes) during which there was a deviation;

e. the catalyst gas scrubber liquor pH and catalyst gas scrubber liquor flow rate immediately after the corrective action; and

f. the names of the personnel who performed the work.

Investigation and records required by this paragraph does not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

The catalyst gas scrubber recirculating liquor pH shall be continuously maintained at a value of less than or equal to 5 at all times while the emissions unit is in operation, or as established during the most recent performance test that demonstrated the emissions unit was in compliance.

The catalyst gas scrubber liquor flow rate shall be continuously maintained at a value of not less than 3 gallons per minute per 1,000 cfm of gas flow at all times while the emissions unit is in operation, or as established during the most recent performance test that demonstrated the emissions unit was in compliance.

These ranges are effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the appropriate Ohio EPA District Office or local air agency. The permittee may request revisions to the ranges based upon information obtained during future tests that demonstrate compliance with the allowable VOC emission rate for this emissions unit. In addition, approved revisions to the ranges will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that identify the following:

a. all exceedances of the rolling, 12-month sand throughput restriction of 1,024,555 tons;

b. all exceedances of the rolling, 12-month emission limitations for PE and OC of 151.56 tons and 1207.90 tons, respectively;

c. each period of time (start time and date, and end time and date)when the liquid flow rate, or the liquid pH was/were outside of the appropriate range or exceeded the applicable limit contained in this permit;

d. any period of time (start time and date, and end time and date)when the emissions unit(s) was/were in operation and the process emissions were not vented to the scrubber;

e. each incident of deviation described in "c" or "d" (above) where a prompt investigation was not conducted;

f. each incident of deviation described in "c" or "d" where prompt corrective action, that would bring the liquid flow rate,and/or scrubber liquid pH into compliance with the acceptable range, was determined to be necessary and was not taken; and

g. each incident of deviation described in "c" or "d" where proper records were not maintained for the investigation and/or the corrective action(s), as identified in the monitoring and record keeping requirements of this permit.

The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.

(2) Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) shall be determined in accordance with the following methods:

a. Emission Limitation:

1,024,555 tons of sand per rolling 12-month period

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d)(1) of this permit.

b. Emission Limitation:

OC emissions shall not exceed 1,207.90 tons per rolling 12-month period.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d)(2) of this permit.

c. Emission Limitation:

PE shall not exceed 51.56 tons per rolling 12-month period.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d)(2) of this permit.

d. Emission Limitations:

OC emissions shall not exceed 10.20 lbs/hr and 9.39 tpy from each emissions unit individually.

Applicable Compliance Method:

The hourly OC emission limitation was established by multiplying the maximum hourly sand usage rate (lbs/hr) by an emission factor of 0.00085 lb OC/lb sand.

The annual OC emission limitation was established by multiplying the maximum annual sand usage rate (tons/yr) by an emission factor of 0.000313 ton OC/ton of sand.

If required, the permittee shall demonstrate compliance with the hourly OC emission limitation by testing in accordance with Methods 1-4, and 18, 25, or 25A, as appropriate, of 40 CFR Part 60, Appendix A.

e. Emission Limitations:

PE shall not exceed 2.14 lbs/hr and 1.93 tpy from each emissions unit individually.

Applicable Compliance Method:

The hourly PE limitation was established by multiplying the maximum hourly sand usage rate (lbs/hr) by an emission factor of 0.000178 lb PE/lb sand.

The annual PE limitation was established by multiplying the maximum annual sand usage rate (tons/yr) by an emission factor of 0.0000643 ton PE/ton of sand.

If required, the permittee shall demonstrate compliance with the hourly PE limitation by testing in accordance with Methods 1 - 5 of 40 CFR Part 60, Appendix A.

f. Emission Limitation:

Visible PE from the stack(s) serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by rule.

Applicable Compliance Method:

If required, compliance shall be demonstrated in accordance with OAC rule 3745-17-03(B)(1).

g) Miscellaneous Requirements

(1) None.

9. Emissions Unit Group -Cold box core machines group 4: P434, P435,

EU ID	Operations, Property and/or Equipment Description
P434	COLD BOX CORE MACHINE NO.120
P435	COLD BOX CORE MACHINE NO.121

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only:

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3)	Organic compound (OC) emissions shall not exceed 1207.90 tons per rolling 12-month period, for all the emissions units identified in b)(2)a., combined. Particulate emissions (PE) shall not exceed 151.56 tons per rolling 12-month period, for all the emissions units identified in b)(2)a., combined. <u>From each emissions unit individually:</u> OC emissions shall not exceed 2.75 pounds per hour (lbs/hr) and 2.54 tons per year (tpy). PE shall not exceed 0.58 lb/hr and 0.52 tpy. Visible PE from the stack(s) serving this emissions unit shall not exceed 10% opacity, as a 6-minute average, except as provided by rule. See b)(2)b. and b)(2)c.
b.	OAC rule 3745-17-07(A)	The visible PE established by this rule is less stringent than the visible PE

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		established pursuant to OAC rule 3745-31-05(A)(3).
c.	OAC rule 3745-17-11(B)	The emission limitation established by this rule is less stringent than the limitation established pursuant to OAC rule 3745-31-05(A)(3).

(2) Additional Terms and Conditions

a. The total PE and OC emission limitations shall apply to the following emissions units, combined: P122, P320, P321, P323, P324, P325, P329, P330, P331, P332, P333, P334, P335, P336, P337, P338, P339, P340, P353, P354, P355, P356, P358, P369, P370, P371, P372, P374, P375, P379, P383, P384, P385, P386, P387, P388, P390, P394, P395, P396, P397, P398, P399, P401, P402, P403, P404, P405, P406, P430, P434, P435, P436, P442, P443, P444, P445, P446, P448, P449, P450 and P451. These emissions units comprise the Plant 1 core room operations.

b. Best available technology (BAT) has been determined to be the use of a catalyst gas scrubber designed for the control of catalyst gas on cold box core machines.

c. For the purposes of federal enforceability, all OC emissions shall be considered to be volatile organic compounds (VOC) emissions.

The hourly and annual PE and OC emission limitations were established for PTI purposes to reflect the emissions unit's potentials to emit. Therefore, it is not necessary to develop monitoring, record keeping and/or reporting requirements to ensure compliance with these emission limitations.

c) Operational Restrictions

(1) The annual quantity of sand processed for Plant 1 core room operations (i.e., all the emissions units listed in b)(2)a., combined) shall not exceed 1,024,555 tons, based upon a rolling, 12-month summation of the monthly rates of sand throughput.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall collect and record the following each month for the Plant 1 core room operations (i.e., all the emissions units listed in b)(2)a., combined):

a. the total quantity of sand processed, in tons; and

b. the quantity of sand processed, in tons, based on a rolling, 12-month summation of the monthly rates of sand processed.

(2) In addition to the above information, the permittee shall also record the following information each month for all the emissions units listed in b)(2)a., combined:

a. the quantity of sand processed in the hot box core machines (i.e., the amount from d)(1)a. used in the hot box core machines), in tons;

b. the quantity of sand processed in the cold box core machines (i.e., the amount from d)(1)a. used in the cold box core machines), in tons;

c. the calculated emission rate for OC, in tons, determined by the following equation:

TOCE = [{d)(2)a.} x {Q + R}] + [{d)(2)b.} x {S}] + [{d)(1)a.} x {T}]

where:

TOCE = total organic compound emissions, in tons

Q* = OC emission factor, 0.001347 ton OC/ton sand processed (for hot box core machine operations)

R* = OC emission factor, 0.000416 ton OC/ton sand processed (for hot box conveyors)

S* = OC emission factor, 0.000313 ton OC/ton sand processed (for cold box core machine operations)

T* = OC emission factor for OC, 0.000148 ton OC/ton sand processed (for core oven operations)

d. the calculated emission rate for PE, in tons, determined by the following equation:

TPE = [{d)(2)a.} x {U}] + [{d)(2)b.} x {V}] + [{d)(1)a.} x {W}]

where:

TPE = total PE, in tons

U** = PE emission factor, 0.000153 ton PE/ton sand processed (for hot box core machine operations)

V** = PE emission factor, 0.0000643 ton PE/ton sand processed (for cold box core machine operations)

W** = PE emission factor, 0.0000396 ton PE/ton sand processed (for core oven operations)

e. the rolling, 12-month OC emission rate, in tons; and

f. the rolling, 12-month PE rate, in tons.

*These emission factors were contained in the BAT document submitted and approved in 2002 as part of permit application #03-14001. The OC emission factors reflected in

this permit are derived from various emission test runs for the hot and cold box core machines and core dip drying ovens. These tests were conducted using USEPA Method 25A, 40 CFR, Part 60, Appendix A, calibrated to propane, for OC emissions.

**These emission factors were contained in the BAT document submitted and approved in 2002 as part of permit application #03-14001. The OC emission factors reflected in this permit are derived from various emission test runs for the hot and cold box core machines and core dip drying ovens. These tests were conducted using USEPA Methods 1 - 5, 40 CFR, Part 60, Appendix A for PE.

(3) The permittee shall properly operate and maintain equipment to continuously monitor the liquor pH and the scrubber liquor flow rate while the emissions unit is in operation. The monitoring devices and any recorders shall be calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.

The permittee shall collect and record the following information each day:

a. the catalyst gas scrubber liquor pH, on a once-per-shift basis;

b. the catalyst gas scrubber liquor flow rate, in gallons per minute, on a once-per-shift basis; and

c. the operating times for the capture (collection) system, control device, monitoring equipment, and the associated emissions unit.

(4) Whenever the monitored values for the catalyst gas scrubber liquor pH and catalyst gas scrubber liquor flow rate deviate from the range specified below, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

a. the date and time the deviation began;

b. the magnitude of the deviation at that time;

c. the date(s) the investigation was conducted;

d. the names of the personnel who conducted the investigation; and

e. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable ranges specified below, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

a. a description of the corrective action;

b. the date the corrective action was completed;

c. the date and time the deviation ended;

d. the total period of time (in minutes) during which there was a deviation;

e. the catalyst gas scrubber liquor pH and catalyst gas scrubber liquor flow rate immediately after the corrective action; and

f. the names of the personnel who performed the work.

Investigation and records required by this paragraph does not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

The catalyst gas scrubber recirculating liquor pH shall be continuously maintained at a value of less than or equal to 5 at all times while the emissions unit is in operation, or as established during the most recent performance test that demonstrated the emissions unit was in compliance.

The catalyst gas scrubber liquor flow rate shall be continuously maintained at a value of not less than 3 gallons per minute per 1,000 cfm of gas flow at all times while the emissions unit is in operation, or as established during the most recent performance test that demonstrated the emissions unit was in compliance.

These ranges are effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the appropriate Ohio EPA District Office or local air agency. The permittee may request revisions to the ranges based upon information obtained during future tests that demonstrate compliance with the allowable VOC emission rate for this emissions unit. In addition, approved revisions to the ranges will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that identify the following:

a. all exceedances of the rolling, 12-month sand throughput restriction of 1,024,555 tons;

b. all exceedances of the rolling, 12-month emission limitations for PE and OC of 151.56 tons and 1207.90 tons, respectively;

c. each period of time (start time and date, and end time and date)when the liquid flow rate, or the liquid pH was/were outside of the appropriate range or exceeded the applicable limit contained in this permit;

d. any period of time (start time and date, and end time and date)when the emissions unit(s) was/were in operation and the process emissions were not vented to the scrubber;

e. each incident of deviation described in "c" or "d" (above) where a prompt investigation was not conducted;

f. each incident of deviation described in "c" or "d" where prompt corrective action, that would bring the liquid flow rate,and/or scrubber liquid pH into compliance with the acceptable range, was determined to be necessary and was not taken; and

g. each incident of deviation described in "c" or "d" where proper records were not maintained for the investigation and/or the corrective action(s), as identified in the monitoring and record keeping requirements of this permit.

The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.

(2) Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) shall be determined in accordance with the following methods:

a. Emission Limitation:

1,024,555 tons of sand per rolling 12-month period

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d)(1) of this permit.

b. Emission Limitation:

OC emissions shall not exceed 1,207.90 tons per rolling 12-month period.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d)(2) of this permit.

c. Emission Limitation:

PE shall not exceed 151.56 tons per rolling 12-month period.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d)(2) of this permit.

d. Emission Limitations:

OC emissions shall not exceed 2.75 lbs/hr and 2.54 tpy from each emissions unit individually.

Applicable Compliance Method:

The hourly OC emission limitation was established by multiplying the maximum hourly sand usage rate (lbs/hr) by an emission factor of 0.00085 lb OC/lb sand.

The annual OC emission limitation was established by multiplying the maximum annual sand usage rate (tons/yr) by an emission factor of 0.000313 ton OC/ton of sand.

If required, the permittee shall demonstrate compliance with the hourly OC emission limitation by testing in accordance with Methods 1-4, and 18, 25, or 25A, as appropriate, of 40 CFR Part 60, Appendix A.

e. Emission Limitations:

PE shall not exceed 0.58 lb/hr and 0.52 tpy from each emissions unit individually.

Applicable Compliance Method:

The hourly PE limitation was established by multiplying the maximum hourly sand usage rate (lbs/hr) by an emission factor of 0.000178 lb PE/lb sand.

The annual PE limitation was established by multiplying the maximum annual sand usage rate (tons/yr) by an emission factor of 0.0000643 ton PE/ton of sand.

If required, the permittee shall demonstrate compliance with the hourly PE limitation by testing in accordance with Methods 1 - 5 of 40 CFR Part 60, Appendix A.

f. Emission Limitation:

Visible PE from the stack(s) serving this emissions unit shall not exceed 10% opacity as a 6-minute average, except as provided by rule.

Applicable Compliance Method:

If required, compliance shall be demonstrated in accordance with OAC rule 3745-17-03(B)(1).

g) Miscellaneous Requirements

(1) None.

10. Emissions Unit Group -Cold box core machine group 5: P442, P443, P444, P445, P446,

EU ID	Operations, Property and/or Equipment Description
P442	COLD BOX CORE MACHINE NO.55
P443	COLD BOX CORE MACHINE NO.56
P444	COLD BOX CORE MACHINE NO.57
P445	COLD BOX CORE MACHINE NO.58
P446	COLD BOX CORE MACHINE NO.59

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only:

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3)	The requirements of this rule also include compliance with the requirements of OAC rules 3745-17-07(A). Organic compound (OC) emissions shall not exceed 1207.90 tons per rolling 12-month period, for all the emissions units identified in b)(2)a., combined. Particulate emissions (PE) shall not exceed 151.56 tons per rolling 12-month period, for all the emissions units identified in b)(2)a., combined. <u>From each emissions unit individually:</u> OC emissions shall not exceed 3.83 pounds per hour (lbs/hr) and 3.52 tons per year (tpy). PE shall not exceed 0.80 lb/hr and 0.72tpy. See b)(2)b., b)(2)c. and b)(2)d.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
b.	OAC rule 3745-17-07(A)	Visible PE from the stack(s) serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by rule.
c.	OAC rule 3745-17-11(B)	The emission limitation established by this rule is less stringent than the limitation established pursuant to OAC rule 3745-31-05(A)(3).

(2) Additional Terms and Conditions

a. The total PE and OC emission limitations shall apply to the following emissions units, combined: P122, P320, P321, P323, P324, P325, P329, P330, P331, P332, P333, P334, P335, P336, P337, P338, P339, P340, P353, P354, P355, P356, P358, P369, P370, P371, P372, P374, P375, P379, P383, P384, P385, P386, P387, P388, P390, P394, P395, P396, P397, P398, P399, P401, P402, P403, P404, P405, P406, P430, P434, P435, P436, P442, P443, P444, P445, P446, P448, P449, P450 and P451. These emissions units comprise the Plant 1 core room operations.

b. Best available technology (BAT) has been determined to be the use of a catalyst gas scrubber designed for the control of catalyst gas on cold box core machines.

c. For the purposes of federal enforceability, all OC emissions shall be considered to be volatile organic compounds (VOC) emissions.

d. The hourly and annual PE and OC emission limitations were established for PTI purposes to reflect the emissions unit's potentials to emit. Therefore, it is not necessary to develop monitoring, record keeping and/or reporting requirements to ensure compliance with these emission limitations.

c) Operational Restrictions

(1) The annual quantity of sand processed for Plant 1 core room operations (i.e., all the emissions units listed in b)(2)a., combined) shall not exceed 1,024,555 tons, based upon a rolling, 12-month summation of the monthly rates of sand throughput.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall collect and record the following each month for the Plant 1 core room operations (i.e., all the emissions units listed in b)(2)a., combined):

a. the total quantity of sand processed, in tons; and

b. the quantity of sand processed, in tons, based on a rolling, 12-month summation of the monthly rates of sand processed.

(2) In addition to the above information, the permittee shall also record the following information each month for all the emissions units listed in b)(2)a., combined:

a. the quantity of sand processed in the hot box core machines (i.e., the amount from d)(1)a. used in the hot box core machines), in tons;

b. the quantity of sand processed in the cold box core machines (i.e., the amount from d)(1)a. used in the cold box core machines), in tons;

c. the calculated emission rate for OC, in tons, determined by the following equation:

TOCE = [{d)(2)a.} x {Q + R}] + [{d)(2)b.} x {S}] + [{d)(1)a.} x {T}]

where:

TOCE = total organic compound emissions, in tons

Q* = OC emission factor, 0.001347 ton OC/ton sand processed (for hot box core machine operations)

R* = OC emission factor, 0.000416 ton OC/ton sand processed (for hot box conveyors)

S* = OC emission factor, 0.000313 ton OC/ton sand processed (for cold box core machine operations)

T* = OC emission factor for OC, 0.000148 ton OC/ton sand processed (for core oven operations)

d. the calculated emission rate for PE, in tons, determined by the following equation:

TPE = [{d)(2)a.} x {U}] + [{d)(2)b.} x {V}] + [{d)(1)a.} x {W}]

where:

TPE = total PE, in tons

U** = PE emission factor, 0.000153 ton PE/ton sand processed (for hot box core machine operations)

V** = PE emission factor, 0.0000643 ton PE/ton sand processed (for cold box core machine operations)

W** = PE emission factor, 0.0000396 ton PE/ton sand processed (for core oven operations)

e. the rolling, 12-month OC emission rate, in tons; and

f. the rolling, 12-month PE rate, in tons.

*These emission factors were contained in the BAT document submitted and approved in 2002 as part of permit application #03-14001. The OC emission factors reflected in this permit are derived from various emission test runs for the hot and cold box core machines and core dip drying ovens. These tests were conducted using USEPA Method 25A, 40 CFR, Part 60, Appendix A, calibrated to propane, for OC emissions.

**These emission factors were contained in the BAT document submitted and approved in 2002 as part of permit application #03-14001. The OC emission factors reflected in this permit are derived from various emission test runs for the hot and cold box core machines and core dip drying ovens. These tests were conducted using USEPA Methods 1 - 5, 40 CFR, Part 60, Appendix A for PE.

(3) The permittee shall properly operate and maintain equipment to continuously monitor the liquor pH and the scrubber liquor flow rate while the emissions unit is in operation. The monitoring devices and any recorders shall be calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.

The permittee shall collect and record the following information each day:

a. the catalyst gas scrubber liquor pH, on a once-per-shift basis;

b. the catalyst gas scrubber liquor flow rate, in gallons per minute, on a once-per-shift basis; and

c. the operating times for the capture (collection) system, control device, monitoring equipment, and the associated emissions unit.

(4) Whenever the monitored values for the catalyst gas scrubber liquor pH and catalyst gas scrubber liquor flow rate deviate from the range specified below, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

a. the date and time the deviation began;

b. the magnitude of the deviation at that time;

c. the date(s) the investigation was conducted;

d. the names of the personnel who conducted the investigation; and

e. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable ranges specified below, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

a. a description of the corrective action;

b. the date the corrective action was completed;

c. the date and time the deviation ended;

d. the total period of time (in minutes) during which there was a deviation;

e. the catalyst gas scrubber liquor pH and catalyst gas scrubber liquor flow rate immediately after the corrective action; and

f. the names of the personnel who performed the work.

Investigation and records required by this paragraph does not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

The catalyst gas scrubber recirculating liquor pH shall be continuously maintained at a value of less than or equal to 5 at all times while the emissions unit is in operation, or as established during the most recent performance test that demonstrated the emissions unit was in compliance.

The catalyst gas scrubber liquor flow rate shall be continuously maintained at a value of not less than 3 gallons per minute per 1,000 cfm of gas flow at all times while the emissions unit is in operation, or as established during the most recent performance test that demonstrated the emissions unit was in compliance.

These ranges are effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the appropriate Ohio EPA District Office or local air agency. The permittee may request revisions to the ranges based upon information obtained during future tests that demonstrate compliance with the allowable VOC emission rate for this emissions unit. In addition, approved revisions to the ranges will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that identify the following:

a. all exceedances of the rolling, 12-month sand throughput restriction of 1,024,555 tons;

b. all exceedances of the rolling, 12-month emission limitations for PE and OC of 151.56 tons and 1207.90 tons, respectively;

c. each period of time (start time and date, and end time and date)when the liquid flow rate, or the liquid pH was/were outside of the appropriate range or exceeded the applicable limit contained in this permit;

d. any period of time (start time and date, and end time and date)when the emissions unit(s) was/were in operation and the process emissions were not vented to the scrubber;

e. each incident of deviation described in "c" or "d" (above) where a prompt investigation was not conducted;

f. each incident of deviation described in "c" or "d" where prompt corrective action, that would bring the liquid flow rate,and/or scrubber liquid pH into compliance with the acceptable range, was determined to be necessary and was not taken; and

g. each incident of deviation described in "c" or "d" where proper records were not maintained for the investigation and/or the corrective action(s), as identified in the monitoring and record keeping requirements of this permit.

The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.

(2) Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) shall be determined in accordance with the following methods:

a. Emission Limitation:

1,024,555 tons of sand per rolling 12-month period

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d)(1) of this permit.

b. Emission Limitation:

OC emissions shall not exceed 1,207.90 tons per rolling 12-month period.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d)(2) of this permit.

c. Emission Limitation:

PE shall not exceed 151.56 tons per rolling 12-month period.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d)(2) of this permit.

d. Emission Limitations:

OC emissions shall not exceed 3.83 lbs/hr and 3.52 tpy from each emissions unit individually.

Applicable Compliance Method:

The hourly OC emission limitation was established by multiplying the maximum hourly sand usage rate (lbs/hr) by an emission factor of 0.00085 lb OC/lb sand.

The annual OC emission limitation was established by multiplying the maximum annual sand usage rate (tons/yr) by an emission factor of 0.000313 ton OC/ton of sand.

If required, the permittee shall demonstrate compliance with the hourly OC emission limitation by testing in accordance with Methods 1-4, and 18, 25, or 25A, as appropriate, of 40 CFR Part 60, Appendix A.

e. Emission Limitations:

PE shall not exceed 0.80 lb/hr and 0.72 tpy from each emissions unit individually.

Applicable Compliance Method:

The hourly PE limitation was established by multiplying the maximum hourly sand usage rate (lbs/hr) by an emission factor of 0.000178 lb PE/lb sand.

The annual PE limitation was established by multiplying the maximum annual sand usage rate (tons/yr) by an emission factor of 0.0000643 ton PE/ton of sand.

If required, the permittee shall demonstrate compliance with the hourly PE limitation by testing in accordance with Methods 1 - 5 of 40 CFR Part 60, Appendix A.

f. Emission Limitation:

Visible PE from the stack(s) serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by rule.

Applicable Compliance Method:

If required, compliance shall be demonstrated in accordance with OAC rule 3745-17-03(B)(1).

g) Miscellaneous Requirements

(1) None.

11. Emissions Unit Group -Cold box core machines group 6: P379, P401,

EU ID	Operations, Property and/or Equipment Description
P379	COLD BOX CORE MACHINE NO.89
P401	COLD BOX CORE MACHINE NO.90

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only:

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3)	The requirements of this rule also include compliance with the requirements of OAC rules 3745-17-07(A). Organic compound (OC) emissions shall not exceed 1207.90 tons per rolling 12-month period, for all the emissions units identified in b)(2)a., combined. Particulate emissions (PE) shall not exceed 151.56 tons per rolling 12-month period, for all the emissions units identified in b)(2)a., combined. <u>From each emissions unit individually:</u> OC emissions shall not exceed 6.12 pounds per hour (lbs/hr) and 5.63 tons per year (tpy. PE shall not exceed 1.28 lbs/hr and 1.16 tpy. See b)(2)b., b)(2)c. and b)(2)d.
b.	OAC rule 3745-17-07(A)	Visible PE from the stack(s) serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		provided by rule.
c.	OAC rule 3745-17-11(B)	The emission limitation established by this rule is less stringent than the limitation established pursuant to OAC rule 3745-31-05(A)(3).

(2) Additional Terms and Conditions

a. The total PE and OC emission limitations shall apply to the following emissions units, combined: P122, P320, P321, P323, P324, P325, P329, P330, P331, P332, P333, P334, P335, P336, P337, P338, P339, P340, P353, P354, P355, P356, P358, P369, P370, P371, P372, P374, P375, P379, P383, P384, P385, P386, P387, P388, P390, P394, P395, P396, P397, P398, P399, P401, P402, P403, P404, P405, P406, P430, P434, P435, P436, P442, P443, P444, P445, P446, P448, P449, P450 and P451. These emissions units comprise the Plant 1 core room operations.

b. Best available technology (BAT) has been determined to be the use of a catalyst gas scrubber designed for the control of catalyst gas on cold box core machines.

c. For the purposes of federal enforceability, all OC emissions shall be considered to be volatile organic compounds (VOC) emissions.

d. The hourly and annual PE and OC emission limitations were established for PTI purposes to reflect the emissions unit's potentials to emit. Therefore, it is not necessary to develop monitoring, record keeping and/or reporting requirements to ensure compliance with these emission limitations.

c) Operational Restrictions

(1) The annual quantity of sand processed for Plant 1 core room operations (i.e., all the emissions units listed in b)(2)a., combined) shall not exceed 1,024,555 tons, based upon a rolling, 12-month summation of the monthly rates of sand throughput.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall collect and record the following each month for the Plant 1 core room operations (i.e., all the emissions units listed in b)(2)a., combined):

a. the total quantity of sand processed, in tons; and

b. the quantity of sand processed, in tons, based on a rolling, 12-month summation of the monthly rates of sand processed.

(2) In addition to the above information, the permittee shall also record the following information each month for all the emissions units listed in b)(2)a., combined:

a. the quantity of sand processed in the hot box core machines (i.e., the amount from d)(1)a. used in the hot box core machines), in tons;

b. the quantity of sand processed in the cold box core machines (i.e., the amount from d)(1)a. used in the cold box core machines), in tons;

c. the calculated emission rate for OC, in tons, determined by the following equation:

TOCE = [{d)(2)a.} x {Q + R}] + [{d)(2)b.} x {S}] + [{d)(1)a.} x {T}]

where:

TOCE = total organic compound emissions, in tons

Q* = OC emission factor, 0.001347 ton OC/ton sand processed (for hot box core machine operations)

R* = OC emission factor, 0.000416 ton OC/ton sand processed (for hot box conveyors)

S* = OC emission factor, 0.000313 ton OC/ton sand processed (for cold box core machine operations)

T* = OC emission factor for OC, 0.000148 ton OC/ton sand processed (for core oven operations)

d. the calculated emission rate for PE, in tons, determined by the following equation:

TPE = [{d)(2)a.} x {U}] + [{d)(2)b.} x {V}] + [{d)(1)a.} x {W}]

where:

TPE = total PE, in tons

U** = PE emission factor, 0.000153 ton PE/ton sand processed (for hot box core machine operations)

V** = PE emission factor, 0.0000643 ton PE/ton sand processed (for cold box core machine operations)

W** = PE emission factor, 0.0000396 ton PE/ton sand processed (for core oven operations)

e. the rolling, 12-month OC emission rate, in tons; and

f. the rolling, 12-month PE rate, in tons.

*These emission factors were contained in the BAT document submitted and approved in 2002 as part of permit application #03-14001. The OC emission factors reflected in

this permit are derived from various emission test runs for the hot and cold box core machines and core dip drying ovens. These tests were conducted using USEPA Method 25A, 40 CFR, Part 60, Appendix A, calibrated to propane, for OC emissions.

**These emission factors were contained in the BAT document submitted and approved in 2002 as part of permit application #03-14001. The OC emission factors reflected in this permit are derived from various emission test runs for the hot and cold box core machines and core dip drying ovens. These tests were conducted using USEPA Methods 1 - 5, 40 CFR, Part 60, Appendix A for PE.

(3) The permittee shall properly operate and maintain equipment to continuously monitor the liquor pH and the scrubber liquor flow rate while the emissions unit is in operation. The monitoring devices and any recorders shall be calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.

The permittee shall collect and record the following information each day:

a. the catalyst gas scrubber liquor pH, on a once-per-shift basis;

b. the catalyst gas scrubber liquor flow rate, in gallons per minute, on a once-per-shift basis; and

c. the operating times for the capture (collection) system, control device, monitoring equipment, and the associated emissions unit.

(4) Whenever the monitored values for the catalyst gas scrubber liquor pH and catalyst gas scrubber liquor flow rate deviate from the range specified below, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

a. the date and time the deviation began;

b. the magnitude of the deviation at that time;

c. the date(s) the investigation was conducted;

d. the names of the personnel who conducted the investigation; and

e. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable ranges specified below, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

a. a description of the corrective action;

b. the date the corrective action was completed;

c. the date and time the deviation ended;

d. the total period of time (in minutes) during which there was a deviation;

e. the catalyst gas scrubber liquor pH and catalyst gas scrubber liquor flow rate immediately after the corrective action; and

f. the names of the personnel who performed the work.

Investigation and records required by this paragraph does not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

The catalyst gas scrubber recirculating liquor pH shall be continuously maintained at a value of less than or equal to 5 at all times while the emissions unit is in operation, or as established during the most recent performance test that demonstrated the emissions unit was in compliance.

The catalyst gas scrubber liquor flow rate shall be continuously maintained at a value of not less than 3 gallons per minute per 1,000 cfm of gas flow at all times while the emissions unit is in operation, or as established during the most recent performance test that demonstrated the emissions unit was in compliance.

These ranges are effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the appropriate Ohio EPA District Office or local air agency. The permittee may request revisions to the ranges based upon information obtained during future tests that demonstrate compliance with the allowable VOC emission rate for this emissions unit. In addition, approved revisions to the ranges will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that identify the following:

a. all exceedances of the rolling, 12-month sand throughput restriction of 1,024,555 tons;

b. all exceedances of the rolling, 12-month emission limitations for PE and OC of 151.56 tons and 1207.90 tons, respectively;

c. each period of time (start time and date, and end time and date)when the liquid flow rate, or the liquid pH was/were outside of the appropriate range or exceeded the applicable limit contained in this permit;

d. any period of time (start time and date, and end time and date)when the emissions unit(s) was/were in operation and the process emissions were not vented to the scrubber;

e. each incident of deviation described in "c" or "d" (above) where a prompt investigation was not conducted;

f. each incident of deviation described in "c" or "d" where prompt corrective action, that would bring the liquid flow rate,and/or scrubber liquid pH into compliance with the acceptable range, was determined to be necessary and was not taken; and

g. each incident of deviation described in "c" or "d" where proper records were not maintained for the investigation and/or the corrective action(s), as identified in the monitoring and record keeping requirements of this permit.

The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.

(2) Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) shall be determined in accordance with the following methods:

a. Emission Limitation:

1,024,555 tons of sand per rolling 12-month period

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d)(1) of this permit.

b. Emission Limitation:

OC emissions shall not exceed 1,207.90 tons OC per rolling 12-month period.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d)(2) of this permit.

c. Emission Limitation:

PE shall not exceed 151.56 tons PE per rolling 12-month period.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d)(2) of this permit.

d. Emission Limitations:

OC emissions shall not exceed 6.12 lbs/hr and 5.63 tpy from each emissions unit individually.

Applicable Compliance Method:

The hourly OC emission limitation was established by multiplying the maximum hourly sand usage rate (lbs/hr) by an emission factor of 0.00085 lb OC/lb sand.

The annual OC emission limitation was established by multiplying the maximum annual sand usage rate (tons/yr) by an emission factor of 0.000313 ton OC/ton of sand.

If required, the permittee shall demonstrate compliance with the hourly OC emission limitation by testing in accordance with Methods 1-4, and 18, 25, or 25A, as appropriate, of 40 CFR Part 60, Appendix A.

e. Emission Limitation:

PE shall not exceed 1.28 lbs/hr and 1.16 tpy from each emissions unit individually.

Applicable Compliance Method:

The hourly PE limitation was established by multiplying the maximum hourly sand usage rate (lbs/hr) by an emission factor of 0.000178 lb PE/lb sand.

The annual PE limitation was established by multiplying the maximum annual sand usage rate (tons/yr) by an emission factor of 0.0000643 ton PE/ton of sand.

If required, the permittee shall demonstrate compliance with the hourly PE limitation by testing in accordance with Methods 1 - 5 of 40 CFR Part 60, Appendix A.

f. Emission Limitation:

Visible PE from the stack(s) serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by rule.

Applicable Compliance Method:

If required, compliance shall be demonstrated in accordance with OAC rule 3745-17-03(B)(1).

g) Miscellaneous Requirements

(1) None.