

John R. Kasich, Governor
Mary Taylor, Lt. Governor
Craig W. Butler, Interim Director

2/10/2014

Certified Mail

Mr. Arvind Patel
A&B Foundry and Machining, LLC
835 N. Main Street
Franklin, OH 45005

Yes	TOXIC REVIEW
No	SYNTHETIC MINOR TO AVOID MAJOR NSR
No	CEMS
No	MACT/GACT
No	NSPS
No	NESHAPS
No	NETTING
No	MODELING SUBMITTED
Yes	SYNTHETIC MINOR TO AVOID TITLE V
Yes	FEDERALLY ENFORCABLE PTIO (FEPTIO)
No	SYNTHETIC MINOR TO AVOID MAJOR GHG

RE: FINALAIR POLLUTION PERMIT-TO-INSTALL AND OPERATE

Facility ID: 1483040399
Permit Number: P0115788
Permit Type: Renewal
County: Warren

Dear Permit Holder:

Enclosed please find a final Ohio Environmental Protection Agency (EPA) Air Pollution Permit-to-Install and Operate (PTIO) which will allow you to install, modify, and/or operate the described emissions unit(s) in the manner indicated in the permit. Because this permit contains conditions and restrictions, please read it very carefully. In this letter you will find the information on the following topics:

- **How to appeal this permit**
- **How to save money, reduce pollution and reduce energy consumption**
- **How to give us feedback on your permitting experience**
- **How to get an electronic copy of your permit**

How to appeal this permit

The issuance of this PTIO 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
77 South High Street, 17th Floor
Columbus, OH 43215

How to save money, reduce pollution and reduce energy consumption

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. Additionally, all or a portion of the capital expenditures related to installing air pollution control equipment under this permit may be eligible for financing and State tax exemptions through the Ohio Air Quality Development Authority (OAQDA) under Ohio Revised Code Section 3706. For more information, see the OAQDA website: www.ohioairquality.org/clean_air

How to give us feedback on your permitting experience

Please complete a survey at www.epa.ohio.gov/survey.aspx and give us feedback on your permitting experience. We value your opinion.

How to get an electronic copy of your permit

This permit can be accessed electronically via the eBusiness Center: Air Services in Microsoft Word format or in Adobe PDF on the Division of Air Pollution Control (DAPC) Web page, www.epa.ohio.gov/dapc by clicking the "Search for Permits" link under the Permitting topic on the Programs tab.

If you have any questions, please contact Southwest Ohio Air Quality Agency at (513)946-7777 or the Office of Compliance Assistance and Pollution Prevention at (614) 644-3469.

Sincerely,



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

Cc: SWOAQA



FINAL

**Division of Air Pollution Control
Permit-to-Install and Operate
for
A&B Foundry and Machining, LLC**

Facility ID:	1483040399
Permit Number:	P0115788
Permit Type:	Renewal
Issued:	2/10/2014
Effective:	2/10/2014
Expiration:	2/10/2019



Division of Air Pollution Control
Permit-to-Install and Operate
for
A&B Foundry and Machining, LLC

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Final Permit-to-Install and Operate
A&B Foundry and Machining, LLC
Permit Number: P0115788
Facility ID: 1483040399
Effective Date: 2/10/2014

Authorization

Facility ID: 1483040399
Application Number(s): A0049226
Permit Number: P0115788
Permit Description: Renewal FEPTIO for three (3) aluminum foundry operations including two (2) operations with rolling, 12-month FEPTIO restrictions.
Permit Type: Renewal
Permit Fee: \$0.00
Issue Date: 2/10/2014
Effective Date: 2/10/2014
Expiration Date: 2/10/2019
Permit Evaluation Report (PER) Annual Date: Apr 1 - Mar 31, Due May 15

This document constitutes issuance to:

A&B Foundry and Machining, LLC
835 NORTH MAIN ST
Franklin, OH 45005

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

Ohio Environmental Protection Agency (EPA) District Office or local air agency responsible for processing and administering your permit:

Southwest Ohio Air Quality Agency
250 William Howard Taft Rd.
Cincinnati, OH 45219
(513)946-7777

The above named entity is hereby granted this Permit-to-Install and Operate for the air contaminant source(s) (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 described emissions unit(s) will operate in compliance with applicable State and federal laws and regulations.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency


Craig W. Butler
Interim Director



Final Permit-to-Install and Operate
A&B Foundry and Machining, LLC
Permit Number: P0115788
Facility ID: 1483040399
Effective Date: 2/10/2014

Authorization (continued)

Permit Number: P0115788

Permit Description: Renewal FEPTIO for three (3) aluminum foundry operations including two (2) operations with rolling, 12-month FEPTIO restrictions.

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

Emissions Unit ID:	F002
Company Equipment ID:	Core/mold,sand/binder, mold release
Superseded Permit Number:	P0104444
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	F003
Company Equipment ID:	Vacuum mold making
Superseded Permit Number:	P0100531
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P901
Company Equipment ID:	Reclaimer and resin shakeout
Superseded Permit Number:	P0104811
General Permit Category and Type:	Not Applicable



Final Permit-to-Install and Operate
A&B Foundry and Machining, LLC
Permit Number: P0115788
Facility ID: 1483040399
Effective Date: 2/10/2014

A. Standard Terms and Conditions



1. What does this permit-to-install and operate ("PTIO") allow me to do?

This permit allows you to install and operate the emissions unit(s) identified in this PTIO. You must install and operate the unit(s) in accordance with the application you submitted and all the terms and conditions contained in this PTIO, including emission limits and those terms that ensure compliance with the emission limits (for example, operating, recordkeeping and monitoring requirements).

2. Who is responsible for complying with this permit?

The person identified on the "Authorization" page, above, is responsible for complying with this permit until the permit is revoked, terminated, or transferred. "Person" means a person, firm, corporation, association, or partnership. The words "you," "your," or "permittee" refer to the "person" identified on the "Authorization" page above.

The permit applies only to the emissions unit(s) identified in the permit. If you install or modify any other equipment that requires an air permit, you must apply for an additional PTIO(s) for these sources.

3. What records must I keep under this permit?

You must keep all records required by this permit, including monitoring data, test results, strip-chart recordings, calibration data, maintenance records, and any other record required by this permit for five years from the date the record was created. You can keep these records electronically, provided they can be made available to Ohio EPA during an inspection at the facility. Failure to make requested records available to Ohio EPA upon request is a violation of this permit requirement.

4. What are my permit fees and when do I pay them?

There are two fees associated with permitted air contaminant sources in Ohio:

PTIO fee. This one-time fee is based on a fee schedule in accordance with Ohio Revised Code (ORC) section 3745.11, or based on a time and materials charge for permit application review and permit processing if required by the Director.

You will be sent an invoice for this fee after you receive this PTIO and payment is due within 30 days of the invoice date. You are required to pay the fee for this PTIO even if you do not install or modify your operations as authorized by this permit.

Annual emissions fee. Ohio EPA will assess a separate fee based on the total annual emissions from your facility. You self-report your emissions in accordance with Ohio Administrative Code (OAC) Chapter 3745-78. This fee assessed is based on a fee schedule in ORC section 3745.11 and funds Ohio EPA's permit compliance oversight activities. For facilities that are permitted as synthetic minor sources, the fee schedule is adjusted annually for inflation. Ohio EPA will notify you when it is time to report your emissions and to pay your annual emission fees.

5. When does my PTIO expire, and when do I need to submit my renewal application?

This permit expires on the date identified at the beginning of this permit document (see "Authorization" page above) and you must submit a renewal application to renew the permit. Ohio EPA will send a renewal notice to you approximately six months prior to the expiration date of this permit. However, it is



very important that you submit a complete renewal permit application (postmarked prior to expiration of this permit) even if you do not receive the renewal notice.

If a complete renewal application is submitted before the expiration date, Ohio EPA considers this a timely application for purposes of ORC section 119.06, and you are authorized to continue operating the emissions unit(s) covered by this permit beyond the expiration date of this permit until final action is taken by Ohio EPA on the renewal application.

6. What happens to this permit if my project is delayed or I do not install or modify my source?

This PTIO expires 18 months after the issue date identified on the "Authorization" page above unless otherwise specified if you have not (1) started constructing the new or modified emission sources identified in this permit, or (2) entered into a binding contract to undertake such construction. This deadline can be extended by up to 12 months, provided you apply to Ohio EPA for this extension within a reasonable time before the 18-month period has ended and you can show good cause for any such extension.

7. What reports must I submit under this permit?

An annual permit evaluation report (PER) is required in addition to any malfunction reporting required by OAC rule 3745-15-06 or other specific rule-based reporting requirement identified in this permit. Your PER due date is identified in the Authorization section of this permit.

8. If I am required to obtain a Title V operating permit in the future, what happens to the operating provisions and PER obligations under this permit?

If you are required to obtain a Title V permit under OAC Chapter 3745-77 in the future, the permit-to-operate portion of this permit will be superseded by the issued Title V permit. From the effective date of the Title V permit forward, this PTIO will effectively become a PTI (permit-to-install) in accordance with OAC rule 3745-31-02(B). The following terms and conditions of this permit will no longer be applicable after issuance of the Title V permit: Section B, Term 1.b) and Section C, for each emissions unit, Term a)(2).

The PER requirements in this permit remain effective until the date the Title V permit is issued and is effective, and cease to apply after the effective date of the Title V permit. The final PER obligation will cover operations up to the effective date of the Title V permit and must be submitted on or before the submission deadline identified in this permit on the last day prior to the effective date of the Title V permit.

9. What are my obligations when I perform scheduled maintenance on air pollution control equipment?

You must perform scheduled maintenance of air pollution control equipment in accordance with OAC rule 3745-15-06(A). If scheduled maintenance requires shutting down or bypassing any air pollution control equipment, you must also shut down the emissions unit(s) served by the air pollution control equipment during maintenance, unless the conditions of OAC rule 3745-15-06(A)(3) are met. Any emissions that exceed permitted amount(s) under this permit (unless specifically exempted by rule) must be reported as deviations in the annual permit evaluation report (PER), including nonexempt excess emissions that occur during approved scheduled maintenance.



10. Do I have to report malfunctions of emissions units or air pollution control equipment? If so, how must I report?

If you have a reportable malfunction of any emissions unit(s) or any associated air pollution control system, you must report this to the [DO/LAA] in accordance with OAC rule 3745-15-06(B). Malfunctions that must be reported are those that result in emissions that exceed permitted emission levels. It is your responsibility to evaluate control equipment breakdowns and operational upsets to determine if a reportable malfunction has occurred.

If you have a malfunction, but determine that it is not a reportable malfunction under OAC rule 3745-15-06(B), it is recommended that you maintain records associated with control equipment breakdown or process upsets. Although it is not a requirement of this permit, Ohio EPA recommends that you maintain records for non-reportable malfunctions.

11. Can Ohio EPA or my local air agency inspect the facility where the emission unit(s) is/are located?

Yes. Under Ohio law, the Director or his authorized representative may inspect the facility, conduct tests, examine records or reports to determine compliance with air pollution laws and regulations and the terms and conditions of this permit. You must provide, within a reasonable time, any information Ohio EPA requests either verbally or in writing.

12. What happens if one or more emissions units operated under this permit is/are shut down permanently?

Ohio EPA can terminate the permit terms associated with any permanently shut down emissions unit. "Shut down" means 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.

You should notify Ohio EPA of any emissions unit that is permanently shut down by submitting a certification that identifies the date on which the emissions unit was permanently shut down. The certification must be submitted by an authorized official from the facility. You cannot continue to operate an emission unit once the certification has been submitted to Ohio EPA by the authorized official.

You must comply with all recordkeeping and reporting for any permanently shut down emissions unit in accordance with the provisions of the permit, regulations or laws that were enforceable during the period of operation, such as the requirement to submit a PER, air fee emission report, or malfunction report. You must also keep all records relating to any permanently shutdown emissions unit, generated while the emissions unit was in operation, for at least five years from the date the record was generated.

Again, you cannot resume operation of any emissions unit certified by the authorized official as being permanently shut down without first applying for and obtaining a permit pursuant to OAC Chapter 3745-31.



13. Can I transfer this permit to a new owner or operator?

You can transfer this permit to a new owner or operator. If you transfer the permit, you must follow the procedures in OAC Chapter 3745-31, including notifying Ohio EPA or the local air agency of the change in ownership or operator. Any transferee of this permit must assume the responsibilities of the transferor permit holder.

14. Does compliance with this permit constitute compliance with OAC rule 3745-15-07, "air pollution nuisance"?

This permit and OAC rule 3745-15-07 prohibit operation of the air contaminant source(s) regulated under this permit in a manner that causes a nuisance. Ohio EPA can require additional controls or modification of the requirements of this permit through enforcement orders or judicial enforcement action if, upon investigation, Ohio EPA determines existing operations are causing a nuisance.

15. What happens if a portion of this permit is determined to be invalid?

If a portion of this permit is determined to be invalid, the remainder of the terms and conditions remain valid and enforceable. The exception is where the enforceability of terms and conditions are dependent on the term or condition that was declared invalid.



Final Permit-to-Install and Operate
A&B Foundry and Machining, LLC
Permit Number: P0115788
Facility ID: 1483040399
Effective Date: 2/10/2014

B. Facility-Wide Terms and Conditions



Final Permit-to-Install and Operate

A&B Foundry and Machining, LLC

Permit Number: P0115788

Facility ID: 1483040399

Effective Date: 2/10/2014

1. This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).
 - a) For the purpose of a permit-to-install document, the facility-wide terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.
 - (1) None.
 - b) For the purpose of a permit-to-operate document, the facility-wide terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.
 - (1) None.



Final Permit-to-Install and Operate
A&B Foundry and Machining, LLC
Permit Number: P0115788
Facility ID: 1483040399
Effective Date: 2/10/2014

C. Emissions Unit Terms and Conditions



1. F002, Core/mold,sand/binder, mold release

Operations, Property and/or Equipment Description:

Core and mold making, sand/binder mixing, mold release

a) This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

(1) For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.

a. g)(1).

(2) For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.

a. b)(1)d, c)(1) through c)(3), d)(1), d)(2), e)(2) and f)(1)d.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operation(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 are identified below. 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)	Emissions of volatile organic compounds (VOC) shall not exceed 37.3 pounds per hour from the use of phenolic urethane no-bake binders, core & mold releases, washes, and isopropyl alcohol. Visible emissions of fugitive dust shall not exceed 20% opacity as a three-minute average.
b.	OAC rule 3745-31-05(A)(3), as effective 11/30/01	Particulate emissions (PE) and emissions of particulate matter 10 microns and less in diameter (PM10) shall not exceed 8.3 pounds per hour and 7.10 tons per year (TPY) from mixing and mold & core making. See b)(2)a.
c.	OAC rule 3745-31-05(C), as effective 12/01/06	See b)(2)b.



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
d.	OAC rule 3745-31-05(D) Synthetic Minor to avoid Title V requirements for VOC.	Emissions of VOC shall not exceed 28.17 TPY, based on a rolling, 12-month summation, from the use of phenolic urethane no-bake binders, core & mold releases, washes, and isopropyl alcohol. See c)(1), c)(2), and c)(3).
e.	OAC rule 3745-17-07(B)	See b)(2)c.
f.	OAC rule 3745-17-08(B)	See b)(2)d.
g.	OAC rule 3745-17-11(A)(1)(h)	Exempt from mass emission limitations for processes that apply only dip coatings, roll coatings, flow coatings, or brush coatings.

(2) Additional Terms and Conditions

- a. The permittee has satisfied the Best Available Technology (BAT) requirements pursuant to Ohio Administrative Code (OAC) paragraph 3745-31-05(A)(3), as effective November 30, 2001, in this permit. On December 1, 2006, paragraph (A)(3) of OAC rule 3745-31-05 was revised to conform to the Ohio Revised Code (ORC) changes effective August 3, 2006 (Senate Bill 265 changes), such that BAT is no longer required by State regulations for National Ambient Air Quality Standards (NAAQS) pollutant(s) less than ten tons per year. However, that rule revision has not yet been approved by U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). Therefore, until the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-31-05, the requirement to satisfy BAT still exists as part of the federally-approved SIP for Ohio. Once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05, then these emission limitations/control measures no longer apply.

- b. This rule paragraph applies once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05 as part of the State Implementation Plan.

PTIO P0115788 for this air contaminant sources takes into account the following voluntary restrictions (including the use of any applicable air pollution control equipment) as proposed by the permittee for the purpose of avoiding Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3):

- i. The maximum foundry sand usage shall not exceed 21,844 tons per year; and
- ii. PE/PM10 emissions shall not exceed 7.10 TPY from mixing and mold & core making.



- c. This emissions unit is exempt from the visible emissions limitations for fugitive dust, specified in OAC rule 3745-17-07(B), pursuant to OAC rule 3745-17-07(B)(11)(e), because the emissions unit is not located within areas identified in "Appendix A" of OAC rule 3745-17-08.
- d. This emissions unit is not located within areas identified in "Appendix A" of OAC rule 3745-17-08, therefore, the requirements of OAC rule 3745-17-08(B), which requires the installation of reasonably available control measures to prevent fugitive dust, do not apply to this emissions unit pursuant to OAC rule 3745-17-08(A)(1).
- e. The short-term emission limitations outlined in b)(1) are based upon the emissions unit's potential to emit. Therefore, no hourly records are required to demonstrate compliance with these limitations.

c) **Operational Restrictions**

- (1) This emissions unit has been in operation for more than 12 months and, as such, the permittee has existing records to generate the rolling, 12-month summation of the foundry sand usage, upon issuance of this permit. The maximum annual foundry sand usage for this emissions unit shall not exceed 21,844 tons, based upon a rolling, 12-month summation of the foundry sand usage figures.
- (2) This emissions unit has been in operation for more than 12 months and, as such, the permittee has existing records to generate the rolling, 12-month summations of the core & mold release usage, the wash usage, and the isopropyl alcohol usage upon issuance of this permit. The maximum annual material usages for this emissions unit shall not exceed 750 pounds for core & mold releases, 29,284 pounds for washes, and 2,823 gallons for isopropyl alcohol based upon rolling, 12-month summations of the material usage figures.
- (3) The maximum VOC content of core & mold releases applied in this emissions unit cannot exceed 1.0 pound of VOC per pound of core & mold release. The maximum VOC content of washes applied in this emissions unit shall not exceed 39% VOC, by weight, as a monthly weighted average. The maximum VOC content of isopropyl alcohol applied in this emissions unit shall not exceed 6.59 pounds of VOC per gallon.

d) **Monitoring and/or Recordkeeping Requirements**

- (1) The permittee shall maintain monthly records of the following information:
 - a. The foundry sand usage rate, in tons;
 - b. The name and company identification of each core & mold release, wash, and isopropyl alcohol material employed;
 - c. The material usage rates for core & mold releases, in pounds, washes, in pounds, and isopropyl alcohol, in gallons.
 - d. The rolling, 12-month summation of the foundry sand usage rate, in tons;



- e. The rolling, 12-month summations of the material usage rates for core & mold releases, in pounds, washes, in pounds, and isopropyl alcohol, in gallons;
- f. The VOC emissions rate, in tons, for each month of operations as a summation of the emissions from the use of phenolic urethane no-bake binders, core & mold releases, washes, and isopropyl alcohol. The VOC emissions rate shall be a summation of:
 - i. The actual quantity of foundry sand employed, using phenolic urethane no-bake binders, as recorded in d)(1)a., in tons per month, multiplied by the OCMA EF* for phenolic urethane no-bake resins, 1.17 pounds of VOC per ton of sand, multiplied by 1 Ton per 2000 pounds;
 - ii. The actual quantity of core & mold releases employed, as recorded in d)(1)c., in pounds per month, multiplied by the actual VOC content of core & mold releases, in pounds of VOC per pound, multiplied by 1 Ton per 2000 pounds;
 - iii. The actual quantity of washes employed, as recorded in d)(1)c., in pounds per month, multiplied by the actual VOC content of washes, in pounds of VOC per pound, multiplied by 1 Ton per 2000 pounds; and
 - iv. The actual quantity of isopropyl alcohol employed, as recorded in d)(1)c., in gallons per month, multiplied by the actual VOC content of isopropyl alcohol, in pounds of VOC per gallon, multiplied by 1 Ton per 2000 pounds.

*Emission Factor (EF) from Ohio EPA and Ohio Cast Metals Association (OCMA) Memorandum of Understanding for phenolic urethane no-bake resins binder system, 2/16/1998; and

- g. The updated rolling, 12-month VOC emissions rate, in tons; a summation of the emissions as calculated in d)(1)e., for the current month plus the eleven previous calendar months.

(2) The permittee, having chosen to demonstrate compliance by means of a monthly weighted average VOC content for washes shall collect and record the following information each month:

- a. The name and identification of each wash employed;
- b. The mass of VOC per weight of wash; and
- c. The monthly weighted average VOC content of all washes calculated in accordance with the equation as follows:

$$(C_{VOC,2})_A = \frac{\sum_{i=1}^n C_{VOC,2i} L_{Ci}}{\sum_{i=1}^n L_{Ci}}$$



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where:

$(C_{VOC,2})_A$ is the monthly weighted average VOC content of all washes;

$C_{VOC,2}$ is the VOC content, in percent VOC by weight, of a wash;

A = subscript denoting that the indicated VOC content is a weighted average of the washes employed during time period Δt .

L_C = liquid weight of wash employed during time period Δt , in pounds of wash.

i = subscript denoting a specific wash employed during time period Δt .

n = total number of washes employed during time period Δt .

t = time period specified for the weighted average VOC content is per month and not included in the calculation.

- (3) The permittee shall collect and record the mass of VOC per weight of core & mold releases used each month (pounds of VOC per pound of core & mold release) and the mass of VOC per volume of isopropyl alcohol used each month (pounds of VOC per gallon of isopropyl alcohol).
- (4) The permittee shall annually calculate the actual PE/PM10 emissions from the usage of foundry sand, mixing and core & mold making. The permittee shall calculate the emissions based on the following equation:

The actual quantity of foundry sand used, a summation of the monthly rates as recorded in d)(1)a. for the 12-month calendar year in tons of sand per year, multiplied by 0.65 pound PE/PM10 per ton of sand used*, multiplied by 1 Ton/2000 pounds.

*RACM Table 2.7-1 aggregate EF for PE/PM10 from mixing plus core & mold making.

- (5) The permittee shall perform weekly checks, when the emissions unit is in operation and when the weather conditions allow, for any visible emissions of fugitive dust from the egress points (i.e., building windows, doors, roof monitors, etc.) serving this emissions unit. The presence or absence of any visible fugitive emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
 - a. the location and color of the emissions;
 - b. whether the emissions are representative of normal operations;
 - c. if the emissions are not representative of normal operations, the cause of the abnormal emissions;
 - d. the total duration of any visible emissions incident; and
 - e. any corrective actions taken to minimize or eliminate the visible emissions.



If visible emissions are present, a visible emissions incident has occurred. The observer does not have to document the exact start and end times for the visible emissions incident under item (d) above or continue the weekly check until the incident has ended. The observer may indicate that the visible emissions incident was continuous during the observation period (or, if known, continuous during the operation of the emissions unit). With respect to the documentation of corrective actions, the observer may indicate that no corrective actions were taken if the visible emissions were representative of normal operations, or specify the minor corrective actions that were taken to ensure that the emissions unit continued to operate under normal conditions, or specify the corrective actions that were taken to eliminate abnormal visible emissions.

e) Reporting Requirements

- (1) All applications, notifications or reports required by terms and conditions in this permit to be submitted or "reported in writing" are to be submitted to Ohio EPA through the Ohio EPA's eBusiness Center: Air Services web service ("Air Services"). Ohio EPA will accept hard copy submittals on an as-needed basis if the permittee cannot submit the required documents through the Ohio EPA eBusiness Center. In the event of an alternative hard copy submission in lieu of the eBusiness Center, the post-marked date or the date the document is delivered in person will be recognized as the date submitted. Electronic submission of applications, notifications, or reports required to be submitted to Ohio EPA fulfills the requirement to submit the required information to the Director, the District Office or Local Air Agency, and/or any other individual or organization specifically identified as an additional recipient identified in this permit unless otherwise specified. Consistent with OAC rule 3745-15-03, the required application, notification or report is considered to be "submitted" on the date the submission is successful using a valid electronic signature. Signature by the signatory authority may be represented as provided through procedures established in Air Services.
- (2) The permittee shall submit quarterly deviation (excursion) reports that identify:
 - a. all deviations (excursions) of the following emission limitations, operational restrictions and/or control device operating parameter limitations that restrict the potential to emit (PTE) of any regulated air pollutant and have been detected by the monitoring, record keeping and/or testing requirements in this permit:
 - i. all exceedances of the rolling, 12-month foundry sand usage rate limitation;
 - ii. all exceedances of the rolling, 12-month core & mold releases, washes, and/or isopropyl alcohol usage rate limitations;
 - iii. all exceedances of the rolling, 12-month VOC emissions limitation; and
 - iv. all exceedances of the VOC content restrictions for washes (weighted average), and isopropyl alcohol.
 - b. the probable cause of each deviation (excursion);



- c. any corrective actions that were taken to remedy the deviations (excursions) or prevent future deviations (excursions); and
- d. the magnitude and duration of each deviation (excursion).

If no deviations (excursions) occurred during a calendar quarter, the permittee shall submit a report that states that no deviations (excursions) occurred during the quarter.

The quarterly reports shall be submitted each year by January 31 (covering October to December), April 30 (covering January to March), July 31 (covering April to June), and October 31 (covering July to September), unless an alternative schedule has been established and approved by the Director (the appropriate District Office or local air agency).

- (3) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA. The PER must be submitted by the due date identified in the Authorization section of this permit. The permit evaluation report shall cover a reporting period of no more than twelve months for each air contaminant source identified in this permit.
- (4) The permittee shall identify the following information in the annual PER in accordance with the monitoring requirements for visible emissions in term number d)(5) above:
 - a. All days during which any visible emissions of fugitive dust were observed from the egress points (i.e., building windows, doors, roof monitors, etc.) serving this emissions unit; and
 - b. Any corrective actions taken to minimize or eliminate the visible emissions.

f) Testing Requirements

- (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:

- a. Emission Limitation:

Emissions of volatile organic compounds (VOC) shall not exceed 37.3 pounds per hour from the use of phenolic urethane no-bake binders, core & mold releases, washes, and isopropyl alcohol.

Applicable Compliance Method:

If required, compliance with the short-term mass emission limitation may be demonstrated by emission tests pursuant to Method 25 of 40 CFR Part 60, Subpart A, for VOC emissions. Alternative USEPA approved test methods may be used with prior approval from the Ohio EPA.

If required, compliance with the short-term mass emission limitation may be demonstrated by a summation of the following calculations:



The actual quantity of foundry sand employed, using phenolic urethane no-bake binders, in tons per hour, multiplied by the OCMA EF* for phenolic urethane no-bake resins, 1.17 pounds of VOC per ton of sand;

The actual quantity of core & mold releases employed, in pounds per hour, multiplied by the actual VOC content of core & mold releases, in pounds of VOC per pound of core & mold release;

The actual quantity of washes employed, in pounds per hour, multiplied by the actual VOC content of washes, in pounds of VOC per pound of washes; and

The actual quantity of isopropyl alcohol employed, in gallons per hour, multiplied by the actual VOC content of isopropyl alcohol, in pounds of VOC per gallon.

The short-term mass emissions limitation was established using information provided by the permittee in Application A0036839 for FEPTIO P0104444 and Application A0049226 for FEPTIO P0115788, in a summation of the following calculations:

12.75 tons foundry sand/hr x OCMA EF 1.17 pounds VOC/ton foundry sand = 14.9 pounds of VOC/hr

0.4 pound core & mold release/hr x 1.0 pound VOC/pound core & mold release = 0.4 pound VOC/hr

17.09 pound washes/hr x 0.65 pound VOC/pound wash* = 11.1 pounds VOC/hr

*Worst-case VOC content wash will exceed allowable monthly weighted average VOC content for washes

1.65 gallons isopropyl alcohol/hr x 6.59 pounds VOC/gallon isopropyl alcohol = 10.9 pounds VOC/hr

14.9 pounds VOC/hr + 0.4 pound VOC/hr + 11.1 pounds VOC/hr + 10.9 pounds VOC/hr = 37.3 pounds VOC/hr

b. Emission Limitation:

Visible emissions of fugitive dust shall not exceed 20% opacity as a three-minute average.

Applicable Compliance Method:

If required, compliance with the limitation for visible emissions of fugitive dust shall be determined through visible emissions observations performed in accordance U.S. EPA Method 9.



c. Emission Limitations & Voluntary Restriction:

Particulate emissions (PE) and emissions of particulate matter 10 microns and less in diameter (PM10) shall not exceed 8.3 pounds per hour and 7.10 tons per year (TPY) from mixing and mold & core making.

If required, compliance with the short-term mass emission limitation may be demonstrated by emission tests pursuant to Method 5 of 40 CFR Part 60, Subpart A, for PE. Alternative USEPA approved test methods may be used with prior approval from the Ohio EPA.

If required, compliance with the short-term mass emission limitation may be demonstrated by the following calculation:

The actual quantity of foundry sand used, in tons of sand per hour, multiplied by 0.65 pound PE/PM10 per ton of sand used*

*RACM Table 2.7-1 aggregate EF for PE/PM10 from mixing plus core & mold making.

The short-term mass emissions limitation was established using information provided by the permittee in Application A0036839 for FEPTIO P0104444 and Application A0049226 for FEPTIO P0115788, in the following calculation:

12.75 tons foundry sand/hr x RACM EF 0.65 pound PE/PM10/ton foundry sand = 8.29 pounds of PE/PM10/hr, rounded to 8.3 pounds of PE/PM10/hr

Compliance with the annual mass emissions limitation shall be demonstrated by the recordkeeping requirement in term number d)(4) above.

The annual mass emissions limitation was established using information provided by the permittee in Application A0036839 for FEPTIO P0104444 and Application A0049226 for FEPTIO P0115788, in the following calculation:

21,844 tons foundry sand/yr x RACM EF 0.65 pound PE/PM10/ton foundry sand x 1 Ton/2000 pounds = 7.099 TPY PE/PM10, rounded to 7.10 TPY PE/PM10

d. Emission Limitation:

Emissions of VOC shall not exceed 28.17 TPY, based on a rolling, 12-month summation, from the use of phenolic urethane no-bake binders, core & mold releases, washes, and isopropyl alcohol.

Applicable Compliance Method:

Compliance with the rolling, 12-month mass emissions limitation shall be demonstrated by the recordkeeping requirements in d)(1).

The rolling, 12-month mass emissions limitation was established using information provided by the permittee in Application A0036839 for FEPTIO



P0104444 and Application A0049226 for FEPTIO P0115788, in a summation of the following calculations:

21,844 tons foundry sand/yr x OCMA EF 1.17 pound VOC/ton foundry sand x 1 Ton/2000 pounds = 12.78 TPY VOC

750 pounds core & mold release/yr x 1.0 pound VOC/pound core & mold release x 1 Ton/2000 pounds = 0.375 TPY VOC, rounded to 0.38 TPY VOC

29,284 pounds washes/yr x 0.39 pound VOC/pound washes* x 1 Ton/2000 pounds = 5.71 TPY VOC

* Allowable monthly weighted average VOC content for washes

2823 gallons isopropyl alcohol/yr x 6.59 pounds VOC/gallon isopropyl alcohol x 1 Ton/2000 pounds = 9.30 TPY VOC

12.78 TPY VOC + 0.38 TPY VOC + 5.71 TPY VOC + 9.30 TPY VOC = 28.17 TPY VOC

g) Miscellaneous Requirements

- (1) Modeling to demonstrate compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F)(4)(b), was not necessary because the emissions unit's maximum annual emissions for each toxic air contaminant, as defined in OAC rule 3745-114-01, will be less than 1.0 ton per year. OAC Chapter 3745-31 requires permittees to apply for and obtain a new or modified FEPTIO prior to making a "modification" as defined by OAC rule 3745-31-01. The permittee is hereby advised that changes to the composition of the materials, or use of new materials, that would cause the emissions of any the air contaminant to increase above 1.0 ton per year may require the permittee to apply for an obtain a new FEPTIO.



2. F003, Vacuum mold making

Operations, Property and/or Equipment Description:

Vacuum mold making and core dip/flow coat - Modification

- a) This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).
 - (1) For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.
 - a. d)(3) and d)(4).
 - (2) For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.
 - a. b)(1)b, c)(1), d)(1), e)(2) and f)(1)d.
- b) Applicable Emissions Limitations and/or Control Requirements
 - (1) The specific operation(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 are identified below. 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)	<p>Emissions of VOC shall not exceed 10.53 pounds per hour from the use of washes, including mold sprays, alcohol and mold releases in mold making.</p> <p>Particulate emissions (PE) shall not exceed 0.03 pound per hour and 0.14 tons per year (TPY).</p> <p>Emissions of particulate matter 10 microns and less in diameter (PM10) shall not exceed 0.027 pound per hour and 0.13 TPY.</p> <p>Visible emissions of fugitive dust shall not exceed 20% opacity as a three-minute average.</p>



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
b.	OAC rule 3745-31-05(D)	Emissions of VOC shall not exceed 18.30 TPY, based on a rolling, 12-month summation, from the use of washes, including mold sprays, alcohol and all mold releases. See c)(1), and c)(2).
c.	OAC rule 3745-17-07(B)	See b)(2)a.
d.	OAC rule 3745-17-08(B)	See b)(2)b.

(2) Additional Terms and Conditions

- a. This emissions unit is exempt from the visible emissions limitations for fugitive dust, specified in OAC rule 3745-17-07(B), pursuant to OAC rule 3745-17-07(B)(11)(e), because the emissions unit is not located within areas identified in "Appendix A" of OAC rule 3745-17-08.
- b. This emissions unit is not located within areas identified in "Appendix A" of OAC rule 3745-17-08, therefore, the requirements of OAC rule 3745-17-08(B), which requires the installation of reasonably available control measures to prevent fugitive dust, do not apply to this emissions unit pursuant to OAC rule 3745-17-08(A)(1).
- c. The short-term emission limitations outlined in b)(1) are based upon the emissions unit's potential to emit. Therefore, no hourly records are required to demonstrate compliance with these limitations.

c) Operational Restrictions

- (1) This emissions unit has been in operation for more than 12 months and, as such, the permittee has existing records to generate the rolling, 12-month summations of the mold spray usage and supplemental alcohol usage in the core washing process upon issuance of this permit. The maximum annual material usages for this emissions unit shall not exceed 36,000 pounds for mold sprays, and 20,000 pounds for supplemental alcohol usage in the core washing process based upon rolling, 12-month summations of the material usage figures.

The unrestricted maximum usage rate of mold releases in this process was considered in establishing the rolling, 12-month VOC emissions limitation. Therefore, it was not necessary to establish a rolling, 12-month material usage limitation for mold releases.

- (2) The maximum VOC content of mold releases applied in this emissions unit shall not exceed 93% VOC, by weight. The maximum VOC content of mold sprays applied in this emissions unit shall not exceed 45% VOC, by weight. The maximum VOC content of supplemental alcohols in the core washing process applied in this emissions unit cannot exceed 1.0 pound of VOC per pound of supplemental alcohol.



d) Monitoring and/or Recordkeeping Requirements

- (1) The permittee shall collect and record the following information each month for this emissions unit:
- a. The name and company identification of each mold spray and mold release material employed and the name and identification of each alcohol employed in the core wash;
 - b. The material usage rates for mold sprays, in pounds, alcohols, in pounds, and mold releases, in pounds;
 - c. The mass of VOC per weight of mold sprays used each month (pounds of VOC per pound of mold sprays), the mass of VOC per weight of alcohols used each month (pounds of VOC per pound of alcohols), and the mass of VOC per weight of mold releases used each month (pounds of VOC per pound of mold releases);
 - d. The rolling, 12-month summation of the mold spray material usage, in pounds;
 - e. The rolling, 12-month summation of the supplemental alcohol usage, in pounds;
 - f. The VOC emissions rate, in tons, for each month of operations as a summation of the emissions from the use of mold sprays, alcohols, and mold releases. The VOC emissions rate shall be a summation of:
 - i. The actual quantity of mold sprays employed, as recorded in d)(1)b., in pounds per month, multiplied by the actual VOC content of mold sprays, in pounds of VOC per pound, multiplied by 1 Ton per 2000 pounds;
 - ii. The actual quantity of alcohols employed, as recorded in d)(1)b., in pounds per month, multiplied by the actual VOC content of alcohols, in pounds of VOC per pound, multiplied by 1 Ton per 2000 pounds;
 - iii. The actual quantity of mold releases employed, as recorded in d)(1)b., in pounds per month, multiplied by the actual VOC content of mold releases, in pounds of VOC per pound, multiplied by 1 Ton per 2000 pounds.
 - g. The updated rolling, 12-month VOC emissions rate, in tons; a summation of the emissions as calculated in d)(1)f., for the current month plus the eleven previous calendar months.
- (2) The permittee shall annually calculate the actual PE and PM10 emissions from vacuum mold making. The permittee shall calculate the emissions based on the following equations:
- The actual quantity of metal produced, in tons of metal per year, multiplied by 0.02 pound PE per ton of metal*, multiplied by 1 Ton/2000 pounds; and
- The actual PE in TPY, multiplied by 0.90 TPY PM10/TPY PE.



*PE EF supplied by the permittee for vacuum mold making. PM10 fraction is from RACM.

- (3) The permit to install for this emissions unit [F003] was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied to this emissions unit for each toxic pollutant, using data from the permit to install application, and modeling was performed for the toxic pollutant(s) emitted at over a ton per year using the SCREEN 3.0 model or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the use of the SCREEN 3.0 (or other approved) model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as required in Engineering Guide #70. The following summarizes the results of the modeling for the "worst case" pollutant(s):

The following summarizes the results of the modeling for the "worst case" pollutant(s):

Pollutant: n-hexane

TLV ($\mu\text{g}/\text{m}^3$): 176,230

Maximum Hourly Emission Rate (lbs/hr): 10.5

Predicted 1-Hour Maximum Ground-Level

Concentration ($\mu\text{g}/\text{m}^3$): 3764

MAGLC ($\mu\text{g}/\text{m}^3$): 4196

Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters; the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

- a. Changes in the composition of the materials used or the use of new materials, that would result in the emission of a compound or chemical with a lower Threshold Limit Value (TLV) than the lowest TLV previously modeled, as documented in the most current version of the American Conference of Governmental Industrial Hygienists' (ACGIH's) handbook entitled "TLVs and BEIs" ("Threshold Limit Values for Chemical Substances and Physical Agents, Biological Exposure Indices");
- b. Changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and



- c. Physical changes to the emissions unit or its exhaust parameters (e.g., increased/ decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).
- (4) If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) meet(s) the definition of a "modification" under other provisions of the rule, then the permittee shall obtain a final permit to install prior to the change.

The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy":

- a. A description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
 - b. Documentation of the evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
 - c. Where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.
- (5) The permittee shall perform weekly checks, when the emissions unit is in operation and when the weather conditions allow, for any visible emissions of fugitive dust from the egress points (i.e., building windows, doors, roof monitors, etc.) serving this emissions unit. The presence or absence of any visible fugitive emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
- a. the location and color of the emissions;
 - b. whether the emissions are representative of normal operations;
 - c. if the emissions are not representative of normal operations, the cause of the abnormal emissions;
 - d. the total duration of any visible emissions incident; and
 - e. any corrective actions taken to minimize or eliminate the visible emissions.

If visible emissions are present, a visible emissions incident has occurred. The observer does not have to document the exact start and end times for the visible emissions incident under item (d) above or continue the weekly check until the incident has ended. The observer may indicate that the visible emissions incident was continuous during the observation period (or, if known, continuous during the operation of the emissions unit). With respect to the documentation of corrective actions, the observer may indicate that



no corrective actions were taken if the visible emissions were representative of normal operations, or specify the minor corrective actions that were taken to ensure that the emissions unit continued to operate under normal conditions, or specify the corrective actions that were taken to eliminate abnormal visible emissions.

e) Reporting Requirements

- (1) All applications, notifications or reports required by terms and conditions in this permit to be submitted or "reported in writing" are to be submitted to Ohio EPA through the Ohio EPA's eBusiness Center: Air Services web service ("Air Services"). Ohio EPA will accept hard copy submittals on an as-needed basis if the permittee cannot submit the required documents through the Ohio EPA eBusiness Center. In the event of an alternative hard copy submission in lieu of the eBusiness Center, the post-marked date or the date the document is delivered in person will be recognized as the date submitted. Electronic submission of applications, notifications, or reports required to be submitted to Ohio EPA fulfills the requirement to submit the required information to the Director, the District Office or Local Air Agency, and/or any other individual or organization specifically identified as an additional recipient identified in this permit unless otherwise specified. Consistent with OAC rule 3745-15-03, the required application, notification or report is considered to be "submitted" on the date the submission is successful using a valid electronic signature. Signature by the signatory authority may be represented as provided through procedures established in Air Services.
- (2) The permittee shall submit quarterly deviation (excursion) reports that identify:
 - a. all deviations (excursions) of the following emission limitations, operational restrictions and/or control device operating parameter limitations that restrict the potential to emit (PTE) of any regulated air pollutant and have been detected by the monitoring, record keeping and/or testing requirements in this permit:
 - i. all exceedances of the rolling, 12-month mold spray and/or supplemental alcohol usage rate limitations;
 - ii. all exceedances of the rolling, 12-month VOC emissions limitation; and
 - iii. all exceedances of the VOC content restrictions for mold releases, mold sprays, and supplemental alcohol.
 - b. the probable cause of each deviation (excursion);
 - c. any corrective actions that were taken to remedy the deviations (excursions) or prevent future deviations (excursions); and
 - d. the magnitude and duration of each deviation (excursion).

If no deviations (excursions) occurred during a calendar quarter, the permittee shall submit a report that states that no deviations (excursions) occurred during the quarter.



The quarterly reports shall be submitted each year by January 31 (covering October to December), April 30 (covering January to March), July 31 (covering April to June), and October 31 (covering July to September), unless an alternative schedule has been established and approved by the Director (the appropriate District Office or local air agency).

- (3) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA. The PER must be submitted by the due date identified in the Authorization section of this permit. The permit evaluation report shall cover a reporting period of no more than twelve months for each air contaminant source identified in this permit.
- (4) The permittee shall identify the following information in the annual PER in accordance with the monitoring requirements for visible emissions in term number d)(5) above:
 - a. All days during which any visible emissions of fugitive dust were observed from the egress points (i.e., building windows, doors, roof monitors, etc.) serving this emissions unit; and
 - b. Any corrective actions taken to minimize or eliminate the visible emissions.

f) Testing Requirements

- (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:

- a. Emission Limitations:

Emissions of VOC shall not exceed 10.53 pounds per hour from the use of washes, including mold sprays, alcohol and mold releases in mold making.

Applicable Compliance Method:

If required, compliance with the short-term mass emission limitation may be demonstrated by emission tests pursuant to Method 25 of 40 CFR Part 60, Subpart A, for VOC emissions. Alternative USEPA approved test methods may be used with prior approval from the Ohio EPA.

If required, compliance with the short-term mass emission limitation may be demonstrated by a summation of the following calculations:

The actual quantity of mold releases employed, in pounds per hour, multiplied by the actual VOC content of mold releases, in pounds of VOC per pound of mold release;

The actual quantity of mold sprays employed, in pounds per hour, multiplied by the actual VOC content of mold sprays, in pounds of VOC per pound of mold sprays; and



The actual quantity of supplemental alcohol employed, in pounds per hour, multiplied by the actual VOC content of supplemental alcohol, in pounds of VOC per pound of supplemental alcohol.

The short-term mass emissions limitations were established using information provided by the permittee in the Application for PTI 14-05111 7/17/2001 and Application A0049226 for FEPTIO P0115788, in a summation of the following calculations:

0.1 pound mold release/hr x 0.93 pound VOC/pound mold release = 0.093 pound of VOC/hr

7.2 pounds of mold spray/hr x 0.45 pound VOC/pound mold spray = 3.24 pounds of VOC/hr

7.2 pounds of supplemental alcohol/hr x 1.0 pound VOC/pound supplemental alcohol = 7.20 pounds of VOC/hr

0.093 pounds VOC/hr + 3.24 pounds VOC/hr + 7.20 pounds VOC/hr = 10.53 pounds VOC/hr

b. Emission Limitations:

Particulate emissions (PE) shall not exceed 0.03 pound per hour and 0.14 tons per year (TPY).

Emissions of particulate matter 10 microns and less in diameter (PM10) shall not exceed 0.027 pound per hour and 0.13 TPY.

Applicable Compliance Method:

If required, compliance with the short-term mass emission limitation may be demonstrated by emission tests pursuant to Method 5 of 40 CFR Part 60, Subpart A, for PE and Method 201 of 40 CFR Part 60, Subpart A, for PM10. Alternative USEPA approved test methods may be used with prior approval from the Ohio EPA.

If required, compliance with the short-term mass emission limitations may be demonstrated by the following calculations:

The actual quantity of metal produced, in tons of metal per hour, multiplied by 0.02 pound PE per ton of metal*; and

The actual PE in pounds per hour, multiplied by 0.90 pound per hour PM10/pound per hour PE.

*PE EF supplied by the permittee for vacuum mold making. PM10 fraction is from RACM.



The short-term mass emissions limitations were established using information provided by the permittee in the Application for PTI 14-04394, 2/18/1998, and Application A0049226 for FEPTIO P0115788, in the following calculations:

$3200 \text{ pounds metal/hr} \times 0.02 \text{ pound PE/ton metal} \times 1 \text{ Ton/2000 pounds} = 0.032 \text{ pound PE/hr}$, rounded to 0.03 pound PE/hr

$0.03 \text{ pound PE/hr} \times 0.90 \text{ pound per hour PM}_{10}/\text{pound per hour PE} = 0.027 \text{ pound PM}_{10}/\text{hr}$

Compliance with the annual mass emissions limitations shall be demonstrated by the recordkeeping requirement in term number d)(2) above.

The annual mass emissions limitations were established using information provided by the permittee in the Application for PTI 14-04394, 2/18/1998, and Application A0049226 for FEPTIO P0115788, in the following calculations:

$0.032 \text{ pound PE/hr} \times 8760 \text{ hrs/yr} \times 1 \text{ Ton/2000 pounds} = 0.14 \text{ TPY PE}$

$0.14 \text{ TPY PE} \times 0.90 \text{ TPY PM}_{10}/\text{TPY PE} = 0.126 \text{ TPY PM}_{10}$, rounded to 0.13 TPY PM₁₀

c. Emission Limitation:

Visible emissions of fugitive dust shall not exceed 20% opacity as a three-minute average.

Applicable Compliance Method:

If required, compliance with the limitation for visible emissions of fugitive dust shall be determined through visible emissions observations performed in accordance U.S. EPA Method 9.

d. Emission Limitation:

Emissions of VOC shall not exceed 18.30 TPY, based on a rolling, 12-month summation, from the use of washes, including mold sprays, alcohol and all mold releases.

Applicable Compliance Method:

Compliance with the rolling, 12-month mass emissions limitation shall be demonstrated by the recordkeeping requirements in d)(1).

The rolling, 12-month mass emissions limitation was established using information provided by the permittee in the Application for PTI 14-05111, Administrative Modification 2/9/2006 and Application A0049226 for FEPTIO P0115788, in a summation of the following calculations:

$36,000 \text{ pounds mold spray/yr} \times 0.45 \text{ pound VOC/pound mold spray} \times 1 \text{ Ton/2000 pounds} = 8.10 \text{ TPY VOC}$



Final Permit-to-Install and Operate

A&B Foundry and Machining, LLC

Permit Number: P0115788

Facility ID: 1483040399

Effective Date: 2/10/2014

20,000 pounds alcohol/yr x 1.0 pound VOC/pound alcohol x 1 Ton/2000 pounds
= 10.00 TPY VOC

400 pounds mold release/yr x 0.93 pound VOC/pound mold release x 1
Ton/2000 pounds = 0.19 TPY VOC

8.10 TPY VOC + 10.00 TPY VOC + 0.19 TPY VOC = 18.29 TPY VOC, rounded
to 18.3 TPY VOC

g) Miscellaneous Requirements

(1) None.



3. P901, Reclaimer and resin shakeout

Operations, Property and/or Equipment Description:

Casting shakeout and foundry sand reclaimer and sand handling

a) This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

(1) For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.

a. None.

(2) For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.

a. None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operation(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 are identified below. 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)	<p>Particulate emissions (PE) shall not exceed 1.63 pounds per hour and 7.14 tons per year (TPY) from castings shakeout, reclaimer, and sand handling.</p> <p>Emissions of particulate matter 10 microns and less in diameter (PM10) shall not exceed 1.14 pounds per hour and 4.99 TPY from castings shakeout, reclaimer, and sand handling.</p> <p>Visible particulate emissions from the stack serving this emissions unit shall not exceed 20 percent opacity as a six-minute average, except as provided by rule.</p>



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		Visible emissions of fugitive dust from this emissions unit shall not exceed twenty percent opacity as a three-minute average. See b)(2)a.
b.	OAC rule 3745-17-07(B)	See b)(2)b.
c.	OAC rule 3745-17-08(B)	See b)(2)c.

(2) Additional Terms and Conditions

- a. The emissions from casting shakeout and the reclaimers shall be vented to the cartridge filter dust collector at all times the emissions unit is in operation.
- b. This emissions unit is exempt from the visible emissions limitations for fugitive dust, specified in OAC rule 3745-17-07(B), pursuant to OAC rule 3745-17-07(B)(11)(e), because the emissions unit is not located within areas identified in "Appendix A" of OAC rule 3745-17-08.
- c. This emissions unit is not located within areas identified in "Appendix A" of OAC rule 3745-17-08, therefore, the requirements of OAC rule 3745-17-08(B), which requires the installation of reasonably available control measures to prevent fugitive dust, do not apply to this emissions unit pursuant to OAC rule 3745-17-08(A)(1).
- d. The short-term emission limitations outlined in b)(1) are based upon the emissions unit's potential to emit. Therefore, no hourly records are required to demonstrate compliance with these limitations.

c) Operational Restrictions

- (1) None.

d) Monitoring and/or Recordkeeping Requirements

- (1) The permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack and for any visible emissions of fugitive dust from the egress points (i.e., building windows, doors, roof monitors, etc.) serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
 - a. the location and color of the emissions;
 - b. whether the emissions are representative of normal operations;
 - c. if the emissions are not representative of normal operations, the cause of the abnormal emissions;



- d. the total duration of any visible emissions incident; and
- e. any corrective actions taken to minimize or eliminate the visible emissions.

If visible emissions are present, a visible emissions incident has occurred. The observer does not have to document the exact start and end times for the visible emissions incident under item (d) above or continue the daily check until the incident has ended. The observer may indicate that the visible emissions incident was continuous during the observation period (or, if known, continuous during the operation of the emissions unit). With respect to the documentation of corrective actions, the observer may indicate that no corrective actions were taken if the visible emissions were representative of normal operations, or specify the minor corrective actions that were taken to ensure that the emissions unit continued to operate under normal conditions, or specify the corrective actions that were taken to eliminate abnormal visible emissions.

- (2) In order to maintain compliance with the applicable emission limitation(s) contained in this permit, the acceptable range established for the pressure drop across the cartridge filter dust collector is between 2 to 5 inches of water.
- (3) The permittee shall properly install, operate, and maintain equipment to continuously monitor the pressure drop, in inches of water, across the cartridge filter dust collector when the controlled emissions unit(s) is/are in operation, including periods of startup and shutdown. The permittee shall record the pressure drop across the cartridge filter dust collector on a daily basis. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s), with any modifications deemed necessary by the permittee.

Whenever the monitored value for the pressure drop deviates from the limit or range established in accordance with this permit, 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 the investigation was conducted;
- d. the name(s) 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 range specified in this permit, 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:

- f. a description of the corrective action;



- g. the date corrective action was completed;
- h. the date and time the deviation ended;
- i. the total period of time (in minutes) during which there was a deviation;
- j. the pressure drop readings immediately after the corrective action was implemented; and
- k. the name(s) of the personnel who performed the work.

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

This range or limit on the pressure drop across the cartridge filter dust collector is 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 permitted limit or range for the pressure drop based upon information obtained during future testing that demonstrate compliance with the allowable particulate emission rate for the controlled emissions unit(s). In addition, approved revisions to the range or limit 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.

- (4) The permittee shall annually calculate the actual PE and PM10 emissions from castings shakeout, reclaimer, and sand handling. The permittee shall calculate the emissions based on the following equations (calculate PM10 at 70% of PE, AP-42 Table 12.10-8):

The actual shakeout, tons castings/yr x 0.60 pound PE/ton castings* x 1 Ton/2000 pounds;

The actual reclaimer, tons castings/yr x 0.65 pound PE/ton castings* x 1 ton/2000 pounds; and

The actual sand handling, tons sand/yr x 0.03 pound PE/ton sand x 1 Ton/2000 pounds

*EF from RACM Table 2.8-1; 1/2 the uncontrolled EF for using fabric filter control pursuant to BAT and the American Foundrymen's Society memo.

e) Reporting Requirements

- (1) All applications, notifications or reports required by terms and conditions in this permit to be submitted or "reported in writing" are to be submitted to Ohio EPA through the Ohio EPA's eBusiness Center: Air Services web service ("Air Services"). Ohio EPA will accept hard copy submittals on an as-needed basis if the permittee cannot submit the required documents through the Ohio EPA eBusiness Center. In the event of an alternative hard copy submission in lieu of the eBusiness Center, the post-marked date or the date the document is delivered in person will be recognized as the date submitted. Electronic submission of applications, notifications, or reports required to be submitted to Ohio EPA fulfills the requirement to submit the required information to the Director, the District



Office or Local Air Agency, and/or any other individual or organization specifically identified as an additional recipient identified in this permit unless otherwise specified. Consistent with OAC rule 3745-15-03, the required application, notification or report is considered to be "submitted" on the date the submission is successful using a valid electronic signature. Signature by the signatory authority may be represented as provided through procedures established in Air Services.

- (2) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA. The PER must be submitted by the due date identified in the Authorization section of this permit. The permit evaluation report shall cover a reporting period of no more than twelve months for each air contaminant source identified in this permit.
- (3) The permittee shall identify the following information in the annual permit evaluation report in accordance with the monitoring requirements for visible emissions in term number d)(1) above:
 - a. All days during which any visible particulate emissions were observed from the stack serving this emissions unit;
 - b. All days during which any visible emissions of fugitive dust were observed from the egress points (i.e., building windows, doors, roof monitors, etc.) serving this emissions unit; and
 - c. Any corrective actions taken to minimize or eliminate the visible particulate emissions from the stack and/or visible emissions of fugitive dust.

f) Testing Requirements

- (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:
 - a. Emission Limitations:

Particulate emissions (PE) shall not exceed 1.63 pounds per hour and 7.14 tons per year (TPY) from castings shakeout, reclaimer, and sand handling.

Emissions of particulate matter 10 microns and less in diameter (PM10) shall not exceed 1.14 pounds per hour and 4.99 TPY from castings shakeout, reclaimer, and sand handling.

Applicable Compliance Method:

If required, compliance with the short-term mass emission limitation may be demonstrated by emission tests pursuant to Method 5 of 40 CFR Part 60, Subpart A, for PE and Method 201 of 40 CFR Part 60, Subpart A, for PM10. Alternative USEPA approved test methods may be used with prior approval from the Ohio EPA.



If required, compliance with the short-term mass emission limitations may be demonstrated by the following calculations (calculate PM10 at 70% of PE, AP-42 Table 12.10-8):

actual shakeout, tons of castings/yr x 0.60 pound PE/ton castings*;

actual reclaimer, tons of castings/yr x 0.65 pound PE/ton castings*; and

actual sand handling, tons of sand/yr x 0.03 pound PE/ton sand

*EF from RACM Table 2.8-1; 1/2 the uncontrolled EF for using fabric filter control pursuant to BAT and the American Foundrymen's Society memo.

The short-term mass emission limitations were established using information provided by the permittee in the Application for PTI 14-04394, 2/18/1998, and Application A0049226 for FEPTIO P0115788 in the following equations (calculate PM10 at 70% of PE, AP-42 Table 12.10-8):

$$1 \text{ ton castings/hr} \times 0.60 \text{ pound PE/ton castings} = 0.60 \text{ pound of PE/hr}$$

$$1 \text{ ton castings/hr} \times 0.65 \text{ pound PE/ton castings} = 0.65 \text{ pound of PE/hr}$$

$$12.5 \text{ tons sand/hr} \times 0.03 \text{ pound PE/ton sand} = 0.38 \text{ pound of PE/hr}$$

$$0.60 \text{ pound of PE/hr} + 0.65 \text{ pound of PE/hr} + 0.38 \text{ pound of PE/hr} = 1.63 \text{ pounds of PE/hr}$$

$$1.63 \text{ pounds of PE/hr} \times 0.70 \text{ pound of PM}_{10}/\text{pound of PE} = 1.14 \text{ pounds of PM}_{10}/\text{hr}$$

Compliance with the annual mass emissions limitations shall be demonstrated by the recordkeeping requirement in term number d)(4) above.

The annual mass emission limitations were established using information provided by the permittee in the Application for PTI 14-04394, 2/18/1998, and Application A0049226 for FEPTIO P0115788 in the following equations (calculate PM10 at 70% of PE, AP-42 Table 12.10-8):

$$1.63 \text{ pounds PE/hr} \times 8760 \text{ hr/yr} \times 1 \text{ Ton}/2000 \text{ pounds} = 7.14 \text{ TPY PE}$$

$$1.14 \text{ pounds PM}_{10}/\text{hr} \times 8760 \text{ hr/yr} \times 1 \text{ Ton}/2000 \text{ pounds} = 4.99 \text{ TPY PM}_{10}$$

b. Emission Limitation:

Visible particulate emissions from any/the stack shall not exceed 20 percent opacity as a six-minute average, except as specified by rule; and visible emissions from fugitive dust shall not exceed 20 percent opacity as a three-minute average.



Final Permit-to-Install and Operate
A&B Foundry and Machining, LLC
Permit Number: P0115788
Facility ID: 1483040399
Effective Date: 2/10/2014

Applicable Compliance Method:

If required, compliance with the stack and fugitive visible particulate emissions limitations shall be determined through visible emissions observations performed in accordance with U.S. EPA Method 9.

- g) Miscellaneous Requirements
 - (1) None.