

Certified Mail

7/2/2010

Allen Smalley  
Koch- Knight LLC  
5385 ORCHARDVIEW DRIVE SE  
East Canton, OH 44730

No	TOXIC REVIEW
No	PSD
Yes	SYNTHETIC MINOR TO AVOID MAJOR NSR
No	CEMS
No	MACT
No	NSPS
No	NESHAPS
No	NETTING
No	MAJOR NON-ATTAINMENT
No	MODELING SUBMITTED
No	SYNTHETIC MINOR TO AVOID TITLE V
Yes	FEDERALLY ENFORCABLE PTIO (FEPTIO)

RE: DRAFT AIR POLLUTION PERMIT-TO-INSTALL AND OPERATE  
Facility ID: 1576001851  
Permit Number: P0104197  
Permit Type: Renewal  
County: Stark

Dear Permit Holder:

A draft of the Ohio Administrative Code (OAC) Chapter 3745-31 Air Pollution Permit-to-Install and Operate (PTIO) for the referenced facility has been issued for the emissions unit(s) listed in the Authorization section of the enclosed draft permit. This draft action is not an authorization to begin construction or modification of your emissions unit(s). The purpose of this draft is to solicit public comments on the permit. A public notice will appear in the Ohio EPA Weekly Review and the local newspaper, The Canton Repository. A copy of the public notice and the draft permit are enclosed. This permit can be accessed electronically on the Division of Air Pollution Control (DAPC) Web page, [www.epa.ohio.gov/dapc](http://www.epa.ohio.gov/dapc) by clicking the "Issued Air Pollution Control Permits" link. Comments will be accepted as a marked-up copy of the draft permit or in narrative format. Any comments must be sent to the following:

Andrew Hall  
Permit Review/Development Section  
Ohio EPA, DAPC  
122 South Front Street  
Columbus, Ohio 43215

and Canton City Health Department  
420 Market Avenue  
Canton, OH 44702-1544

Comments and/or a request for a public hearing will be accepted within 30 days of the date the notice is published in the newspaper. You will be notified in writing if a public hearing is scheduled. A decision on issuing a final permit-to-install will be made after consideration of comments received and oral testimony if a public hearing is conducted. Any permit fee that will be due upon issuance of a final Permit-to-Install is indicated in the Authorization section. Please do not submit any payment now. If you have any questions, please contact Canton City Health Department at (330)489-3385.

Sincerely,



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

Cc: U.S. EPA Region 5 *Via E-Mail Notification*  
Canton; Pennsylvania; West Virginia





# Permit Strategy

## A. Source Description

Koch Knight LLC manufactures brick and ceramic products from raw clay feedstocks. It is located in Stark County, Osnaburg Twp. Facility emissions are produced by five (5) natural gas fired kilns. The facility currently is operating under a FESOP issued on 11-10-03, which was based on PTI 15-01344 issued on 5-28-02. Since PTI 15-01344 was issued, one of the kilns has been permanently shut down (P002). The emissions sources are as follows:

- P001- Existing natural gas fired Tunnel Kiln, rated at 1750 lbs/hr clay capacity.
- P002- Old natural gas fired Tunnel Kiln, rated at 2500 lbs/hr clay capacity, permanently shutdown.
- P003- Existing natural gas fired Tunnel Kiln, rated at 3125 lbs/hr clay capacity.
- P004- Existing natural gas fired Shuttle Kiln, rated at 150 lbs/hr clay capacity.
- P005- Existing natural gas fired Shuttle Kiln, rated at 272 lbs/hr clay capacity.
- P006- Existing natural gas fired Shuttle Kiln, rated at 272 lbs/hr clay capacity.

## B. Facility Emissions and Attainment Status

The facility wants to increase the clay capacity of P004 by 100% and the clay capacity of P005 and P006 by 50% each. The facility also wants to remove some of the emission unit group limits on clay throughput and sulfur content to improve operating flexibility.

- The total clay processed by the facility will increase from 11,625 to 13,300 tpy.
- The annual average fluorine content of the clay will decrease from 0.08% to 0.07%, keeping the total facility HF emissions the same (9.8 tpy)
- The annual average sulfur in the clay will increase, causing the facility SO<sub>2</sub> emissions to increase from 27.7 tpy to 31.9 tpy.

PTI 15-01344 was issued as a synthetic minor with limits on the amount of clay processed and limits on the amount of Fluorine content in the clay to keep HF emissions (classified as a HAP) below 10 tpy, thereby avoiding major source status for HAP's. Limits were also set for the maximum sulfur content in the clay.

Because the Fluorine and Sulfur content in the clay can vary continuously, PTI 15-01344 based the allowable short term lb/hr emissions of HF and SO<sub>2</sub> on fluoride and sulfur content in the clay over a 30-day weighted average. This means the short term emissions are calculated by multiplying the hourly amount of clay fired in the kilns by a 30 day weighted average Fluorine or Sulfur content of all the clays fired.

The same procedure has been carried over into this new modified PTI.

Because SO<sub>2</sub> emissions from P001 and P003 exceed 10 tpy each, they are subject to BAT limits on Fluorine and Sulfur for any clay sample not to exceed 0.08% F and 0.13 % on a 30-day weighted average. These limits are in addition to the annual weighted average limits of 0.07% F and 0.12 % S for all clays.

Stark county is nonattainment for ozone and PM<sub>2.5</sub>. The only pollutant emitted from this facility affecting ozone is NO<sub>x</sub>. The increase in allowable NO<sub>x</sub> emissions (15.6 tpy) is below the significant increase level of 40 tpy. The increase in PE (9.8 tpy), is also under the significant increase level of 15 tpy (for PM<sub>10</sub>).



Because the facility will use only clays with a lower average fluorine content compared to PTI 15-01344 (0.07% vs 0.08%), there is no increase in facility HF emissions, thereby negating the need for new Air Toxic dispersion modeling of HF. However, a new ISCLT3 model was submitted for P001 to correct an error in converting HF emissions from grams/sec to lb/hr. This is further discussed below.

### C. Source Emissions

#### BAT applicability:

Since the modifications will occur after Aug. 3, 2006, in accordance with SB 265, BAT requirements are applicable only to the emissions from units which have a PTE greater than 10 TPY.

BAT is still applicable, however, to all HF emissions regardless of the 10 tpy trigger per Ohio's current Air Toxic Policy.

Emissions subject to BAT are summarized below:

#### P001:

SO<sub>2</sub> : PTE = 18.40 tpy, BAT applies.

HF: BAT applies to any air toxic based on Ohio's current Air Toxic Policy.

A calculation error for allowable HF emissions for P001 was discovered and corrected for this PTI modification. SCR<sub>N</sub> 3 modeling done for PTI 15-01344 showed acceptable concentrations of HF at an emissions rate of 0.137 grams/sec, which was incorrectly converted to 1.47 lb/hr and 6.44 tpy. The correct conversion should have been 1.09 lb/hr and 4.77 tpy. Koch Knight wanted to retain the existing HF limit of 1.47 lb/hr and performed more refined dispersion modeling using ISCLT3 at the 1.47 lb/hr emissions rate. The refined model showed an acceptable ground level concentration of HF of 0.17 ug/m<sup>3</sup> averaged over 30 days (Ohio EPA's MAGLC is 0.50 ug/m<sup>3</sup>). Canton LAA also requested Sarah Hedlund of OEPA to review the new ISCLT3 model, and she agreed with the results. The 1.47 lb/hr HF emissions rate has been incorporated into the newly modified PTI..

#### P003:

NO<sub>x</sub>: PTE = 14.67 tpy, BAT applies.

CO : PTE = 12.83 tpy, BAT applies.

SO<sub>2</sub>: PTE = 31.92 tpy, BAT applies.

HF: BAT applies to any air toxic based on Ohio's current Air Toxic Policy.

PTI 15-01344 had no short or long term for NO<sub>x</sub> or CO. Even though only the SO<sub>2</sub> is effected by the modification, limits for NO<sub>x</sub> and CO will be introduced in the modified permit because they are over 10 tpy and subject to BAT.

P004, P005, P006:

PTE for NO<sub>x</sub>, CO, SO<sub>2</sub>, and PE are all less than 10 tpy, and are accordingly not subject to BAT limits in the modified permit.

HF: BAT applies to any air toxic based on Ohio's current Air Toxic Policy.

D. Conclusion

Because of the increase in sulfur content of the clay, and increased clay throughput possible on all emission units (removal of emission group limits) this permit is a Chapter 31 modification.

This permit modification minimizes changes to PTI 15-01344 which it supercedes. It makes revisions only as necessary to accommodate the requested changes, to incorporate the recently enacted SB-265 for Best Available Technology application, and to correct previous arithmetical errors.

This permit contains federally enforceable limits with adequate monitoring, record keeping and reporting requirements to limit the emissions increases below significance levels and will avoid PSD and nonattainment NSR.



PUBLIC NOTICE  
Issuance of Draft Air Pollution Permit-To-Install and Operate  
Koch- Knight LLC

Issue Date: 7/2/2010

Permit Number: P0104197

Permit Type: Renewal

Permit Description: Incorporate PTI 15-01651, which increased capacity of kilns P004-P006, and removed emission unit group limits, and modified Fluorine and Sulfur content limits in clay used.

Facility ID: 1576001851

Facility Location: Koch- Knight LLC  
5385 ORCHARDVIEW DRIVE,  
East Canton, OH 44730

Facility Description: Other Structural Clay Product Manufacturing

Chris Korleski, Director of the Ohio Environmental Protection Agency, 50 West Town Street, Columbus Ohio has issued a draft action of an air pollution control, federally enforceable permit-to-install and operate (PTIO) for the facility at the location identified above on the date indicated. Comments concerning this draft action, or a request for a public meeting, must be sent in writing no later than thirty (30) days from the date this notice is published. All comments, questions, requests for permit applications or other pertinent documentation, and correspondence concerning this action must be directed to Bud Keim at Canton City Health Department, 420 Market Avenue or (330)489-3385 . The permit can be downloaded from the Web page: [www.epa.state.oh.us/dapc](http://www.epa.state.oh.us/dapc)





**DRAFT**

**Division of Air Pollution Control  
Permit-to-Install and Operate  
for  
Koch- Knight LLC**

Facility ID: 1576001851  
Permit Number: P0104197  
Permit Type: Renewal  
Issued: 7/2/2010  
Effective: To be entered upon final issuance  
Expiration: To be entered upon final issuance





Division of Air Pollution Control
Permit-to-Install and Operate
for
Koch- Knight LLC

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## Authorization

Facility ID: 1576001851

Application Number(s): A0036274

Permit Number: P0104197

Permit Description: Incorporate PTI 15-01651, which increased capacity of kilns P004-P006, and removed emission unit group limits, and modified Fluorine and Sulfur content limits in clay used.

Permit Type: Renewal

Permit Fee: \$0.00 *DO NOT send payment at this time, subject to change before final issuance*

Issue Date: 7/2/2010

Effective Date: To be entered upon final issuance

Expiration Date: To be entered upon final issuance

Permit Evaluation Report (PER) Annual Date: To be entered upon final issuance

This document constitutes issuance to:

Koch- Knight LLC  
5385 ORCHARDVIEW DRIVE  
East Canton, OH 44730

of a Permit-to-Install and Operate 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:

Canton City Health Department  
420 Market Avenue  
Canton, OH 44702-1544  
(330)489-3385

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

Chris Korleski  
Director



## Authorization (continued)

Permit Number: P0104197

Permit Description: Incorporate PTI 15-01651, which increased capacity of kilns P004-P006, and removed emission unit group limits, and modified Fluorine and Sulfur content limits in clay used.

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

<b>Emissions Unit ID:</b>	<b>P001</b>
Company Equipment ID:	Tunnel Kiln #3
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable

<b>Emissions Unit ID:</b>	<b>P003</b>
Company Equipment ID:	Tunnel Kiln #2
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable

<b>Emissions Unit ID:</b>	<b>P004</b>
Company Equipment ID:	Shuttle Kiln #5
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable

<b>Emissions Unit ID:</b>	<b>P005</b>
Company Equipment ID:	Shuttle Kiln #6
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable

<b>Emissions Unit ID:</b>	<b>P006</b>
Company Equipment ID:	Shuttle Kiln #7
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable

## **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. Unless otherwise specified, facilities subject to one or more synthetic minor restrictions must use Ohio EPA's "Air Services" to submit annual emissions associated with this permit requirement. 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 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 Canton City Health Department 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<sup>1</sup> 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 emissions 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

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<sup>1</sup> Permittees that use Ohio EPA's "Air Services" can mark the affected emissions unit(s) as "permanently shutdown" in the facility profile 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).



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.

## **B. Facility-Wide Terms and Conditions**

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.

## **C. Emissions Unit Terms and Conditions**



1. P001, Tunnel Kiln #3

Operations, Property and/or Equipment Description:

1750 lbs clay/hr, 12.1 MMBtu/hr natural gas-fired tunnel kiln No. 3

- 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).
  - (2) 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.
  - (3) 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 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)  (PTI 15-01651 issued 05/08/2007)	Sulfur dioxide emissions shall not exceed 4.55 pounds/hour (as a 30-day average) and 18.4 tons/year.  Hydrogen fluoride emissions shall not exceed 1.47 pounds/hour (as a 30-day average) and 5.65 tons/year.  See section b)(2)c. and section c) below.
b.	OAC rule 3745-31-05(D)(1)(b) (Synthetic Minor Limits)	The total emissions of hydrogen fluoride from emissions units P001 and P003-P006 shall not exceed 9.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions.  See section b)(2)a. below.  The total emissions of sulfur dioxide from emissions units P001 and P003-P006 shall not

	Applicable Rules/Requirements	Applicable Emissions Limitations/ Control Measures
b.		<p>exceed 31.9 tons per year, based upon a rolling, 12-month summation of the monthly emissions.</p> <p>See section b)(2)b. below</p>
c.	OAC rule 3745-17-07(A)	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.
d.	OAC rule 3745-17-11	Particulate emissions shall not exceed 3.75 pounds/hour.
e.	OAC rule 3745-18-82(A)(3)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).

(2) Additional Terms and Conditions

- a. The calculation of hydrogen fluoride emissions shall be based on the average fluorine content of clay employed. The rolling, 12-month average fluorine content shall be the average of each monthly weighted average fluorine content over the previous twelve months. The monthly weighted average fluorine content shall be the monthly sum of the products of clay employed in emissions units P001 and P003 – P006 times the monitored fluorine content of each clay, divided by the monthly amount of clay employed in these emissions units. A fluorine content test shall be conducted for each different clay at a minimum of once for every 1,000 tons of each different clay delivered.
- b. The calculation of sulfur dioxide emissions shall be based on the average sulfur content of clay employed. The rolling, 12-month average sulfur content shall be the average of each monthly weighted average sulfur content over the previous twelve months. The monthly weighted average sulfur content shall be the monthly sum of the products of clay employed in emissions units P001 and P003 – P006 times the monitored sulfur content of each clay, divided by the monthly amount of clay employed in these emissions units. A sulfur content test shall be conducted for each different clay at a minimum of once for every 1,000 tons of each different clay delivered.
- c. Pursuant to OAC rule 3745-31-05(A)(3)(a)(ii), the Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the uncontrolled PE, NO<sub>x</sub>, and CO emissions from this emissions unit since the potential to emit for PE, NO<sub>x</sub>, and CO is less than ten tons per year each.

c) Operational Restrictions

- (1) The hydrogen fluoride emissions from this emissions unit shall not show an exceedance of the maximum 30-day average ground level concentration of 0.5 microgram/m<sup>3</sup>. This is an Ohio EPA Modeling Policy. Compliance with this limit was demonstrated based on the ISCLT3 model dated 12-19-06 and submitted with the PTI application. The following stack parameters were used in this successful model run:

Emission rate (30-day average)	0.185 gram/second or 1.47 lbs/hr
Stack height	25.7 meters
Stack inside diameter	0.76 meter
Stack exit velocity	10.4034 meters/second
Stack gas exit temp.	444 degrees Kelvin

The following summarizes the results of the modeling:

Maximum concentration was 0.17 ug/m<sup>3</sup> at a distance of 700 meters, which is less than the 0.5 ug/m<sup>3</sup> limit.

Any change to the emissions unit or its exhaust parameters (e.g., increased emission rate, reduction of exhaust gas flow rate, and decreased stack height) that would result in an exceedance of the maximum 30-day average ground level concentration of 0.5 microgram/m<sup>3</sup> may be deemed a "modification" to the emissions unit, and, as such, prior notification to and approval from the Canton local air agency will be required, including the possible issuance of modifications to this permit.

- (2) The maximum annual combined clay usage for emissions units P001 and P003 – P006 shall not exceed 13,300 tons, based upon a rolling, 12-month summation of the clay usage figures.
- (3) This permittee shall not use any clay in emissions units P001 and P003-P006 that would cause either the rolling, 12-month average of 0.12% sulfur content or the monthly weighted average of 0.13% sulfur content to be exceeded. See section b)(2)b. above for the method of determining the rolling, 12-month average and monthly weighted average sulfur content.
- (4) This permittee shall not use any clay in emissions units P001 and P003-P006 that would cause either the rolling, 12-month average of 0.07% fluorine content or the monthly weighted average of 0.08% fluorine content to be exceeded. See section b)(2)a. above for the method of determining the rolling, 12-month average and monthly weighted average fluorine content.
- (5) The only fuel to be used in this emissions unit shall be natural gas.

d) Monitoring and/or Recordkeeping Requirements

- (1) The permittee shall keep daily records of the amount of clay fired in this kiln.

- (2) The permittee shall conduct testing and maintain records for both the fluorine and sulfur content of each different clay delivered. This testing shall be conducted at a minimum of once for every 1,000 tons of each different clay delivered.
  - (3) The permittee shall determine the monthly weighted average of fluorine content by multiplying the monthly sum of the products of clay employed in kilns P001 and P003-P006 times the monitored fluorine content of each clay, divided by the monthly amount of clay employed in kilns P001 and P003-P006. This calculation will be used to determine compliance with the monthly weighted average limit of 0.08% fluorine content.
  - (4) The permittee shall determine the monthly weighted average of sulfur content by multiplying the monthly sum of the products of clay employed in kilns P001 and P003-P006 times the monitored sulfur content of each clay, divided by the monthly amount of clay employed in kilns P001 and P003-P006. This calculation will be used to determine compliance with the monthly weighted average limit of 0.13% sulfur content.
  - (5) The permittee shall calculate the rolling, 12-month average fluorine content using the average of each monthly weighted average fluorine content over the previous twelve months. This calculation will be used to determine compliance with the rolling, 12-month average limit of 0.07% fluorine content.
  - (6) The permittee shall calculate the rolling, 12-month average sulfur content using the average of each monthly weighted average sulfur content over the previous twelve months. This calculation will be used to determine compliance with the rolling, 12-month average limit of 0.12% sulfur content.
  - (7) The permittee shall keep monthly records of the total amount of clay used in each of the kilns P001 and P003-P006.
  - (8) The permittee shall keep monthly records of the rolling, 12-month summation of the tons of clay used in emissions units P001 and P003-P006.
  - (9) The permittee shall keep monthly records of the combined sulfur dioxide emissions from units P001 and P003-P006.
  - (10) The permittee shall keep monthly records of the combined hydrogen fluoride emissions from units P001 and P003-P006.
  - (11) The permittee shall keep monthly records of the rolling, 12-month summation of the combined sulfur dioxide emissions from emissions units P001 and P003-P006.
  - (12) The permittee shall keep monthly records of the rolling, 12-month summation of the combined hydrogen fluoride emissions from emissions units P001 and P003-P006.
- e) Reporting Requirements
- (1) The permittee shall submit quarterly deviation (excursion) reports that identify:
    - a. **all deviations (excursions) of the following emission limitations, operational restrictions and/or control measures that restrict the potential**

**to emit (PTE) of any regulated air pollutant and have detected by the monitoring, record keeping and/or testing requirements in this permit:**

- i. all exceedances of the rolling, 12-month combined clay usage limitation for emissions units P001 and P003-P006;
  - ii. all exceedances of the rolling, 12-month combined emission limitation for hydrogen fluoride emissions from units P001 and P003-P006;
  - iii. all exceedances of the rolling, 12-month combined emission limitation for sulfur dioxide emissions from units P001 and P003-P006;
  - iv. all exceedances of the rolling, 12-month average of the 0.12% sulfur content limit for the clay employed in emissions units P001 and P003-P006;
  - v. all exceedances of the rolling, 12-month average of the 0.07% fluorine content limit for the clay employed in emissions units P001 and P003-P006;
  - vi. all exceedances of each monthly weighted average of the 0.13% sulfur content limit in emissions units P001 and P003-P006; and
  - vii. all exceedances of each monthly weighted average of the 0.08% fluorine content limit in emissions units P001 and P003-P006.
- b. the probable cause of each deviation (excursion):
- i. any corrective actions that were taken to remedy the deviations (excursions) or prevent future deviations (excursions); and
  - ii. the magnitude and date, time, 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, electronically through Ohio EPA Air Services, 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).

- (2) Annual Permit Evaluation Report (PER) forms will be mailed to the permittee at the end of the reporting period specified in the Authorization section of this permit. The permittee shall submit the PER in the form and manner provided by the director 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 PER:
  - a. the total combined hydrogen fluoride emissions from emissions units P001 and P003-P006. (These reports shall be submitted by January 31 of each year.)
  - b. the total combined sulfur dioxide emissions from emissions units P001 and P003-P006. (These reports shall be submitted by January 31 of each year.)

f) Testing Requirements

- (2) Compliance with the emission limitations in section b) and the operating restrictions in section c) of these terms and conditions shall be determined in accordance with the following methods:

- a. Emissions Limitation:

Sulfur dioxide emissions shall not exceed 4.55 pounds/hour (as a 30-day average) and 18.4 tons/year.

Applicable Compliance Method:

The calculation of short term sulfur dioxide (SO<sub>2</sub>) emissions shall be made by multiplying the hourly amount of clay employed times the monthly weighted average of sulfur (S) in the clay times 2 (the ratio of the molecular weight of SO<sub>2</sub> (=64) to the molecular weight of S (=32), which is 2).

The annual sulfur dioxide (SO<sub>2</sub>) emissions limitation shall be determined by multiplying the rolling, 12-month average sulfur in the clay times the total amount of clay employed for the corresponding 12-month period times 2 (the ratio of the molecular weight of SO<sub>2</sub> (=64) to the molecular weight of S (=32), which is 2).

- b. Emissions Limitation:

Hydrogen fluoride emissions shall not exceed 1.47 pounds/hour (as a 30-day average) and 5.65 tons/year.

Applicable Compliance Method:

The calculation of short term hydrogen fluoride (HF) emissions shall be made by multiplying the hourly amount of clay employed times the monthly weighted average of fluorine (F) times 20/19 (the ratio of molecular weights HF/F or 20/19).

The annual emissions limitation shall be determined by multiplying the rolling, 12-month average fluorine in the clay times the total amount of clay employed for the corresponding 12-month period times 20/19 (the ratio of molecular weights HF/F or 20/19).

c. Emissions Limitation:

The total emissions of hydrogen fluoride from emissions units P001 and P003-P006 shall not exceed 9.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions.

Applicable Compliance Method:

Compliance shall be based on the record keeping found in Section d)(12).

d. Emissions Limitation:

The total emissions of sulfur dioxide from emissions units P001 and P003-P006 shall not exceed 31.9 tons per year, based upon a rolling, 12-month summation of the monthly emissions.

Applicable Compliance Method:

Compliance shall be based on the record keeping found in Section d)(11).

e. Emissions Limitation:

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.

Applicable Compliance Method:

Compliance shall be determined by visible emission evaluations performed in accordance with procedures specified in OAC rule 3745-17-03(B)(1) using the methods and procedures specified in USEPA Reference Method 9.

f. Emissions Limitation:

Particulate emissions shall not exceed 3.75 pounds/hour.

Applicable Compliance Method:

Multiply 0.875 ton/hr. clay (max. PWR) times 0.96 lb particulate/ton (emission factor from AP-42, Table 11.3-2, 8/97), which equals 0.84 lb. particulate/hr.

If required, compliance shall be determined in accordance with the requirements in 40 CFR Part 60, Appendix A, Methods 1-5 and the procedures specified in OAC rule 3745-17-03(B)(10).

g. Operating Restriction:

The maximum annual combined clay usage for emissions units P001 and P003-P006 shall not exceed 13,300 tons, based upon a rolling, 12-month summation of the clay usage figures.

Applicable Compliance Method:

Compliance shall be based on the record keeping found in section d)(8).

h. Operating Restriction:

This facility shall not use any clay in emissions units P001 and P003-P006 that would cause either the rolling, 12-month average of 0.12% sulfur content or the monthly weighted average of 0.13% sulfur content to be exceeded.

Applicable Compliance Method:

Compliance shall be based on the record keeping found in section d)(6) for determining the rolling, 12-month average and section d)(4) for determining the monthly weighted average.

i. Operating Restriction:

This facility shall not use any clay in emissions units P001 and P003-P006 that would cause either the rolling, 12-month average of 0.07% fluorine content or the monthly weighted average of 0.08% fluorine content to be exceeded

Applicable Compliance Method:

Compliance shall be based on the record keeping found in section (d)(5) for determining the rolling, 12-month average and section d)(3) for determining the monthly weighted average.

g) **Miscellaneous Requirements**

- (1) This FEPTIO supersedes PTI 15-01651 issued on May 8, 2007 for emissions units P001 and P003-P006.
- (3) By request of the applicant and pursuant to OAC rule 3745-31-05(D)(1)(b), the additional term and condition b)(2)a. of this FEPTIO for hydrogen fluoride emissions is a federally enforceable requirement.



2. P003, Tunnel Kiln #2

Operations, Property and/or Equipment Description:

3125 lbs clay/hr, 34.9 MMBtu/hr natural gas-fired tunnel kiln No. 2

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 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)  (PTI 15-01651 issued 05/08/2007)	Nitrogen oxide emissions shall not exceed 3.35 pounds/hr. and 14.67 tons/yr.  Carbon monoxide emissions shall not exceed 2.93 pounds/hr. and 12.83 tons/yr.  Sulfur dioxide emissions shall not exceed 8.13 pounds/hr. (as a 30-day average) and 31.9 tons/yr.  Hydrogen fluoride emissions shall not exceed 2.63 pounds/hr. (as a 30-day average) and 9.8 tons/yr.  See section b)(2)c. below.
b.	OAC rule 3745-31-05(D)(1)(b)	The total emissions of hydrogen fluoride from emissions units P001 and P003-P006 shall not

	Applicable Rules/Requirements	Applicable Emissions Limitations/ Control Measures
b.	(Synthetic Minor Limits)	<p>exceed 9.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions.</p> <p>See section b)(2)a. below. The total emissions of sulfur dioxide from emissions units P001 and P003-P006 shall not exceed 31.9 tons per year, based upon a rolling, 12-month summation of the monthly emissions.</p> <p>See section b)(2)b. below.</p>
c.	OAC rule 3745-17-07(A)	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.
d.	OAC rule 3745-17-11	Particulate emissions shall not exceed 5.53 pounds/hr.
e.	OAC rule 3745-18-82(A)(3)	The emissions limitation specified by this rule is less stringent than the emissions limitation established pursuant to OAC rule 3745-31-05(A)(3).

(2) Additional Terms and Conditions

- a. The calculation of hydrogen fluoride emissions shall be based on the average fluorine content of clay employed. The rolling, 12-month average fluorine content shall be the average of each monthly weighted average fluorine content over the previous twelve months. The monthly weighted average fluorine content shall be the monthly sum of the products of clay employed in emissions units P001 and P003-P006 times the monitored fluorine content of each clay, divided by the monthly amount of clay employed in these emissions units. A fluorine content test shall be conducted for each different clay at a minimum of once for every 1,000 tons of each different clay delivered.
- b. The calculation of sulfur dioxide emissions shall be based on the average sulfur content of clay employed. The rolling, 12-month average sulfur content shall be the average of each monthly weighted average sulfur content over the previous twelve months. The monthly weighted average sulfur content shall be the monthly sum of the products of clay employed in emissions units P001 and P003-P006 times the monitored sulfur content of each clay, divided by the monthly amount of clay employed in these emissions units. A sulfur content test shall be conducted for each different clay at a minimum of once for every 1,000 tons of each different clay delivered.
- c. Pursuant to OAC rule 3745-31-05(A)(3)(a)(ii), the Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the

uncontrolled PE from this emissions unit since the potential to emit for PE is less than ten tons per year.

c) Operational Restrictions

- (1) The maximum annual combined clay usage for emissions units P001 and P003-P006 shall not exceed 13,300 tons, based upon a rolling, 12-month summation of the clay usage figures.
- (2) This permittee shall not use any clay in emissions units P001 and P003-P006 that would cause either the rolling, 12-month average of 0.12% sulfur content or the monthly weighted average of 0.13% sulfur content to be exceeded. See section b)(2)b. above for the method of determining the rolling, 12-month average and monthly weighted average sulfur content.
- (4) This permittee shall not use any clay in emissions units P001 and P003-P006 that would cause either the rolling, 12-month average of 0.07% fluorine content or the monthly weighted average of 0.08% fluorine content to be exceeded. See section b)(2)a. above for the method of determining the rolling, 12-month average and monthly weighted average fluorine content.
- (5) The only fuel to be used in this emissions unit shall be natural gas.

d) Monitoring and/or Recordkeeping Requirements

- (1) The permittee shall keep daily records of the amount of clay fired in this kiln.
- (2) The permittee shall conduct testing and maintain records for both the fluorine and sulfur content of each different clay delivered. This testing shall be conducted at a minimum of once for every 1,000 tons of each different clay delivered.
- (3) The permittee shall determine the monthly weighted average of fluorine content by multiplying the monthly sum of the products of clay employed in kilns P001 and P003-P006 times the monitored fluorine content of each clay, divided by the monthly amount of clay employed in kilns P001 and P003-P006. This calculation will be used to determine compliance with the monthly weighted average limit of 0.08% fluorine content.
- (4) The permittee shall determine the monthly weighted average of sulfur content by multiplying the monthly sum of the products of clay employed in kilns P001 and P003-P006 times the monitored sulfur content of each clay, divided by the monthly amount of clay employed in kilns P001 and P003-P006. This calculation will be used to determine compliance with the monthly weighted average limit of 0.13% sulfur content.
- (6) The permittee shall calculate the rolling, 12-month average fluorine content using the average of each monthly weighted average fluorine content over the previous twelve months. This calculation will be used to determine compliance with the rolling, 12-month average limit of 0.07% fluorine content.

- (7) The permittee shall calculate the rolling, 12-month average sulfur content using the average of each monthly weighted average sulfur content over the previous twelve months. This calculation will be used to determine compliance with the rolling, 12-month average limit of 0.12% sulfur content.
  - (8) The permittee shall keep monthly records of the total amount of clay used in each of the kilns P001 and P003-P006.
  - (9) The permittee shall keep monthly records of the rolling, 12-month summation of the tons of clay used in emissions units P001 and P003-P006.
  - (10) The permittee shall keep monthly records of the combined sulfur dioxide emissions from emissions units P001 and P003-P006.
  - (11) The permittee shall keep monthly records of the combined HF emissions from emissions units P001 and P003-P006.
  - (12) The permittee shall keep monthly records of the rolling, 12-month summation of the combined sulfur dioxide emissions from emissions units P001 and P003-P006.
  - (13) The permittee shall keep monthly records of the rolling, 12-month summation of the combined HF emissions from emissions units P001 and P003-P006.
- e) Reporting Requirements
- (1) The permittee shall submit quarterly deviation (excursion) reports that identify the following:
    - a. all exceedances of the rolling, 12-month clay combined usage limitation for emissions units P001 and P003-P006;
    - b. all exceedances of the rolling, 12-month combined emissions limitation for HF from emissions units P001 and P003-P006;
    - c. all exceedances of the rolling, 12-month combined emission limitations for SO<sub>2</sub> from emissions units P001 and P003-P006;
    - d. all exceedances of the rolling, 12-month average of the 0.12% sulfur content in the clay employed in emissions units P001 and P003-P006;
    - e. all exceedances of the rolling, 12-month average of the 0.07% fluorine content in the clay employed in emissions units P001 and P003-P006;
    - f. all exceedances of each monthly weighted average of the 0.13% sulfur content limit in emissions units P001 and P003-P006; and
    - g. all exceedances of each monthly weighted average of the 0.08% fluorine content limit in emissions units P001 and P003-P006.

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

- (2) The permittee shall submit annual reports which specify the total combined HF emissions for emissions units P001 and P003-P006. These reports shall be submitted by January 31 of each year.
- (3) The permittee shall submit annual reports which specify the total combined SO<sub>2</sub> emissions for emissions units P001 and P003-P006. These reports shall be submitted by January 31 of each year.

f) **Testing Requirements**

- (1) Compliance with the emission limitations in section b) and the operating restrictions in section c) of these terms and conditions shall be determined in accordance with the following methods:

a. Emissions Limitation:

Nitrogen oxide emissions shall not exceed 3.35 pounds/hour and 14.67 tons/year.

Applicable Compliance Method:

Compliance with the NO<sub>x</sub> emissions short term limit shall be demonstrated as follows:

$34.9 \text{ MMBtu/hr.} \times 0.096 \text{ lb NO}_x/\text{MMBtu (mfg. Documentation)} = 3.35 \text{ lbs NO}_x/\text{hr.}$

Compliance with the NO<sub>x</sub> emissions long term limit shall be demonstrated as follows:

$3.35 \text{ lbs NO}_x/\text{hr.} \times 8760 \text{ hrs/yr.} \times 1 \text{ ton}/2000 \text{ lbs.} = 14.67 \text{ tpy NO}_x$

b. Emissions Limitation:

Carbon monoxide emissions shall not exceed 2.93 pounds/hr. and 12.83 tons/yr.

Applicable Compliance Method:

Compliance with the CO emissions short term limit shall be demonstrated as follows:

$34.9 \text{ MMBtu/hr.} \times 0.084 \text{ lb CO/MMBtu (emission factor from AP-42, Table 1.4-1, 7/98)} = 2.93 \text{ lbs. CO/hr.}$

Compliance with the NO<sub>x</sub> emissions long term limit shall be demonstrated as follows:

$2.93 \text{ lbs. CO/hr} \times 8760 \text{ hrs/yr.} \times 1 \text{ ton}/2000 \text{ lbs.} = 12.83 \text{ tpy CO}$

c. Emissions Limitation:

Sulfur dioxide emissions shall not exceed 8.13 pounds/hr. (as a 30-day average) and 31.9 tons/yr.

Applicable Compliance Method:

The calculation of short term sulfur dioxide emissions shall be made by multiplying the hourly amount of clay employed times the monthly weighted average of sulfur in the clay times 2.

The annual emissions limitation shall be determined by multiplying the rolling, 12-month average sulfur in the clay times the total amount of clay employed for the corresponding 12-month period times 2.

d. Emissions Limitation:

Hydrogen fluoride emissions shall not exceed 2.63 pounds/hr. (as a 30-day average) and 9.8 tons/yr.

Applicable Compliance Method:

The calculation of short term hydrogen fluoride emissions shall be made by multiplying the hourly amount of clay employed times the monthly weighted average of fluorine times 20/19.

The annual emissions limitation shall be determined by multiplying the rolling, 12-month average fluorine in the clay times the total amount of clay employed for the corresponding 12-month period times 20/19.

e. Emissions Limitation:

The total emissions of hydrogen fluoride from emissions units P001 and P003-P006 shall not exceed 9.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions.

Applicable Compliance Method:

Compliance shall be based on the record keeping found in section d)(12).

f. Emissions Limitation:

The total emissions of sulfur dioxide from emissions units P001 and P003-P006 shall not exceed 31.9 tons per year, based upon a rolling, 12-month summation of the monthly emissions.

Applicable Compliance Method:

Compliance shall be based on the record keeping found in Section d)(11).

g. Emissions Limitation:

Visible particulate emissions from the stack servicing this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.

Applicable Compliance Method:

Compliance shall be determined by visible emission evaluations performed in accordance with procedures specified in OAC rule 3745-17-03(B)(1) using the methods and procedures specified in USEPA Reference Method 9.

h. Emissions Limitation:

Particulate emissions shall not exceed 5.53 pounds/hr.

Applicable Compliance Method:

From AP-42 Table 11.3-2, 8/97, EF for total PE = 0.96 lb/ton of clay fired.

$PE = 3125 \text{ lbs. Clay/hr.} \times 1 \text{ ton}/2000 \text{ lbs.} \times 0.96 \text{ lb PE/ton clay} = 1.50 \text{ lbs PE/hr.}$

i. Emissions Limitation:

Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the uncontrolled PE from this emissions unit since the potential to emit for PE is less than ten tons per year.

Applicable Compliance Method:

Compliance with the PE emissions long term limit of less than ten tons per year shall be demonstrated as follows:

From AP-42 Table 11.3-2, 8/97, EF for total PE = 0.96 lb/ton of clay fired.

$PE = 13,300 \text{ tons clay/yr.} \times 0.96 \text{ lb PE/ton clay} \times 1 \text{ ton PE}/2000 \text{ lbs PE} = 6.38 \text{ tpy.}$

j. Operating Restriction:

The maximum annual combined clay usage for emissions units P001 and P003-P006 shall not exceed 13,300 tons, based upon a rolling, 12-month summation of the clay usage figures.

Applicable Compliance Method:

Compliance shall be based on the record keeping found in section d)(8).

k. Operating Restriction:

This facility shall not use any clay in emissions units P001 and P003-P006 that would cause either the rolling, 12-month average of 0.12% sulfur content or the monthly weighted average of 0.13% sulfur content to be exceeded.

Applicable Compliance Method:

Compliance shall be based on the record keeping found in section d)(6) for determining the rolling, 12-month average and section d)(4) for determining the monthly weighted average.

l. Operating Restriction:

This facility shall not use any clay in emissions units P001 and P003-P006 that would cause either the rolling, 12-month average of 0.07% fluorine content or the monthly weighted average of 0.08% fluorine content to be exceeded.

Applicable Compliance Method:

Compliance shall be based on the record keeping found in section d)(5) for determining the rolling, 12-month average and section d)(3) for determining the monthly weighted average.

g) **Miscellaneous Requirements**

- (1) This FEPTIO incorporates PTI 15-01651 issued on May 8, 2007 for P001 and P003-P006.
- (2) By request of the applicant and pursuant to OAC rule 3745-31-05, the additional term and condition b)(2)a. of this FEPTIO for hydrogen fluoride emissions is a federally enforceable requirement.



3. P004, Shuttle Kiln #5

Operations, Property and/or Equipment Description:

300 lb/hr, 4.32 mmbtu/hr nat. gas fired shuttle kiln No. 5

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 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)  (PTI 15-01651 issued 05/08/2007)	Hydrogen fluoride emissions shall not exceed 0.57 pound/hr. (as a 30-day average) and 0.70 ton/yr.  See section b)(2)c. below.
b.	OAC rule 3745-31-05(D) (Synthetic Minor Limits)	The total emissions of hydrogen fluoride from emissions units P001 and P003-P006 shall not exceed 9.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions. See section b)(2)a. below.  The total emissions of sulfur dioxide from emissions units P001 and P003-P006 shall not exceed 31.9 tons per year, based upon a rolling, 12-month summation of the monthly emissions.  See section b)(2)b. below.



	Applicable Rules/Requirements	Applicable Emissions Limitations/ Control Measures
c.	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from the stack servicing this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
d.	OAC rule 3745-17-11	Particulate emissions shall not exceed 2.0 pounds/hr.
e.	OAC rule 3745-18-06(E)	Exempt, pursuant to OAC rule 3745-18-06(C).

(2) Additional Terms and Conditions

- a. The calculation of hydrogen fluoride emissions shall be based on the average fluorine content of clay employed. The rolling, 12-month average fluorine content shall be the average of each monthly weighted average fluorine content over the previous twelve months. The monthly weighted average fluorine content shall be the monthly sum of the products of clay employed in emissions units P001 and P003-P006 times the monitored fluorine content of each clay, divided by the monthly amount of clay employed in these emissions units. A fluorine content test shall be conducted for each different clay at a minimum of once for every 1,000 tons of each different clay delivered.
- b. The calculation of sulfur dioxide emissions shall be based on the average sulfur content of clay employed. The rolling, 12-month average sulfur content shall be the average of each monthly weighted average sulfur content over the previous twelve months. The monthly weighted average sulfur content shall be the monthly sum of the products of clay employed in emissions units P001 and P003-P006 times the monitored sulfur content of each clay, divided by the monthly amount of clay employed in these emissions units. A sulfur content test shall be conducted for each different clay at a minimum of once for every 1,000 tons of each different clay delivered.
- c. Pursuant to ORC 3704.03(T)(4), the Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the uncontrolled PE, NO<sub>x</sub>, CO and SO<sub>2</sub> emissions from this emissions unit since the potential to emit for PE, NO<sub>x</sub>, CO, and SO<sub>2</sub> is less than ten tons per year each.

c) Operational Restrictions

- (1) The maximum annual combined clay usage for emissions units P001 and P003-P006 shall not exceed 13,300 tons, based upon a rolling, 12-month summation of the clay usage figures. The permittee has maintained monthly records over the last two years that show clay usage less than the annual combined clay usage limitation of 13,300 tons for emissions units P001 and P003-P006; therefore, compliance with the annual usage limitation expressed in this permit through rolling, 12-month summations shall begin immediately upon issuance of this permit.

- (2) This facility shall not use any clay in emissions units P001 and P003-P006 that would cause either the rolling, 12-month average of 0.12% sulfur content or the monthly weighted average of 0.13% sulfur content to be exceeded. See section b)(2)b. above for the method of determining the rolling, 12-month average and monthly weighted average sulfur content.
  - (3) This facility shall not use any clay in emissions units P001 and P003-P006 that would cause either the rolling, 12-month average of 0.07% fluorine content or the monthly weighted average of 0.08% fluorine content to be exceeded. See section b)(2)a. above for the method of determining the rolling, 12-month average and monthly weighted average fluorine content.
  - (4) The only fuel to be used in this emissions unit shall be natural gas.
- d) Monitoring and/or Recordkeeping Requirements
- (1) The permittee shall keep daily records of the amount of clay fired in this kiln.
  - (2) The permittee shall conduct testing and maintain records for both the fluorine and sulfur content of each different clay delivered. This testing shall be conducted at a minimum of once for every 1,000 tons of each different clay delivered.
  - (3) The permittee shall determine the monthly weighted average of fluorine content by multiplying the monthly sum of the products of clay employed in kilns P001 and P003-P006 times the monitored fluorine content of each clay, divided by the monthly amount of clay employed in kilns P001 and P003-P006. This calculation will be used to determine compliance with the monthly weighted average limit of 0.08% sulfur content.
  - (4) The permittee shall determine the monthly weighted average of sulfur content by multiplying the monthly sum of the products of clay employed in kilns P001 and P003-P006 times the monitored sulfur content of each clay, divided by the monthly amount of clay employed in kilns P001 and P003-P006. This calculation will be used to determine compliance with the monthly weighted average limit of 0.13% sulfur content.
  - (5) The permittee shall calculate the rolling, 12-month average fluorine content using the average of each monthly weighted average fluorine content over the previous twelve months. This calculation will be used to determine compliance with the rolling, 12-month average limit of 0.07% fluorine content.
  - (6) The permittee shall calculate the rolling, 12-month average sulfur content using the average of each monthly weighted average sulfur content over the previous twelve months. This calculation will be used to determine compliance with the rolling, 12-month average limit of 0.12% sulfur content.
  - (7) The permittee shall keep monthly records of the total amount of clay used in each of the kilns P001 and P003-P006.
  - (8) The permittee shall keep monthly records of the rolling, 12-month summation of the tons of clay used in emissions units P001 and P003-P006.

- (9) The permittee shall keep monthly records of the combined sulfur dioxide emissions from emissions units P001 and P003-P006.
  - (10) The permittee shall keep monthly records of the combined HF emissions from emissions units P001 and P003-P006.
  - (11) The permittee shall keep monthly records of the rolling, 12-month summation of the combined sulfur dioxide emissions from emissions units P001 and P003-P006.
  - (12) The permittee shall keep monthly records of the rolling, 12-month summation of the combined HF emissions from emissions units P001 and P003-P006.
- e) Reporting Requirements
- (1) The permittee shall submit quarterly deviation (excursion) reports that identify the following:
    - a. all exceedances of the rolling, 12-month combined clay usage limitation for emissions units P001 and P003-P006;
    - b. all exceedances of the rolling, 12-month combined emission limitation for HF from emissions units P001 and P003-P006;
    - c. all exceedances of the rolling, 12-month combined emission limitation for SO<sub>2</sub> from emissions units P001 and P003-P006;
    - d. all exceedances of the rolling, 12-month average of the 0.12% sulfur content in the clay employed in emissions units P001 and P003-P006;
    - e. all exceedances of the rolling, 12-month average of the 0.07% fluorine content in the clay employed in emissions units P001 and P003-P006;
    - f. all exceedances of each monthly weighted average of the 0.13% sulfur content limit in emissions units P001 and P003-P006; and
    - g. all exceedances of each monthly weighted average of the 0.08% fluorine content limit in emissions units P001 and P003-P006.

These quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.
  - (2) The permittee shall submit annual reports which specify the total combined HF emissions from emissions units P001 and P003-P006. These reports shall be submitted by January 31 of each year.
  - (3) The permittee shall submit annual reports which specify the total combined SO emissions for emissions units P001 and P003-P006. These reports shall be submitted by January 31 of each year.

## f) Testing Requirements

(1) Compliance with the emission limitations in section b) and the operating restrictions in section c) of these terms and conditions shall be determined in accordance with the following methods:

a. Emissions Limitation:

Hydrogen fluoride emissions shall not exceed 0.57 pound/hr. (as a 30-day average) and 0.70 ton/yr.

Applicable Compliance Method:

The calculation of short term hydrogen fluoride emissions shall be made by multiplying the hourly amount of clay employed times the monthly weighted average of fluorine times 20/19.

The annual emission limitation shall be determined by multiplying the rolling, 12-month average fluorine in the clay times the total amount of clay employed for the corresponding, 12-month period times 20/19.

b. Emissions Limitation:

The total emissions of hydrogen fluoride from emissions units P001 and P003-P006 shall not exceed 9.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions.

Applicable Compliance Method:

Compliance shall be based on the record keeping found in section d)(12).

c. Emissions Limitation:

The total emissions of sulfur dioxide from emissions units P001 and P003-P006 shall not exceed 31.9 tons per year, based upon a rolling, 12-month summation of the monthly emissions.

Applicable Compliance Method:

Compliance shall be based on the record keeping found in section d)(11).

d. Emissions Limitation:

Visible particulate emissions from the stack servicing this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.

Applicable Compliance Method:

Compliance shall be determined by visible emission evaluations performed in accordance with procedures specified in OAC rule 3745-17-03(B)(1) using the methods and procedures specified in USEPA Reference Method 9.

e. Emissions Limitation:

Particulate emissions shall not exceed 2.0 pounds/hr.

Applicable Compliance Method:

From AP-42 Table 11.3-2, 8/97, EF for total PE = 0.96 lb/ton of clay fired.

$PE = 676 \text{ lbs clay/hr} \times 1 \text{ ton}/2000 \text{ lbs} \times 0.96 \text{ lb PE/ton clay} = 0.32 \text{ lb PE/hr.}$

f. Emissions Limitation:

The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the uncontrolled PE, NO<sub>x</sub>, CO and SO<sub>2</sub> emissions from this emissions unit since the potential to emit for PE, NO<sub>x</sub>, CO, and SO<sub>2</sub> is less than ten tons per year each.

Applicable Compliance Method:

Compliance with the PE emissions long term limit of less than ten tons per year shall be demonstrated as follows:

From AP-42 Table 11.3-2, 8/97, EF for total PE = 0.96 lb/ton of clay fired.

$PE = 950 \text{ ton clay/yr.} \times 0.96 \text{ lb PE/ton clay} \times 1 \text{ ton PE}/2000 \text{ lb PE} = 0.46 \text{ tpy}$

Compliance with the NO<sub>x</sub> emissions long term limit of less than ten tons per year shall be demonstrated as follows:

$0.07 \text{ lb NO}_x/\text{MMBtu (mfg. documentation low NO}_x) \times 4.32 \text{ MMBtu/hr} = 0.3 \text{ lb NO}_x/\text{hr. of firing, then use:}$

$0.3 \text{ lb NO}_x/\text{hr. of firing} \times 144 \text{ hr. of firing/batch} \times 52 \text{ batches/yr.} \times 1 \text{ ton}/2000 \text{ lb} = 1.12 \text{ tons/yr.}$

Compliance with the CO emissions long term limit of less than ten tons per year shall be demonstrated as follows:

$4.32 \text{ MMBtu/hr.} \times 0.084 \text{ lb CO/MMBtu (emission factor from AP-42, Table 1.4-1, 7/98)} = 0.36 \text{ lb CO/hr of firing, then use:}$

$0.36 \text{ lb CO/hr of firing} \times 144 \text{ hr. of firing/batch} \times 52 \text{ batches/yr.} \times 1 \text{ ton}/2000 \text{ lb} = 1.35 \text{ tons/yr.}$

Compliance with the SO<sub>2</sub> emissions long term limit of less than ten tons per year shall be demonstrated as follows:

$$950 \text{ tpy clay} \times 0.12\% \text{ S} \times 64/32 = 2.28 \text{ tpy SO}_2$$

g. Operating Restriction:

The maximum annual combined clay usage for emissions units P001 and P003-P006 shall not exceed 13,300 tons, based upon a rolling, 12-month summation of the clay usage figures.

Applicable Compliance Method:

Compliance shall be based on the record keeping found in section d)(8).

h. Operating Restriction:

This facility shall not use any clay in emissions units P001 and P003-P006 that would cause either the rolling, 12-month average of 0.12% sulfur content or the monthly weighted average of 0.13% sulfur content to be exceeded.

Applicable Compliance Method:

Compliance shall be based on the record keeping found in section d)(6). for determining the rolling, 12-month average and section d)(4). for determining the monthly weighted average.

i. Operating Restriction:

This facility shall not use any clay in emissions units P001 and P003-P006 that would cause either the rolling, 12-month average of 0.07% fluorine content or the monthly weighted average of 0.08% fluorine content to be exceeded.

Applicable Compliance Method:

Compliance shall be based on the record keeping found in section d)(5). for determining the rolling, 12-month average and section d)(3). for determining the monthly weighted average.

g) Miscellaneous Requirements

- (1) This FEPTIO incorporates PTI 15-01651 issued on May 8, 2007 for P001 and P003-P006.
- (2) By request of the applicant and pursuant to OAC rule 3745-31-05, the additional term and condition b)(2)a. of this FEPTIO for hydrogen fluoride emissions is a federally enforceable requirement.



4. P005, Shuttle Kiln #6

Operations, Property and/or Equipment Description:

408 lb/hr, 11.88 mmbtu/hr natural gas fired shuttle kiln No. 6

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 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)  (PTI 15-01651 issued 05/08/2007)	Hydrogen fluoride emissions shall not exceed 0.77 pound/hr. (as a 30-day average) and 0.95 ton/yr.  See section b)(2)c. below.
b.	OAC rule 3745-31-057(D) (Synthetic Minor Limits)	The total emissions of hydrogen fluoride from emissions units P001 and P003-P006 shall not exceed 9.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions. See section b)(2)a. below.  The total emissions of sulfur dioxide from emissions units P001 and P003-P006 shall not exceed 31.9 tons per year, based upon a rolling, 12-month summation of the monthly emissions.



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		See section b)(2)b. below.
c. c.	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from the stack servicing this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
d.	OAC rule 3745-17-11	Particulate emissions shall not exceed 2.43 pounds/hr.
e.	OAC rule 3745-18-06(E)	Exempt, pursuant to OAC rule 3745-18-06(C)

(2) Additional Terms and Conditions

- a. The calculation of hydrogen fluoride emissions shall be based on the average fluorine content of clay employed. The rolling, 12-month average fluorine content shall be the average of each monthly weighted average fluorine content over the previous twelve months. The monthly weighted average fluorine content shall be the monthly sum of the products of clay employed in emissions units P001 and P003-P006 times the monitored fluorine content of each clay, divided by the monthly amount of clay employed in these emissions units. A fluorine content test shall be conducted for each different clay at a minimum of once for every 1,000 tons of each different clay delivered.
- b. The calculation of sulfur dioxide emissions shall be based on the average sulfur content of clay employed. The rolling, 12-month average sulfur content shall be the average of each monthly weighted average sulfur content over the previous twelve months. The monthly weighted average sulfur content shall be the monthly sum of the products of clay employed in emissions units P001 and P003-P006 times the monitored sulfur content of each clay, divided by the monthly amount of clay employed in these emissions units. A sulfur content test shall be conducted for each different clay at a minimum of once for every 1,000 tons of each different clay delivered.
- c. Pursuant to ORC 3704.03(T)(4), the Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the uncontrolled PE, NO<sub>x</sub>, CO and SO<sub>2</sub> emissions from this emissions unit since the potential to emit for PE, NO<sub>x</sub>, CO, and SO<sub>2</sub> is less than ten tons per year each.

c) Operational Restrictions

- (1) The maximum annual combined clay usage for emissions units P001 and P003-P006 shall not exceed 13,300 tons, based upon a rolling, 12-month summation of the clay usage figures. The permittee has maintained monthly records over the last two years that show clay usage less than the annual combined clay usage limitation of 13,300 tons for emissions units P001 and P003-P006; therefore, compliance with the annual usage

limitation expressed in this permit through rolling, 12-month summations shall begin immediately upon issuance of this permit.

- (2) This facility shall not use any clay in emissions units P001 and P003-P006 that would cause either the rolling, 12-month average of 0.12% sulfur content or the monthly weighted average of 0.13% sulfur content to be exceeded. See section b)(2)b above for the method of determining the rolling, 12-month average and monthly weighted average sulfur content.
  - (3) This facility shall not use any clay in emissions units P001 and P003-P006 that would cause either the rolling, 12-month average of 0.07% fluorine content or the monthly weighted average of 0.08% fluorine content to be exceeded. See section b)(2)a. above for the method of determining the rolling, 12-month average and monthly weighted average fluorine content.
  - (4) The only fuel to be used in this emissions unit shall be natural gas.
- d) Monitoring and/or Recordkeeping Requirements
- (1) The permittee shall keep daily records of the amount of clay fired in this kiln.
  - (2) The permittee shall conduct testing and maintain records for both the fluorine and sulfur content of each different clay delivered. This testing shall be conducted at a minimum of once for every 1,000 tons of each different clay delivered.
  - (3) The permittee shall determine the monthly weighted average of fluorine content by multiplying the monthly sum of the products of clay employed in kilns P001 and P003-P006 times the monitored fluorine content of each clay, divided by the monthly amount of clay employed in kilns P001 and P003-P006. This calculation will be used to determine compliance with the monthly weighted average limit of 0.08% fluorine content.
  - (4) The permittee shall determine the monthly weighted average of sulfur content by multiplying the monthly sum of the products of clay employed in kilns P001 and P003-P006 times the monitored sulfur content of each clay, divided by the monthly amount of clay employed in kilns P001 and P003-P006. This calculation will be used to determine compliance with the monthly weighted average limit of 0.13% sulfur content.
  - (5) The permittee shall calculate the rolling, 12-month average fluorine content using the average of each monthly weighted average fluorine content over the previous twelve months. This calculation will be used to determine compliance with the rolling, 12-month average limit of 0.07% fluorine content.
  - (6) The permittee shall calculate the rolling, 12-month average sulfur content using the average of each monthly weighted average sulfur content over the previous twelve months. This calculation will be used to determine compliance with the rolling, 12-month average limit of 0.12% sulfur content.
  - (7) The permittee shall keep monthly records of the total amount of clay used in each of the kilns P001 and P003-P006.

- (8) The permittee shall keep monthly records of the rolling, 12-month summation of the tons of clay used in emissions units P001 and P003-P006.
  - (9) The permittee shall keep monthly records of the combined sulfur dioxide emissions from emissions units P001 and P003-P006.
  - (10) The permittee shall keep monthly records of the combined HF emissions from emissions units P001 and P003-P006.
  - (11) The permittee shall keep monthly records of the rolling, 12-month summation of the combined sulfur dioxide emissions from emissions units P001 and P003-P006.
  - (12) The permittee shall keep monthly records of the rolling, 12-month summation of the combined HF emissions from emissions units P001 and P003-P006.
- e) Reporting Requirements
- (1) The permittee shall submit quarterly deviation (excursion) reports that identify the following:
    - a. all exceedances of the rolling, 12-month clay combined usage limitation for emissions units P001 and P003-P006;
    - b. all exceedances of the rolling, 12-month combined emission limitation for HF from emissions units P001 and P003-P006;
    - c. all exceedances of the rolling, 12-month combined emission limitations for SO<sub>2</sub> from emissions units P001 and P003-P006;
    - d. all exceedances of the rolling, 12-month average of the 0.12% sulfur content in the clay employed in emissions units P001 and P003-P006;
    - e. all exceedances of the rolling, 12-month average of the 0.07% fluorine content in the clay employed in emissions units P001 and P003-P006;
    - f. all exceedances of each monthly weighted average of the 0.13% sulfur content limit in emissions units P001 and P003-P006; and
    - g. all exceedances of each monthly weighted average of the 0.08% fluorine content limit in emissions units P001 and P003-P006.

These quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.
  - (2) The permittee shall submit annual reports which specify the total combined HF emissions for emissions units P001 and P003-P006. These reports shall be submitted by January 31 of each year.

- (3) The permittee shall submit annual reports which specify the total combined SO<sub>2</sub> emissions for emissions units P001 and P003-P006. These reports shall be submitted by January 31 of each year.
- f) Testing Requirements
- (1) Compliance with the emission limitations in section b) and the operating restrictions in section c) of these terms and conditions shall be determined in accordance with the following methods:
- a. Emissions Limitation:
- Hydrogen fluoride emissions shall not exceed 0.77 pound/hr. (as a 30-day average) and 0.95 ton/yr.
- Applicable Compliance Method:
- The calculation of short term hydrogen fluoride emissions shall be made by multiplying the average hourly amount of clay employed times the monthly weighted average of fluorine times 20/19.
- The annual emission limitation shall be determined by multiplying the rolling, 12-month average fluorine in the clay times the total amount of clay employed for the corresponding 12-month period times 20/19.
- b. Emissions Limitation:
- The total emissions of hydrogen fluoride from emissions units P001 and P003-P006 shall not exceed 9.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions.
- Applicable Compliance Method:
- Compliance shall be based on the record keeping found in section d)(12).
- c. Emissions Limitation:
- The total emissions of sulfur dioxide from emissions units P001 and P003-P006 shall not exceed 31.9 tons per year, based upon a rolling, 12-month summation of the monthly emissions.
- Applicable Compliance Method:
- Compliance shall be based on the record keeping found in section d)(11).
- d. Emissions Limitation:
- Visible particulate emissions from the stack servicing this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.

Applicable Compliance Method:

Compliance shall be determined by visible emission evaluations performed in accordance with procedures specified in OAC rule 3745-17-03(B)(1) using the methods and procedures specified in USEPA Reference Method 9.

e. Emissions Limitation:

Particulate emissions shall not exceed 2.43 pounds/hr.

Applicable Compliance Method:

From AP-42 Table 11.3-2, 8/97, EF for total PE = 0.96 lb/ton of clay fired.

PE = 918 lbs. Clay/hr. x 1 ton/2000 lbs. X 0.96 lb PE/ton clay = 0.44 lb PE/hr.

f. Emissions Limitation:

Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the uncontrolled PE, NO<sub>x</sub>, CO and SO<sub>2</sub> emissions from this emissions unit since the potential to emit for PE, NO<sub>x</sub>, CO and SO<sub>2</sub> is less than ten tons per year each.

Applicable Compliance Method:

Compliance with the PE emissions long term limit of less than ten tons per year shall be demonstrated as follows:

From AP-42 Table 11.3-2, 8/97, EF for total PE = 0.96 lb/ton of clay fired

PE = 1289 ton clay/yr x 0.96 lb PE/ton clay x 1 ton PE/2000 lb PE = 0.62 ton/yr.

Compliance with the NO<sub>x</sub> emissions long term limit of less than ten tons per year shall be demonstrated as follows:

11.88 MMBtu/hr. x 0.07 lb NO<sub>x</sub>/MMBtu (mfg. documentation low NO<sub>x</sub>) = 0.83 lb NO<sub>x</sub>/hr. of firing, then use:

0.83 lb NO<sub>x</sub>/hr. of firing x 144 hr. of firing/batch x 52 batches/yr. X 1 ton/2000 lb = 3.11 tons/yr.

Compliance with the CO emissions long term limit of less than ten tons per year shall be demonstrated as follows:

11.88 MMBtu/hr. x 0.084 lb CO/MMBtu (emission factor from AP-42, Table 1.4-1, 7/98) = 1.0 lb CO/hr. of firing, then use:

1.0 lb CO/hr. of firing x 144 hrs. of firing/batch x 52 batches/yr. X 1 ton/2000 lbs = 3.74 tons/yr.

Compliance with the SO<sub>2</sub> emissions long term limit of less than ten tons per year shall be demonstrated as follows:

$$1,289 \text{ tpy clay} \times 0.12\% \text{ S} \times 64/32 = 3.09 \text{ tpy SO}_2$$

g. Operating Restriction:

The maximum annual combined clay usage for emissions units P001 and P003-P006 shall not exceed 13,300 tons, based upon a rolling, 12-month summation of the clay usage figures.

Applicable Compliance Method:

Compliance shall be based on the record keeping found in section d)(8).

h. Operating Restriction:

This facility shall not use any clay in emissions units P001 and P003-P006 that would cause either the rolling, 12-month average of 0.12% sulfur content or the monthly weighted average of 0.13% sulfur content to be exceeded.

Applicable Compliance Method:

Compliance shall be based on the record keeping found in section d)(6) for determining the rolling, 12-month average and section d)(4) for determining the monthly weighted average.

i. Operating Restriction:

This facility shall not use any clay in emissions units P001 and P003-P006 that would cause either the rolling, 12-month average of 0.07% fluorine content or the monthly weighted average of 0.08% fluorine content to be exceeded.

Applicable Compliance Method:

Compliance shall be based on the record keeping found in section d)(5) for determining the rolling, 12-month average and section d)(3) for determining the monthly weighted average.

f) Miscellaneous Requirements

- (1) This FEPTIO incorporates PTI 15-01651 issued on May 8, 2007 for P001 and P003-P006.
- (2) By request of the applicant and pursuant to OAC rule 3745-31-05, the additional Term and Condition b)(2)a. of this FEPTIO for hydrogen fluoride emissions is a federally enforceable requirement.



5. P006, Shuttle Kiln #7

Operations, Property and/or Equipment Description:

408 lb/hr, 11.88 mmbtu/hr natural gas fired shuttle kiln No. 7

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 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)  (PTI 15-01651 issued 05/08/2007)	Hydrogen fluoride emissions shall not exceed 0.77 pound/hr. (as a 30-day average) and 0.95 ton/yr.  See section b)(2)c. below.
b.	OAC rule 3745-31-05(D) (Synthetic Minor Limits)	The total emissions of hydrogen fluoride from emissions units P001 and P003-P006 shall not exceed 9.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions. See section b)(2)a. below.  The total emissions of sulfur dioxide from emissions units P001 and P003-P006 shall not exceed 31.9 tons per year, based upon a rolling, 12-month summation of the monthly emissions.



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		See section b(2)b. below.
c.	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from the stack servicing this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
d.	OAC rule 3745-17-11	Particulate emissions shall not exceed 2.43 pounds/hr.
e.	OAC rule 3745-18-06(E)	Exempt, pursuant to OAC rule 3745-18-06(C)

(2) Additional Terms and Conditions

- a. The calculation of hydrogen fluoride emissions shall be based on the average fluorine content of clay employed. The rolling, 12-month average fluorine content shall be the average of each monthly weighted average fluorine content over the previous twelve months. The monthly weighted average fluorine content shall be the monthly sum of the products of clay employed in emissions units P001 and P003-P006 times the monitored fluorine content of each clay, divided by the monthly amount of clay employed in these emissions units. A fluorine content test shall be conducted for each different clay at a minimum of once for every 1,000 tons of each different clay at a minimum of once for every 1,000 tons of each different clay delivered.
- b. The calculation of sulfur dioxide emissions shall be based on the average sulfur content of clay employed. The rolling, 12-month average sulfur content shall be the average of each monthly weighted average sulfur content over the previous twelve months. The monthly weighted average sulfur content shall be the monthly sum of the products of clay employed in emissions units P001 and P003-P006 times the monitored sulfur content of each clay, divided by the monthly amount of clay employed in these emissions units. A sulfur content test shall be conducted for each different clay at a minimum of once for every 1,000 tons of each different clay delivered.
- c. Pursuant to ORC 3704.03(T)(4), the Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the uncontrolled PE, NO<sub>x</sub>, CO and SO<sub>2</sub> emissions from this emissions unit since the potential to emit for PE, NO<sub>x</sub>, CO, and SO<sub>2</sub> is less than ten tons per year each.

c) Operational Restrictions

- (1) The maximum annual combined clay usage for emissions units P001 and P003-P006 shall not exceed 13,300 tons, based upon a rolling, 12-month summation of the clay usage figures. The permittee has maintained monthly records over the last two years that show clay usage less than the annual combined clay usage limitation of 13,300 tons

for emissions units P001 and P003-P006; therefore, compliance with the annual usage limitation expressed in this permit through rolling, 12-month summations shall begin immediately upon issuance of this permit.

- (2) This facility shall not use any clay in emissions units P001 and P003-P006 that would cause either the rolling, 12-month average of 0.12% sulfur content or the monthly weighted average of 0.13% sulfur content to be exceeded. See section b)(2)b. above for the method of determining the rolling, 12-month average and monthly weighted average sulfur content.
  - (3) This facility shall not use any clay in emissions units P001 and P003-P006 that would cause either the rolling, 12-month average of 0.07% fluorine content or the monthly weighted average of 0.08% fluorine content to be exceeded. See section b)(2)a. above for the method of determining the rolling, 12-month average and monthly weighted average fluorine content.
  - (4) The only fuel to be used in this emissions unit shall be natural gas.
- d) Monitoring and/or Recordkeeping Requirements
- (1) The permittee shall keep daily records of the amount of clay fired in this kiln.
  - (2) The permittee shall conduct testing and maintain records for both the fluorine and sulfur content of each different clay delivered. This testing shall be conducted at a minimum of once for every 1,000 tons of each different clay delivered.
  - (3) The permittee shall determine the monthly weighted average of fluorine content by multiplying the monthly sum of the products of clay employed in kilns P001 and P003-P006 times the monitored fluorine content of each clay, divided by the monthly amount of clay employed in kilns P001 and P003-P006. This calculation will be used to determine compliance with the monthly weighted average limit of 0.08% fluorine content.
  - (4) The permittee shall determine the monthly weighted average of sulfur content by multiplying the monthly sum of the products of clay employed in kilns P001 and P003-P006 times the monitored sulfur content of each clay, divided by the monthly amount of clay employed in kilns P001 and P003-P006. This calculation will be used to determine compliance with the monthly weighted average limit of 0.13% sulfur content.
  - (5) The permittee shall calculate the rolling, 12-month average fluorine content using the average of each monthly weighted average fluorine content over the previous twelve months. This calculation will be used to determine compliance with the rolling, 12-month average limit of 0.07% fluorine content.
  - (6) The permittee shall calculate the rolling, 12-month average sulfur content using the average of each monthly weighted average sulfur content over the previous twelve months. This calculation will be used to determine compliance with the rolling, 12-month average limit of 0.12% sulfur content.

- (7) The permittee shall keep monthly records of the total amount of clay used in each of the kilns P001 and P003-P006.
  - (8) The permittee shall keep monthly records of the rolling, 12-month summation of the tons of clay used in emissions units P001 and P003-P006.
  - (9) The permittee shall keep monthly records of the combined sulfur dioxide emissions from emissions units P001 and P003-P006.
  - (10) The permittee shall keep monthly records of the combined HF emissions from emissions units P001 and P003-P006.
  - (11) The permittee shall keep monthly records of the rolling, 12-month summation of the combined sulfur dioxide emissions from emissions units P001 and P003-P006.
  - (12) The permittee shall keep monthly records of the rolling, 12-month summation of the combined HF emissions from emissions units P001 and P003-P006.
- e) Reporting Requirements
- (1) The permittee shall submit quarterly deviation (excursion) reports that identify the following:
    - a. all exceedances of the rolling, 12-month clay combined usage limitation for emissions units P001 and P003-P006;
    - b. all exceedances of the rolling, 12-month combined emission limitation for HF from emissions units P001 and P003-P006;
    - c. all exceedances of the rolling, 12-month combined emission limitations for SO<sub>2</sub> from emissions units P001 and P003-P006;
    - d. all exceedances of the rolling, 12-month average of the 0.12% sulfur content in the clay employed in emissions units P001 and P003-P006;
    - e. all exceedances of the rolling, 12-month average of the 0.07% fluorine content in the clay employed in emissions units P001 and P003-P006;
    - f. all exceedances of each monthly weighted average of the 0.13% sulfur content limit in emissions units P001 and P003-P006; and
    - g. all exceedances of each monthly weighted average of the 0.08% fluorine content limit in emissions units P001 and P003-P006.

These quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.
  - (2) The permittee shall submit annual reports which specify the total combined HF emissions for emissions units P001 and P003-P006. These reports shall be submitted by January 31 of each year.

- (3) The permittee shall submit annual reports which specify the total combined SO<sub>2</sub> emissions for emissions units P001 and P003-P006. These reports shall be submitted by January 31 of each year.
- f) Testing Requirements
- (1) Compliance with the emission limitations in section b) and the operating restrictions in section c) of these terms and conditions shall be determined in accordance with the following methods:
- a. Emissions Limitation:
- Hydrogen fluoride emissions shall not exceed 0.77 pound/hr. (as a 30-day average) and 0.95 ton/yr.
- Applicable Compliance Method:
- The calculation of short term hydrogen fluoride emissions shall be made by multiplying the average hourly amount of clay employed times the monthly weighted average of fluorine times 20/19.
- The annual emission limitation shall be determined by multiplying the rolling, 12-month average fluorine in the clay times the total amount of clay employed for the corresponding 12-month period times 20/19.
- b. Emissions Limitation:
- The total emissions of hydrogen fluoride from emissions units P001 and P003-P006 shall not exceed 9.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions.
- Applicable Compliance Method:
- Compliance shall be based on the record keeping found in section d)(12).
- c. Emissions Limitation:
- The total emissions of sulfur dioxide from emissions units P001 and P003-P006 shall not exceed 31.9 tons per year, based upon a rolling, 12-month summation of the monthly emissions.
- Applicable Compliance Method:
- Compliance shall be based on the record keeping found in section d)(11).
- d. Emissions Limitation:
- Visible particulate emissions from the stack servicing this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.

Applicable Compliance Method:

Compliance shall be determined by visible emission evaluations performed in accordance with procedures specified in OAC rule 3745-17-03(B)(1) using the methods and procedures specified in USEPA Reference Method 9.

e. Emissions Limitation:

Particulate emissions shall not exceed 2.43 pounds/hr.

Applicable Compliance Method:

From AP-42 Table 11.3-2, 8/97, EF for total PE = 0.96 lb/ton of clay fired.

PE=918 lbs. Clay/hr. x 1 ton/2000 lbs. X 0.96 lb PE/ton clay = 0.44 lb PE/hr.

f. Emissions Limitation:

Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the uncontrolled PE, NO<sub>x</sub>, CO and SO<sub>2</sub> emissions from this emissions unit since the potential to emit for PE, NO<sub>x</sub>, CO and SO<sub>2</sub> is less than ten tons per year each.

Applicable Compliance Method:

Compliance with the PE emissions long term limit of less than ten tons per year shall be demonstrated as follows:

From AP-42 Table 11.3-2, 8/97, EF for total PE = 0.96 lb/ton of clay fired.

PE = 1289 tons clay/yr. X 0.96 lb. PE/ton clay x 1 ton PE/2000 lbs. PE = 0.62 ton/yr.

Compliance with the NO<sub>x</sub> emissions long term limit of less than ten tons per year shall be demonstrated as follows:

11.88 MMBtu/hr. x 0.07 lb NO<sub>x</sub>/MMBtu (mfg. documentation low NO<sub>x</sub>) = 0.83 lb NO<sub>x</sub>/hr. of firing, then use:

0.83 lb NO<sub>x</sub>/hr. of firing x 144 hrs. of firing/batch x 52 batches/yr. X 1 ton/2000 lbs. = 3.11 tons/yr.

Compliance with the CO emissions long term limit of less than ten tons per year shall be demonstrated as follows:

11.88 MMBtu/hr. x 0.084 lb. CO/MMBtu (emission factor from AP-42, Table 1.4-1, 7/98) = 1.0 lb. CO/hr. of firing, then use:

1.0 lb. CO/hr. of firing x 144 hrs. of firing/batch x 52 batches/yr. X 1 ton/2000 lbs. = 3.74 tons/yr.

Compliance with the SO<sub>2</sub> emissions long term limit of less than ten tons per year shall be demonstrated as follows:

$$1289 \text{ tpy clay} \times 0.12\% \text{ S} \times 64/32 = 3.09 \text{ tpy SO}_2$$

g. Operating Restriction:

The maximum annual combined clay usage for emissions units P001 and P003-P006 shall not exceed 13,300 tons, based upon a rolling, 12-month summation of the clay usage figures.

Applicable Compliance Method:

Compliance shall be based on the record keeping found in section d)(8).

h. Operating Restriction:

This facility shall not use any clay in emissions units P001 and P003-P006 that would cause either the rolling, 12-month average of 0.12% sulfur content or the monthly weighted average of 0.13% sulfur content to be exceeded.

Applicable Compliance Method:

Compliance shall be based on the record keeping found in section d)(6) for determining the rolling, 12-month average and section d)(4) for determining the monthly weighted average.

i. Operating Restriction:

This facility shall not use any clay in emissions units P001 and P003-P006 that would cause either the rolling, 12-month average of 0.07% fluorine content or the monthly weighted average of 0.08% fluorine content to be exceeded.

Applicable Compliance Method:

Compliance shall be based on the record keeping found in section d)(5) for determining the rolling, 12-month average and section d)(3) for determining the monthly weighted average.

g) Miscellaneous Requirements

- (1) This FEPTIO incorporates PTI 15-01561 issued on May 8, 2007 for P001 and P003-P006.
- (2) By request of the applicant and pursuant to OAC rule 3745-31-05, the additional term and condition b)(2)a. of this FEPTIO for hydrogen fluoride is a federally enforceable requirement.