



State of Ohio Environmental Protection Agency

**RE: FINAL PERMIT TO INSTALL  
STARK COUNTY**

**CERTIFIED MAIL**

Street Address:

50 West Town Street, Suite 700

Lazarus Gov. Center TELE: (614) 644-3020 FAX: (614) 644-2329

Mailing Address:

Lazarus Gov. Center  
P.O. Box 1049

**Application No: 15-01651**

**Fac ID: 1576001851**

**DATE: 5/8/2007**

Koch Knight LLC  
Allen Smalley  
P.O. Box 30070 5385 Orchardview Drive, S.E.  
East Canton, OH 44730

Enclosed please find an Ohio EPA Permit to Install which will allow you to install the described source(s) in a manner indicated in the permit. Because this permit contains several conditions and restrictions, I urge you to read it carefully.

The Ohio EPA is urging companies to investigate pollution prevention and energy conservation. Not only will this reduce pollution and energy consumption, but it can also save you money. If you would like to learn ways you can save money while protecting the environment, please contact our Office of Pollution Prevention at (614) 644-3469.

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

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

Sincerely,

Michael W. Ahern, Manager  
Permit Issuance and Data Management Section  
Division of Air Pollution Control

CC: USEPA

Canton LAA



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**Permit To Install  
Terms and Conditions**

**Issue Date: 5/8/2007  
Effective Date: 5/8/2007**

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**FINAL PERMIT TO INSTALL 15-01651**

Application Number: 15-01651  
Facility ID: 1576001851  
Permit Fee: **\$1800**  
Name of Facility: Koch Knight LLC  
Person to Contact: Allen Smalley  
Address: P.O. Box 30070 5385 Orchardview Drive, S.E.  
East Canton, OH 44730

Location of proposed air contaminant source(s) [emissions unit(s)]:  
**5385 Orchardview Drive. S.E.  
East Canton, Ohio**

Description of proposed emissions unit(s):  
**Increase capacity of kilns P004-P006, remove emission unit group limits, modify Fluorine and Sulfur content limits in clay used.**

The above named entity is hereby granted a Permit to Install for the above described emissions unit(s) 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 above described emissions unit(s) of environmental pollutants will operate in compliance with applicable State and Federal laws and regulations, and does not constitute expressed or implied assurance that if constructed or modified in accordance with those plans and specifications, the above described emissions unit(s) of pollutants will be granted the necessary permits to operate (air) or NPDES permits as applicable.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

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Chris Korleski  
Director

Koch Knight LLC  
PTI Application: 15-01651  
Issued: 5/8/2007

Facility ID: 1576001851

## Part I - GENERAL TERMS AND CONDITIONS

### A. Permit to Install General Terms and Conditions

#### 1. Compliance Requirements

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

#### 2. Reporting Requirements

The permittee shall submit required reports in the following manner:

- a. Reports of any required monitoring and/or recordkeeping information shall be submitted to the appropriate Ohio EPA District Office or local air agency.
- b. Except as otherwise may be provided in the terms and conditions for a specific emissions unit, quarterly written reports of (a) any deviations (excursions) from emission limitations, operational restrictions, and control device operating parameter limitations that have been detected by the testing, monitoring, and recordkeeping requirements specified in this permit, (b) the probable cause of such deviations, and (c) any corrective actions or preventive measures which have been or will be taken, shall be submitted to the appropriate Ohio EPA District Office or local air agency. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted (i.e., postmarked) quarterly by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

#### 3. Records Retention Requirements

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

#### 4. Inspections and Information Requests

The Director of the Ohio EPA, or an authorized representative of the Director, may, subject to the safety requirements of the permittee and without undue delay, enter upon

**Koch Knight LLC**  
**PTI Application: 15-01651**  
**Issued: 5/8/2007**

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the premises of this source at any reasonable time for purposes of making inspections, conducting tests, examining records or reports pertaining to any emission of air contaminants, and determining compliance with any applicable State air pollution laws and regulations and the terms and conditions of this permit. The permittee shall furnish to the Director of the Ohio EPA, or an authorized representative of the Director, upon receipt of a written request and within a reasonable time, any information that may be requested to determine whether cause exists for modifying, reopening or revoking this permit or to determine compliance with this permit. Upon verbal or written request, the permittee shall also furnish to the Director of the Ohio EPA, or an authorized representative of the Director, copies of records required to be kept by this permit.

**5. Scheduled Maintenance/Malfunction Reporting**

Any scheduled maintenance of air pollution control equipment shall be performed in accordance with paragraph (A) of OAC rule 3745-15-06. The malfunction of any emissions units or any associated air pollution control system(s) shall be reported to the appropriate Ohio EPA District Office or local air agency in accordance with paragraph (B) of OAC rule 3745-15-06. Except as provided in that rule, any scheduled maintenance or malfunction necessitating the shutdown or bypassing of any air pollution control system(s) shall be accompanied by the shutdown of the emissions unit(s) that is (are) served by such control system(s).

**6. Permit Transfers**

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The appropriate Ohio EPA District Office or local air agency must be notified in writing of any transfer of this permit.

**7. Air Pollution Nuisance**

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

**8. Termination of Permit to Install**

This Permit to Install shall terminate within eighteen months of the effective date of the Permit to Install if the owner or operator has not undertaken a continuing program of installation or modification or has not entered into a binding contractual obligation to undertake and complete within a reasonable time a continuing program of installation or modification. This deadline may be extended by up to 12 months if application is made to the Director within a reasonable time before the termination date and the party shows good cause for any such extension.

**9. Construction of New Sources(s)**

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**Issued: 5/8/2007**

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The proposed emissions unit(s) shall be constructed in strict accordance with the plans and application submitted for this permit to the Director of the Ohio Environmental Protection Agency. There may be no deviation from the approved plans without the express, written approval of the Agency. Any deviations from the approved plans or the above conditions may lead to such sanctions and penalties as provided under Ohio law. Approval of these plans does not constitute an assurance that the proposed facilities will operate in compliance with all Ohio laws and regulations. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed sources cannot meet the requirements of this permit or cannot meet applicable standards.

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

#### **10. Public Disclosure**

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

#### **11. Applicability**

This Permit To Install is applicable only to the emissions unit(s) identified in the Permit To Install. Separate Permit To Install for the installation or modification of any other emissions unit(s) are required for any emissions unit for which a Permit To Install is required.

#### **12. Best Available Technology**

As specified in OAC Rule 3745-31-05, all new sources must employ Best Available Technology (BAT). Compliance with the terms and conditions of this permit will fulfill this requirement.

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**13. Source Operation and Operating Permit Requirements After Completion of Construction**

This facility is permitted to operate each source described by this Permit to Install for a period of up to one year from the date the source commenced operation. This permission to operate is granted only if the facility complies with all requirements contained in this permit and all applicable air pollution laws, regulations, and policies. Pursuant to OAC Chapter 3745-35, the permittee shall submit a complete operating permit application within ninety (90) days after commencing operation of the emissions unit(s) covered by this permit.

**14. Construction Compliance Certification**

The applicant shall provide Ohio EPA with a written certification (see enclosed form) that the facility has been constructed in accordance with the Permit to Install application and the terms and conditions of the Permit to Install. The certification shall be provided to Ohio EPA upon completion of construction but prior to startup of the source.

**15. Fees**

The permittee shall pay fees to the Director of the Ohio EPA in accordance with ORC section 3745.11 and OAC Chapter 3745-78. The permittee shall pay all applicable Permit to Install fees within 30 days after the issuance of this Permit to Install.

**B. Permit to Install Summary of Allowable Emissions**

The following information summarizes the total allowable emissions, by pollutant, based on the individual allowable emissions of each air contaminant source identified in this permit.

SUMMARY (for informational purposes only)  
 TOTAL PERMIT TO INSTALL ALLOWABLE EMISSIONS

Pollutant

Tons Per Year

**Koch Knight LLC**  
**PTI Application: 15-01651**  
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NOx	27.3
CO	26.1
PARTICULATE EMISSIONS (PE)	11.8
SO2	31.9
HF (HAP)	9.8

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**PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)****A. Applicable Emissions Limitations and/or Control Requirements**

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

**Operations, Property, and/or Equipment - (P001) - 1750 lb/hr, 12.1 mmbtu/hr nat. gas fired tunnel kiln No. 3.**

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
<p>OAC rule 3745-31-05(A)(3)</p> <p>This permit to install (PTI) supercedes PTI 15-01344 issued on May 28, 2002 for P001-P006</p>	<p>Sulfur dioxide emissions shall not exceed 4.55 pounds/hour (as a 30-day average) and 18.4 tons/year.</p> <p>Hydrogen fluoride emissions shall not exceed 1.47 pounds/hour (as a 30-day average) and 5.65 tons/year.</p> <p>See Section A.2.c. below</p>
<p>OAC rule 3745-35-07(B) (Synthetic Minor Limits)</p>	<p>The total emissions of hydrogen fluoride from emissions units P001-P006 shall not exceed 9.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions. See section A.2.a. below.</p> <p>The total emissions of sulfur dioxide from emissions units P001-P006 shall not exceed 31.9 tons per year, based upon a rolling, 12-month summation of the monthly emissions. See section A.2.b. below.</p>
<p>OAC rule 3745-17-07(A)(1)</p>	<p>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.</p>
<p>OAC rule 3745-17-11</p>	<p>Particulate emissions shall not exceed 3.75 pounds/hour</p>
<p>OAC rule 3745-18-82(A)(3)</p>	<p>The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).</p>

**2. Additional Terms and Conditions**

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- 2.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-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.
- 2.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-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.
- 2.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>, 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.

## B. Operational Restrictions

1. The hydrogen fluoride emissions from this emissions unit shall not show an exceedence of the maximum 30 day average ground level concentration of 0.5 micrograms/m<sup>3</sup>. This is an Ohio EPA Modeling Policy. Compliance with this limit was demonstrated based on the ISCLT3 model dated 12-19-2006 and submitted with the application for this PTI . The following stack parameters were used in this successful model run:

Emission rate (30-day average)	0.185 gram/second or 1.47 lb/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 PTI 15-01651 and the operating permit.

2. The maximum annual combined clay usage for emissions units P001-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-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.
3. This facility shall not use any clay in emissions units P001-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 A.2.b above for the method of determining the rolling 12-month average and monthly weighted average sulfur content.
4. This facility shall not use any clay in emissions units P001-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 A.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.

### **C. Monitoring and/or Record keeping 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

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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-P006 times the monitored fluorine content of each clay, divided by the monthly amount of clay employed in kilns P001-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-P006 times the monitored sulfur content of each clay, divided by the monthly amount of clay employed in kilns P001-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-P006.
8. The permittee shall keep monthly records of the rolling, 12-month summation of the tons of clay used in emissions units P001-P006.
9. The permittee shall keep monthly records of the combined sulfur dioxide emissions from emissions units P001-P006.
10. The permittee shall keep monthly records of the combined HF emissions from emissions units P001-P006.
11. The permittee shall keep monthly records of the rolling, 12-month summation of the combined sulfur dioxide emissions from emissions units P001-P006.
12. The permittee shall keep monthly records of the rolling, 12-month summation of the

Emissions Unit ID: **P001**

combined HF emissions from emissions units P001-P006.

#### **D. 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-P006;
  - b. all exceedances of the rolling, 12-month combined emission limitation for HF from emissions units P001-P006;
  - c. all exceedances of the rolling, 12-month combined emission limitations for SO<sub>2</sub> from emissions units P001-P006;
  - d. all exceedances of the rolling, 12-month average of the 0.12 % sulfur content limit for the clay employed in emissions units P001-P006; and
  - e. all exceedances of the rolling, 12-month average of the 0.07% fluorine content limit for the clay employed in emissions units P001-P006;
  - f. all exceedances of each monthly weighted average of the 0.13 % sulfur content limit in emissions unit P001-P006; and
  - g. all exceedances of each monthly weighted average of the 0.08 % fluorine content limit in emissions unit P001-P006.

These quarterly reports shall be submitted in accordance with Part I - General Terms and Conditions.

2. The permittee shall submit annual reports which specify the total combined HF emissions for emissions units P001-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-P006. These reports shall be submitted by January 31 of each year.

#### **E. Testing Requirements**

**Issued: 5/8/2007**

1. Compliance with the emission limitations in section A and the operating restrictions in section B of these terms and conditions shall be determined in accordance with the following methods:

- a. Emission 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 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 emission 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.

- b. Emission Limitation:

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

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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.

c. Emission Limitation:

The total emissions of hydrogen fluoride from emissions units P001-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 C.12.

d. Emission Limitation:

The total emissions of sulfur dioxide from emissions units P001-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 C.11.

e. Emission 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.

f. Emission 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

Emissions Unit ID: **P001**

factor from AP-42, Table 11.3-2, 8/97), which equals 0.84 lb particulate /hr.

g. Emission 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>, 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.

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.

$$\begin{aligned} \text{PE} &= 1750 \text{ lb clay/hr} \times 1 \text{ ton}/2000 \text{ lb} \times 0.96 \text{ lb PE} / \text{ton clay} = 0.84 \text{ lb PE/hr} \\ 0.84 \text{ lb PE/hr} \times 1 \text{ ton}/2000 \text{ lb} \times 8760 \text{ hr/yr} &= 3.68 \text{ ton PE/ yr} \end{aligned}$$

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

$$\begin{aligned} 12.1 \text{ MMBtu/hr} \times 0.1 \text{ lb NO}_x/\text{MMBtu (mfg. documentation)} &= 1.21 \text{ lb NO}_x/\text{hr} \\ 1.21 \text{ lb NO}_x/\text{hr} \times 8760 \text{ hrs/yr} \times 1 \text{ ton}/2000\text{lb} &= 5.3 \text{ tpy NO}_x \end{aligned}$$

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

$$\begin{aligned} 12.1 \text{ MMBtu/hr} \times 0.084 \text{ lb CO/MMBtu (emission factor from AP-42, Table 1.4-1, 7/98)} &= 1.02 \text{ lb CO/hr} \\ 1.02 \text{ lb CO/hr} \times 8760 \text{ hrs/yr} \times 1 \text{ ton}/2000\text{lb} &= 4.47 \text{ tpy CO} \end{aligned}$$

h. Operating restriction:

The maximum annual combined clay usage for emissions units P001-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 C.8.

i. Operating restriction:

This facility shall not use any clay in emissions units P001-P006 that would

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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 C.6. for the determining the rolling 12-month average and Section C.4. for determining the monthly weighted average .

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j. Operating restriction:

This facility shall not use any clay in emissions units P001-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 C.5. for determining the rolling 12-month average and Section C.3. for determining the monthly weighted average .

**F. Miscellaneous Requirements**

1. This permit to install (PTI) supercedes PTI 15-01344 issued on May 28, 2002 for P001-P006
2. By request of the applicant and pursuant to OAC rule 3745-35-07, the special terms and conditions of this PTI are federally enforceable requirements.

Issued: 5/8/2007

**PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)****A. Applicable Emissions Limitations and/or Control Requirements**

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

**Operations, Property, and/or Equipment - (POO3) - 3125 lb/hr, 34.9 mmbtu/hr nat. gas fired tunnel kiln No. 2.**

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
<p>OAC rule 3745-31-05(A)(3)</p> <p>This permit to install (PTI) supercedes PTI 15-01344 issued on May 28, 2002 for P001-P006</p>	<p>Nitrogen oxide emissions shall not exceed 3.35 pounds/hour and 14.67 tons/year.</p> <p>Carbon monoxide emissions shall not exceed 2.93 pounds/hour and 12.83 tons/year.</p> <p>Sulfur dioxide emissions shall not exceed 8.13 pounds/hour (as a 30-day average) and 31.9 tons/year.</p> <p>Hydrogen fluoride emissions shall not exceed 2.63 pounds/hour (as a 30-day average) and 9.8 tons/year.</p> <p>See Section A.2.c. below</p>
<p>OAC rule 3745-35-07(B) (Synthetic Minor Limits)</p>	<p>The total emissions of hydrogen fluoride from emissions units P001-P006 shall not exceed 9.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions. See section A.2.a. below.</p> <p>The total emissions of sulfur dioxide from emissions units P001-P006 shall not exceed 31.9 tons per year, based upon a rolling, 12-month summation of the monthly emissions. See section A.2.b. below.</p>
<p>OAC rule 3745-17-07(A)(1)</p>	<p>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.</p>
<p>OAC rule 3745-17-11</p>	<p>Particulate emissions shall not exceed 5.53 pounds/hour.</p>

Emissions Unit ID: P003

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).
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## 2. Additional Terms and Conditions

- 2.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-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.
- 2.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-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.
- 2.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 from this emissions unit since the potential to emit for PE is less than ten tons per year.

## B. Operational Restrictions

1. The maximum annual combined clay usage for emissions units P001-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-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.

Emissions Unit ID: **P003**

2. This facility shall not use any clay in emissions units P001-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 A.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-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 A.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.

### **C. Monitoring and/or Record keeping 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-P006 times the monitored fluorine content of each clay, divided by the monthly amount of clay employed in kilns P001-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-P006 times the monitored sulfur content of each clay, divided by the monthly amount of clay employed in kilns P001-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

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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-P006.
8. The permittee shall keep monthly records of the rolling, 12-month summation of the tons of clay used in emissions units P001-P006.
9. The permittee shall keep monthly records of the combined sulfur dioxide emissions from emissions units P001-P006.
10. The permittee shall keep monthly records of the combined HF emissions from emissions units P001-P006.
11. The permittee shall keep monthly records of the rolling, 12-month summation of the combined sulfur dioxide emissions from emissions units P001-P006.
12. The permittee shall keep monthly records of the rolling, 12-month summation of the combined HF emissions from emissions units P001-P006.

**D. 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-P006;
  - b. all exceedances of the rolling, 12-month combined emission limitation for HF from emissions units P001-P006;
  - c. all exceedances of the rolling, 12-month combined emission limitations for SO<sub>2</sub> from emissions units P001-P006;
  - d. all exceedances of the rolling, 12-month average of the 0.12 % sulfur content in the clay employed in emissions units P001-P006; and
  - e. all exceedances of the rolling, 12-month average of the 0.07% fluorine content in the clay employed in emissions units P001-P006.

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- f. all exceedances of each monthly weighted average of the 0.13 % sulfur content limit in emissions unit P001-P006; and
- g. all exceedances of each monthly weighted average of the 0.08 % fluorine content limit in emissions unit P001-P006.

These quarterly reports shall be submitted in accordance with Part I - General Terms and Conditions.

2. The permittee shall submit annual reports which specify the total combined HF emissions for emissions units P001-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-P006. These reports shall be submitted by January 31 of each year.

Emissions Unit ID: P003

**E. Testing Requirements**

1. Compliance with the emission limitations in section A and the operating restrictions in section B of these terms and conditions shall be determined in accordance with the following methods:

- a. Emission Limitation:

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

Applicable Compliance Method:

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

$$34.9 \text{ MMBtu/hr} \times 0.096 \text{ lb NOx/MMBtu (mfg. documentation)} = 3.35 \text{ lb NOx/hr}$$

Compliance with the NOx emissions long term limit shall be demonstrated as follows:

$$3.35 \text{ lb NOx/hr} \times 8760 \text{ hrs/yr} \times 1 \text{ ton/2000lb} = 14.67 \text{ tpy NOx}$$

- b. Emission Limitation:

Carbon monoxide emissions shall not exceed 2.93 pounds/hour and 12.83 tons/year.

Applicable Compliance Method:

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

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

Compliance with the NOx emissions long term limit shall be demonstrated as follows:

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

- c. Emission Limitation:

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

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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 emission 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. Emission Limitation:

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

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.

e. Emission Limitation:

The total emissions of hydrogen fluoride from emissions units P001-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 C.12.

f. Emission Limitation:

The total emissions of sulfur dioxide from emissions units P001-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 C.11.

g. Emission Limitation:

Visible particulate emissions from the stack servicing this emissions unit shall

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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. Emission Limitation:

Particulate emissions shall not exceed 5.53 pounds/hour

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 lb clay/hr x 1 ton/2000 lb x 0.96 lb PE / ton clay = 1.50 lb PE/hr

i. Emission 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 ton clay/yr x 0.96 lb PE / ton clay x 1 ton PE /2000 lb PE = 6.38 tpy

j. Operating restriction:

The maximum annual combined clay usage for emissions units P001-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 C.8.

k. Operating restriction:

This facility shall not use any clay in emissions units P001-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.

**Koch Knight LLC**

DTI Application: 15-01651

**Facility ID: 1576001851**Emissions Unit ID: **P003**Applicable Compliance Method:

Compliance shall be based on the record keeping found in Section C.6. for the determining the rolling 12-month average and Section C.4. for determining the monthly weighted average .

I. Operating restriction:

This facility shall not use any clay in emissions units P001-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 C.5. for determining the rolling 12-month average and Section C.3. for determining the monthly weighted average .

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**F. Miscellaneous Requirements**

1. This permit to install (PTI) supercedes PTI 15-01344 issued on May 28, 2002 for P001-P006.
2. By request of the applicant and pursuant to OAC rule 3745-35-07, the special terms and conditions of this PTI are federally enforceable requirements.

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**PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)****A. Applicable Emissions Limitations and/or Control Requirements**

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

**Operations, Property, and/or Equipment - (P004) - 300 lb/hr, 4.32 mmbtu/hr nat. gas fired shuttle kiln No. 5.**

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
OAC rule 3745-31-05(A)(3)  This permit to install (PTI) supercedes PTI 15-01344 issued on May 28, 2002 for P001-P006	Hydrogen fluoride emissions shall not exceed 0.57 pound/hour (as a 30-day average) and 0.70 ton/year.  See Section A.2.c. below.
OAC rule 3745-35-07(B) (Synthetic Minor Limits)	The total emissions of hydrogen fluoride from emissions units P001-P006 shall not exceed 9.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions. See section A.2.a. below.  The total emissions of sulfur dioxide from emissions units P001-P006 shall not exceed 31.9 tons per year, based upon a rolling, 12-month summation of the monthly emissions. See section A.2.b. below.
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.
OAC rule 3745-17-11	Particulate emissions shall not exceed 2.0 pounds/hour.
OAC rule 3745-18-06(E)	Exempt, pursuant to OAC rule 3745-18-06(C).

**2. Additional Terms and Conditions**

- 2.a The calculation of hydrogen fluoride emissions shall be based on the average

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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-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.

- 2.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-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.
- 2.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.

## **B. Operational Restrictions**

1. The maximum annual combined clay usage for emissions units P001-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-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-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 A.2.b above for the method of determining the rolling 12-month average and monthly weighted average sulfur content.

**Koch Knight LLC**

DTI Application: 15-01651

**Facility ID: 1576001851**Emissions Unit ID: **P004**

3. This facility shall not use any clay in emissions units P001-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 A.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.

**Issued: 5/8/2007****C. Monitoring and/or Record keeping 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-P006 times the monitored fluorine content of each clay, divided by the monthly amount of clay employed in kilns P001-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-P006 times the monitored sulfur content of each clay, divided by the monthly amount of clay employed in kilns P001-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-P006.
8. The permittee shall keep monthly records of the rolling, 12-month summation of the tons of clay used in emissions units P001-P006.
9. The permittee shall keep monthly records of the combined sulfur dioxide emissions from emissions units P001-P006.
10. The permittee shall keep monthly records of the combined HF emissions from

Emissions Unit ID: **P004**

emissions units P001-P006.

11. The permittee shall keep monthly records of the rolling, 12-month summation of the combined sulfur dioxide emissions from emissions units P001-P006.
12. The permittee shall keep monthly records of the rolling, 12-month summation of the combined HF emissions from emissions units P001-P006.

#### **D. 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-P006;
  - b. all exceedances of the rolling, 12-month combined emission limitation for HF from emissions units P001-P006;
  - c. all exceedances of the rolling, 12-month combined emission limitations for SO<sub>2</sub> from emissions units P001-P006;
  - d. all exceedances of the rolling, 12-month average of the 0.12 % sulfur content in the clay employed in emissions units P001-P006; and
  - e. all exceedances of the rolling, 12-month average of the 0.07% fluorine content in the clay employed in emissions units P001-P006.
  - f. all exceedances of each monthly weighted average of the 0.13 % sulfur content limit in emissions unit P001-P006; and
  - g. all exceedances of each monthly weighted average of the 0.08 % fluorine content limit in emissions unit P001-P006.

These quarterly reports shall be submitted in accordance with Part I - General Terms and Conditions.

2. The permittee shall submit annual reports which specify the total combined HF emissions for emissions units P001-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>

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emissions for emissions units P001-P006. These reports shall be submitted by January 31 of each year.

## **E. Testing Requirements**

1. Compliance with the emission limitations in section A and the operating restrictions in section B of these terms and conditions shall be determined in accordance with the following methods:

- a. Emission Limitation:  
Hydrogen fluoride emissions shall not exceed 0.57 pounds/hour (as a 30-day average) and 0.70 tons/year.

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. Emission Limitation:  
The total emissions of hydrogen fluoride from emissions units P001-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 C.12.

- c. Emission Limitation:  
The total emissions of sulfur dioxide from emissions units P001-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 C.11.

- d. Emission Limitation:  
Visible particulate emissions from the stack servicing this emissions unit shall

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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. Emission Limitation:

Particulate emissions shall not exceed 2.0 pounds/hour

Applicable Compliance Method:

From AP-42 Table 11.3-2, 8/97, EF for total PE = 0.96 lb/ton of clay fired.  
 $PE = 676 \text{ lb clay/hr} \times 1 \text{ ton}/2000 \text{ lb} \times 0.96 \text{ lb PE / ton clay} = 0.32 \text{ lb PE/hr}$

f. Emission 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:

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

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

Compliance with the CO emissions long term limit of less than ten tons per year

Emissions Unit ID: P004

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 lb CO/hr of firing, then use:

$0.36 \text{ lb CO/hr of firing} \times 144 \text{ hr of firing/ batch} \times 52 \text{ batches/yr} \times 1 \text{ ton/ 2000 lb}$   
= 1.35 ton /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-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 C.8.

h. Operating restriction:

This facility shall not use any clay in emissions units P001-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 C.6. for the determining the rolling 12-month average and Section C.4. for determining the monthly weighted average .

i. Operating restriction:

This facility shall not use any clay in emissions units P001-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 C.5. for determining the rolling 12-month average and Section C.3. for determining the monthly weighted average .

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**F. Miscellaneous Requirements**

1. This permit to install (PTI) supercedes PTI 15-01344 issued on May 28, 2002 for P001-P006.
2. By request of the applicant and pursuant to OAC rule 3745-35-07, the special terms and conditions of this PTI are federally enforceable requirements.

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**PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)****A. Applicable Emissions Limitations and/or Control Requirements**

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

**Operations, Property, and/or Equipment - (P005) - 408 lbs/hr, 11.88 mmbtu/hr nat. gas fired shuttle kiln No. 6.**

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
OAC rule 3745-31-05(A)(3)  This permit to install (PTI) supercedes PTI 15-01344 issued on May 28, 2002 for P001-P006	Hydrogen fluoride emissions shall not exceed 0.77 pound/hour (as a 30-day average) and 0.95 ton/year.  See Section A.2.c. below
OAC rule 3745-35-07(B) (Synthetic Minor Limits)	The total emissions of hydrogen fluoride from emissions units P001-P006 shall not exceed 9.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions. See section A.2.a. below.  The total emissions of sulfur dioxide from emissions units P001-P006 shall not exceed 31.9 tons per year, based upon a rolling, 12-month summation of the monthly emissions. See section A.2.b. below.
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.
OAC rule 3745-17-11	Particulate emissions shall not exceed 2.43 pounds/hour
OAC rule 3745-18-06(E)	Exempt, pursuant to OAC rule 3745-18-06(C)

**2. Additional Terms and Conditions**

- 2.a** The calculation of hydrogen fluoride emissions shall be based on the average

Emissions Unit ID: **P005**

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-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.

- 2.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-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.
- 2.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.

## **B. Operational Restrictions**

1. The maximum annual combined clay usage for emissions units P001-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-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-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 A.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-P006 that would cause

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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 A.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.

**Issued: 5/8/2007****C. Monitoring and/or Record keeping 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-P006 times the monitored fluorine content of each clay, divided by the monthly amount of clay employed in kilns P001-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-P006 times the monitored sulfur content of each clay, divided by the monthly amount of clay employed in kilns P001-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-P006.
8. The permittee shall keep monthly records of the rolling, 12-month summation of the tons of clay used in emissions units P001-P006.
9. The permittee shall keep monthly records of the combined sulfur dioxide emissions from emissions units P001-P006.
10. The permittee shall keep monthly records of the combined HF emissions from

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emissions units P001-P006.

11. The permittee shall keep monthly records of the rolling, 12-month summation of the combined sulfur dioxide emissions from emissions units P001-P006.
12. The permittee shall keep monthly records of the rolling, 12-month summation of the combined HF emissions from emissions units P001-P006.

#### D. 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-P006;
  - b. all exceedances of the rolling, 12-month combined emission limitation for HF from emissions units P001-P006;
  - c. all exceedances of the rolling, 12-month combined emission limitations for SO<sub>2</sub> from emissions units P001-P006;
  - d. all exceedances of the rolling, 12-month average of the 0.12 % sulfur content in the clay employed in emissions units P001-P006; and
  - e. all exceedances of the rolling, 12-month average of the 0.07% fluorine content in the clay employed in emissions units P001-P006.
  - f. all exceedances of each monthly weighted average of the 0.13 % sulfur content limit in emissions unit P001-P006; and
  - g. all exceedances of each monthly weighted average of the 0.08 % fluorine content limit in emissions unit P001-P006.

These quarterly reports shall be submitted in accordance with Part I - General Terms and Conditions.

2. The permittee shall submit annual reports which specify the total combined HF emissions for emissions units P001-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>

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emissions for emissions units P001-P006. These reports shall be submitted by January 31 of each year.

**E. Testing Requirements**

1. Compliance with the emission limitations in section A and the operating restrictions in section B of these terms and conditions shall be determined in accordance with the following methods:

- a.. Emission Limitation:

Hydrogen fluoride emissions shall not exceed 0.77 pounds/hour (as a 30-day average) and 0.95 tons/year.

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. Emission Limitation:

The total emissions of hydrogen fluoride from emissions units P001-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 C.12.

- c. Emission Limitation:

The total emissions of sulfur dioxide from emissions units P001-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 C.11.

- d. Emission Limitation:

Visible particulate emissions from the stack servicing this emissions unit shall

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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. Emission Limitation:

Particulate emissions shall not exceed 2.43 pounds/hour

Applicable Compliance Method:

From AP-42 Table 11.3-2, 8/97, EF for total PE = 0.96 lb/ton of clay fired.  
 $PE = 918 \text{ lb clay/hr} \times 1 \text{ ton}/2000 \text{ lb} \times 0.96 \text{ lb PE} / \text{ton clay} = 0.44 \text{ lb PE/hr}$

f. Emission 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.

$PE = 1289 \text{ ton clay/yr} \times 0.96 \text{ lb PE} / \text{ton clay} \times 1 \text{ ton PE}/2000 \text{ lb PE} = 0.62 \text{ ton/yr}$

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

$11.88 \text{ MMBtu/hr} \times 0.07 \text{ lb NO}_x/\text{MMBtu} \text{ (mfg. documentation low NO}_x) = 0.83 \text{ lb NO}_x/\text{hr of firing, then use:}$

$0.83 \text{ lb NO}_x/\text{hr of firing} \times 144 \text{ hr of firing/ batch} \times 52 \text{ batches/yr} \times 1 \text{ ton}/2000 \text{ lb} = 3.11 \text{ ton /yr}$

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

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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 hr of firing/ batch x 52 batches/yr x 1 ton/ 2000 lb  
= 3.74 ton /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 tpy clay x 0.12 % S x 64/32 = 3.09 tpy SO<sub>2</sub>

- g. Operating restriction:  
The maximum annual combined clay usage for emissions units P001-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 C.8.

- h. Operating restriction:  
This facility shall not use any clay in emissions units P001-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 C.6. for the determining the rolling 12-month average and Section C.4. for determining the monthly weighted average .

- i. Operating restriction:  
This facility shall not use any clay in emissions units P001-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 C.5. for determining the rolling 12-month average and Section C.3. for determining the monthly weighted average .

## F. Miscellaneous Requirements

**Koch Knight LLC****PTI Application: 15-01651****Facility ID: 1576001851****Emissions Unit ID: P005**

1. This permit to install (PTI) supercedes PTI 15-01344 issued on May 28, 2002 for P001-P006.
2. By request of the applicant and pursuant to OAC rule 3745-35-07, the special terms and conditions of this PTI are federally enforceable requirements.

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**PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)****A. Applicable Emissions Limitations and/or Control Requirements**

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

**Operations, Property, and/or Equipment - (P006) - 408 lbs/hr, 11.88 mmbtu/hr nat. gas fired shuttle kiln No. 7.**

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
OAC rule 3745-31-05(A)(3)  This permit to install (PTI) supercedes PTI 15-01344 issued on May 28, 2002 for P001-P006	Hydrogen fluoride emissions shall not exceed 0.77 pound/hour (as a 30-day average) and 0.95 ton/year.  See Section A.2.c. below
OAC rule 3745-35-07(B) (Synthetic Minor Limits)	The total emissions of hydrogen fluoride from emissions units P001-P006 shall not exceed 9.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions. See section A.2.a. below.  The total emissions of sulfur dioxide from emissions units P001-P006 shall not exceed 31.9 tons per year, based upon a rolling, 12-month summation of the monthly emissions. See section A.2.b. below.
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.
OAC rule 3745-17-11	Particulate emissions shall not exceed 2.43 pounds/hour
OAC rule 3745-18-06(E)	Exempt, pursuant to OAC rule 3745-18-06(C)

**2. Additional Terms and Conditions**

- 2.a The calculation of hydrogen fluoride emissions shall be based on the average

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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-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.

- 2.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-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.
- 2.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.

**B. Operational Restrictions**

1. The maximum annual combined clay usage for emissions units P001-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-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-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 A.2.b above for the method of determining the rolling 12-month average and monthly weighted average sulfur content.

**Koch Knight LLC**

DTI Application: 15-01651

**Facility ID: 1576001851**Emissions Unit ID: **P006**

3. This facility shall not use any clay in emissions units P001-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 A.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.

**Issued: 5/8/2007****C. Monitoring and/or Record keeping 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-P006 times the monitored fluorine content of each clay, divided by the monthly amount of clay employed in kilns P001-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-P006 times the monitored sulfur content of each clay, divided by the monthly amount of clay employed in kilns P001-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-P006.
8. The permittee shall keep monthly records of the rolling, 12-month summation of the tons of clay used in emissions units P001-P006.
9. The permittee shall keep monthly records of the combined sulfur dioxide emissions from emissions units P001-P006.

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10. The permittee shall keep monthly records of the combined HF emissions from emissions units P001-P006.
11. The permittee shall keep monthly records of the rolling, 12-month summation of the combined sulfur dioxide emissions from emissions units P001-P006.
12. The permittee shall keep monthly records of the rolling, 12-month summation of the combined HF emissions from emissions units P001-P006.

**D. 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-P006;
  - b. all exceedances of the rolling, 12-month combined emission limitation for HF from emissions units P001-P006;
  - c. all exceedances of the rolling, 12-month combined emission limitations for SO<sub>2</sub> from emissions units P001-P006;
  - d. all exceedances of the rolling, 12-month average of the 0.12 % sulfur content in the clay employed in emissions units P001-P006; and
  - e. all exceedances of the rolling, 12-month average of the 0.07% fluorine content in the clay employed in emissions units P001-P006.
  - f. all exceedances of each monthly weighted average of the 0.13 % sulfur content limit in emissions unit P001-P006; and
  - g. all exceedances of each monthly weighted average of the 0.08 % fluorine content limit in emissions unit P001-P006.

These quarterly reports shall be submitted in accordance with Part I - General Terms and Conditions.

2. The permittee shall submit annual reports which specify the total combined HF

Emissions Unit ID: P006

emissions for emissions units P001-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-P006. These reports shall be submitted by January 31 of each year.

## E. Testing Requirements

1. Compliance with the emission limitations in section A and the operating restrictions in section B of these terms and conditions shall be determined in accordance with the following methods:

- a. Emission Limitation:

Hydrogen fluoride emissions shall not exceed 0.77 pounds/hour (as a 30-day average) and 0.95 tons/year.

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. Emission Limitation:

The total emissions of hydrogen fluoride from emissions units P001-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 C.12.

- c. Emission Limitation:

The total emissions of sulfur dioxide from emissions units P001-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 C.11.

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- d. Emission 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. Emission Limitation:  
Particulate emissions shall not exceed 2.43 pounds/hour

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 lb clay/hr x 1 ton/2000 lb x 0.96 lb PE / ton clay = 0.44 lb PE/hr

- f. Emission 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

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= 3.11 ton /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 hr of firing/ batch x 52 batches/yr x 1 ton/ 2000 lb  
= 3.74 ton /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 tpy clay x 0.12 % S x 64/32 = 3.09 tpy SO<sub>2</sub>

- g. Operating restriction:  
The maximum annual combined clay usage for emissions units P001-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 C.8.

- h. Operating restriction:  
This facility shall not use any clay in emissions units P001-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 C.6. for the determining the rolling 12-month average and Section C.4. for determining the monthly weighted average .

- i. Operating restriction:  
This facility shall not use any clay in emissions units P001-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.

**Koch Knight LLC**

PTI Application: 15-01651

**Facility ID: 1576001851**Emissions Unit ID: **P006**Applicable Compliance Method:

Compliance shall be based on the record keeping found in Section C.5. for determining the rolling 12-month average and Section C.3. for determining the monthly weighted average .

**F. Miscellaneous Requirements**

1. This permit to install (PTI) supercedes PTI 15-01344 issued on May 28, 2002 for P001-P006.
2. By request of the applicant and pursuant to OAC rule 3745-35-07, the special terms and conditions of this PTI are federally enforceable requirements.