OhioEPA

State of Ohio Environmental Protection Agency

Street Address:
Lazarus Gov. Center
122 S. Front Street
Columbus, OH 43215

TELE: (614) 644-3020 **FAX:** (614) 644-2329

Mailing Address:
Lazarus Gov. Center
P.O. Box 1049
Columbus, OH 43216-1049

RE: FINAL PERMIT TO INSTALL
LICKING COUNTY
Application No: 01-08117

DATE: 9/14/00

CERTIFIED MAIL

Y	TOXIC REVIEW
	PSD
Y	SYNTHETIC MINOR
	CEMS
	MACT
	NSPS
	NESHAPS
	NETTING
	MAJOR NON-ATTAINMENT
Y	MODELING SUBMITTED
	GASOLINE DISPENSING FACILITY

Bowerston Shale Company
Ed Milliken
Post Office Box 199 515 Main Street
Bowerston, OH 44695

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, buy 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 by the Director is final and may be appealed to the Ohio Environmental Review Appeals Commission pursuant to Chapter 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. It must be filed within thirty (30) days after the notice of the Directors action. A copy of the appeal must be served on the Director of the Ohio Environmental Protection Agency within three (3) days of filing with the Commission. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission
236 East Town Street, Room 300
Columbus, Ohio 43215

Very truly yours,

Thomas G. Rigo

Thomas G. Rigo, Manager
Field Operations and Permit Section
Division of Air Pollution Control

CC: USEPA **CDO**

Permit To Install **Issue Date: September 14, 2000**
Terms and Conditions **Effective Date: September 14, 2000**

FINAL PERMIT TO INSTALL 01-08117

Application Number: 01-08117

APS Premise Number: 0145000010

Permit Fee: **$800**

Name of Facility: Bowerston Shale Company

Person to Contact: Ed Milliken

Address: Post Office Box 199 515 Main Street
Bowerston, OH 44695

Location of proposed air contaminant source(s) [emissions unit(s)]:
1329 Seven Hills Rd NE
Hanover, **Ohio**

Description of proposed emissions unit(s):
Loading in and out of raw material; Storage piles.

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

Director

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 Related to Monitoring and Recordkeeping 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 quarterly, i.e., 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 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)

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 are inadequate 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 prove to be inadequate 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 application must be made to the Director for the installation or modification of any other emissions unit(s).

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.

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 thirty (30) 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
PM	12
HF	9.9
NOx	9.3
CO	32.1
OC	3.0
SO2	82.0

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	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
P002 - Tunnel kiln and dryer for clay and shale bricks	OAC rule 3745-31-05(A)(3)	Particulate matter emissions shall not exceed 2.73 pounds per hour and 12.0 tons per year. Hydrogen fluoride emissions shall not exceed 2.26 pounds per hour and 9.9 tons per year. Nitrogen oxide emissions shall not exceed 2.13 pounds per hour and 9.3 tons per year. Carbon monoxide emissions shall not exceed 7.32 pounds per hour and 32.1 tons per year. Organic compound emissions shall not exceed 0.68 pound per hour and 3.0 tons per year. Sulfur dioxide emissions shall not exceed 61.00 pounds per hour. The requirements of this rule also include compliance with the requirements of OAC rule 3745-17-07(A)(1).
	OAC rules 3745-31-05(D) and 3745-35-07 (B)	Sulfur dioxide emissions shall not exceed 82.0 tons per year as a rolling 12-month summation.

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	The sulfur content of the clay burned in this emissions unit shall not exceed 0.5 percent by weight.
OAC rule 3745-17-07 (A)(1)	Visible particulate shall not exceed 20% opacity, as a 6-minute average, except as provided by rule.
OAC rule 3745-17-11 (B)(1)	The limits specified in this rule are less stringent than the limitations established pursuant to OAC rule 3745-31-05 (A)(3).
OAC rule 3745-18-06 (E)(2)	The limits specified in this rule are less stringent than the limitations established pursuant to OAC rule 3745-31-05 (A)(3).

2. Additional Terms and Conditions

2.a None

B. Operational Restrictions

1. The short term and long term emission limitations established in A.1 above for PM, HF, NOx, CO, OC, and short term emission limitation for SO2 were established to reflect the potential to emit therefore, it is not necessary to develop record keeping and/or reporting requirements to ensure compliance with these limits.

2. The quality of clay burned in this emissions unit shall meet, on a per pit basis, a sulfur content that will allow compliance with the maximum sulfur dioxide emission limitation of 0.5 percent by weight. Compliance shall be demonstrated using analytical results provided by the permittee or clay supplier for each pit exploited.

3. The maximum annual usage rate for high sulfur clay (Kimble #4) in this emissions unit shall not exceed 13,359 tons, based upon a rolling, 12-month summation of the usage rates.

4. For the purpose of demonstrating compliance during the first 12 calendar months of operation covered by this permit, the rolling 12-month non-high sulfur clay usage (tons) and SO2 emissions shall be based upon the actual non-high sulfur clay usages during the 12-month period prior to issuance of this permit.

5. The maximum annual usage rate of high sulfur clay for this emissions unit shall not exceed 13,359 tons, based upon a rolling, 12-month summation of the usage rates.

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To ensure enforceability during the first 12 calendar months of operation following issuance of this permit, the permittee shall not exceed the usage levels of high sulfur clay specified in the following table:

Month	Maximum Allowable Cumulative Usage (tons)
1	3900
1-2	4900
1-3	5900
1-4	6900
1-5	7900
1-6	8900
1-7	9900
1-8	10,900
1-9	11,900
1-10	12,900
1-11	13,359
1-12	13,359

After the first 12 calendar months of operation following issuance of this permit, compliance with the annual usage rate limitation for high sulfur clay shall be based upon a rolling, 12-month summation of the usage rates.

C. Monitoring and/or Recordkeeping Requirements

5. The permittee shall collect or require the clay supplier to collect a representative grab sample for each pit supplying high sulfur clay that is received for use in this emission unit. The permittee shall perform or require the supplier to perform the analyses for sulfur content in accordance with the following method: Quantitative Chemical Analysis using Atomic Spectroscopy. Alternative, equivalent methods may be used upon receiving written approval from Ohio EPA.

6. Each pit which supplies clay for use in this emissions unit, the permittee shall maintain the following records:

   a. the total quantity of clay (tons); and

   b. the permittee's or clay supplier's analysis for sulfur content (percent by weight);

3. The permittee shall maintain monthly records of the following:

   a. the usage rate for high sulfur clay (tons);

   b. the usage rate for each non-high sulfur clay (tons), categorized by sulfur content;

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c. during the first 12 calendar months of operation following issuance of this permit, the permittee shall record the cumulative usage rate for high sulfur clay for each calendar month;

d. beginning after the first 12 calendar months of operation following issuance of this permit, the rolling, 12-month summation of the usage rates for high sulfur clay;

e. the rolling, 12-month summation of the usage rates for non-high sulfur clay;

f. the rolling, 12-month summation of the usage rates for each clay, categorized by sulfur content; and

g. the rolling 12-month summation of the sulfur dioxide emission rate for combined high sulfur clay and each non-high sulfur clay, in tons.

4. The permit to install for this emissions unit P002 was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model (or other Ohio EPA approved model). The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following summarizes the results of the modeling for the "worst case" pollutant(s):

Pollutant: Hydrogen fluoride

TLV (mg/m3): 2.3

Maximum Hourly Emission Rate (lbs/hr): 2.26

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 10.29

MAGLC (ug/m3): 54.76

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

a. changes in the composition of the materials used, or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of

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Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value previously modeled;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/ decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01(VV)(1)(a)(ii), and a modification of the existing permit to install will not be required. If the change(s) is (are) defined as a modification under other provisions of the modification definition (other than (VV)(1)(a)(ii)), then the permittee shall obtain a final permit to install prior to the change.

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

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

D. Reporting Requirements

1. The permittee shall submit deviation (excursion) reports that identify all exceedances of the rolling, 12-month high sulfur clay usage rate limitation and, for the first 12 calendar months of operation following issuance of this permit, all exceedances of the maximum allowable cumulative high sulfur clay usage levels. These reports are due by the date described in Part 1 - General Terms and Conditions of this permit under section (A)(2).

2. The permittee shall submit deviation (excursion) reports that identify all exceedances of the rolling, 12-month emission rate limitation. These reports are due by the date described in Part 1 - General Terms and Conditions of this permit under section (A)(2).

3. The permittee shall submit deviation (excursion) reports that identify all exceedances of the sulfur content of the clay burned in this emissions. These reports are due by the date described in Part 1 - General Terms and Conditions of this permit under section (A)(2).

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4. The permittee shall submit annual reports which specify the rolling 12-month summation of the sulfur dioxide emission rate for combined high sulfur clay and non-high sulfur clay, in tons, for the previous calendar year. These reports shall be submitted by January 31 of each year.

E. Testing Requirements

1. Compliance with the emission limitation(s) in Section B.I. of these terms and conditions shall be determined in accordance with the following method(s):

   a. Emission Limitation
   Visible particulate emissions shall not exceed 20% opacity as a six-minute average, except as provided by rule.

   Applicable Compliance Method
   Compliance shall be demonstrated by the method specified in OAC rule 3745-17-03(B)(1).

   b. Emission Limitation
   Particulate matter emissions shall not exceed 2.73 pounds per hour and 12.0 tons per year.

   Applicable Compliance Method
   Compliance with the short term emission limitation shall be demonstrated by multiplying the maximum short term throughput of 6.1 tons/hr by the emission factor of 0.447 lb PM/ton of bricks (AP-42, 8/97).

   Compliance with the long term emission limitation shall be demonstrated by multiplying the short term maximum emission rate by 8760 hr/yr and dividing by 2000 lbs/ton.

   c. Emission Limitation
   Hydrogen fluoride emissions shall not exceed 2.26 pounds per hour and 9.9 tons per year.

   Applicable Compliance Method
   Compliance with the short term emission limitation shall be demonstrated by multiplying the maximum short term throughput of 6.1 tons/hr by the emission factor of 0.37 lb HF/ton of bricks (AP-42, 8/97).

   Compliance with the long term emission limitation shall be demonstrated by multiplying the short term maximum emission rate by 8760 hr/yr and dividing by 2000 lbs/ton.

   d. Emission Limitation
   Nitrogen oxide emissions shall not exceed 2.13 pounds per hour and 9.3 tons per year.

   Applicable Compliance Method
   Compliance with the short term emission limitation shall be demonstrated by multiplying the maximum short term throughput of 6.1 tons/hr by the emission factor of 0.35 lb NOx/ton of bricks (AP-42, 8/97).

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Compliance with the long term emission limitation shall be demonstrated by multiplying the short term maximum emission rate by 8760 hr/yr and dividing by 2000 lbs/ton.

e. Emission Limitation
Carbon monoxide emissions shall not exceed 7.32 pounds per hour and 32.1 tons per year.

Applicable Compliance Method
Compliance with the short term emission limitation shall be demonstrated by multiplying the maximum short term throughput of 6.1 tons/hr by the emission factor of 1.2 lb CO/ton of bricks (AP-42, 8/97).

Compliance with the long term emission limitation shall be demonstrated by multiplying the short term maximum emission rate by 8760 hr/yr and dividing by 2000 lbs/ton.

f. Emission Limitation
Organic compound emissions shall not exceed 0.68 pound per hour and 3.0 tons per year.

Applicable Compliance Method
Compliance with the short term emission limitation shall be demonstrated by multiplying the maximum short term throughput of 6.1 tons/hr by the emission factor of 0.112 lb OC/ton of bricks (AP-42, 8/97).

Compliance with the long term emission limitation shall be demonstrated by multiplying the short term maximum emission rate by 8760 hr/yr and dividing by 2000 lbs/ton.

g. Emission Limitation
Sulfur dioxide emissions shall not exceed 61.00 pounds per hour and 82.0 tons per year as a rolling 12-month summation.

Applicable Compliance Method
Compliance with the short term emission limitation shall be demonstrated by multiplying the maximum short term throughput of 6.1 tons/hr by the emission factor for high sulfur clay 0.5 percent by weight.

Compliance with the long term emission limitation shall be based upon the records required pursuant to Section Part II.C.3.

h. Emission Limitation
The sulfur content of the clay burned in this emissions unit shall not exceed 0.5% by weight.

Applicable Compliance Method
Compliance shall be demonstrated by the record keeping and reporting requirements in Sections Part II.C.1 and Part II.D.3.

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F. Miscellaneous Requirements

None

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NEW SOURCE REVIEW FORM B

PTI Number: 01-08117 Facility ID: 0145000010

FACILITY NAME Bowerston Shale Company

FACILITY DESCRIPTION Loading in and out of raw material. Storage piles. CITY/TWP Hanover

SIC CODE 3251 SCC CODE 30500310 EMISSIONS UNIT ID P002

EMISSIONS UNIT DESCRIPTION Tunnel kiln and dryer for clay and shale bricks

DATE INSTALLED 7/00

EMISSIONS: (Click on bubble help for Air Quality Descriptions)

Pollutants	Air Quality Description	Actual Emissions Rate		PTI Allowable	
		Short Term Rate	Tons Per Year	Short Term Rate	Tons Per Year
Particulate Matter		2.73	12.0	2.73	12.0
PM_{10}					
Sulfur Dioxide		61.0	82.0	61.0	82.0
Organic Compounds		0.68	3.0	0.68	3.0
Nitrogen Oxides		2.13	9.3	2.13	9.3
Carbon Monoxide		7.32	32.1	7.32	32.1
Lead					
Other: Air Toxics		2.26	9.9	2.26	9.9

APPLICABLE FEDERAL RULES:

NSPS? NESHAP? PSD? OFFSET POLICY?

WHAT IS THE BAT DETERMINATION, AND WHAT IS THE BASIS FOR THE DETERMINATION?
See additional terms and conditions.

IS THIS SOURCE SUBJECT TO THE AIR TOXICS POLICY? Yes

OPTIONAL: WHAT IS THE CAPITAL COST OF CONTROL EQUIPMENT? $

TOXIC AIR CONTAMINANTS

Ohio EPA's air toxics policy applies to contaminants for which the American Conference of Governmental Industrial Hygienists (ACGIH) has a listed threshold limit value.

AIR TOXICS MODELING PERFORMED*? X YES NO

IDENTIFY THE AIR CONTAMINANTS: Hydrogen fluoride

NEW SOURCE REVIEW FORM B

PTI Number: 01-08117 Facility ID: 0145000010

FACILITY NAME Bowerston Shale Company

FACILITY DESCRIPTION	Loading in and out of raw material. Storage piles.	CITY/TWP	Hanover

Please describe any hard copy information is being submitted with this recommendation (Please send hard copy information to Pam McGraner, DAPC Central Office - Air Quality Modeling and Planning):

Calculations.

Please provide any additional permit specific notes as you deem necessary:

The Bowerston Shale Co. initially was issued a PTI 12/3/98. Since that date they have decided to change their operating practices and accept a type of clay not specified in the original permit application. The clay has a high sulfur content and would exceed the Title V thresholds if used exclusively. The high sulfur clay (Kimble #4) proposed in this synthetic minor is extremely unique and Bowerston Shale Co. is proposing to limit their usage of this type of material in a synthetic minor permit.

The storage piles, roadways and parking areas in the previous permit will not change and are not included in this permit.

Calculations:

Maximum total clay throughput = 6.1 tons/hr
53,436 tons/yr (6.1 x 8760/2000)
Synthetic Minor clay usage restriction = High sulfur clay (Kimble #4) = 13,359 tons/yr
All other clay = 40,077 tons/yr

Maximum hours = 8760 hrs/yr
Emission factors
(AP-42, 8/97): PM = 0.37 + 0.077 = 0.447 lb/ton of bricks
HF = 0.37 lb/ton of bricks
NOx = 0.35 lb/ton of bricks
CO = 1.2 lbs/ton of bricks
OC = 0.062 + 0.05 = 0.112
SO2 = regular clay = 0.76 lb/ton of bricks
high sulfur clay = 0.5 wt. % of bricks

PM: 0.447 lb/ton x 6.1 ton/hr = 2.73 lbs/hr
2.73 lbs/hr x 8760 hrs/yr x 1 ton/2000 lbs = 12.0 tons/yr

HF: 0.37 lb/ton x 6.1 ton/hr = 2.26 lbs/hr
2.26 lbs/hr x 8760 hrs/yr x 1 ton/2000 lbs = 9.9 tons/yr

NOx: 0.35 lb/ton x 6.1 ton/hr = 2.13 lbs/hr
2.13 lbs/hr x 8760 hrs/yr x 1 ton/2000 lbs = 9.3 tons/yr

CO: 1.2 lb/ton x 6.1 ton/hr = 7.32 lbs/hr

NEW SOURCE REVIEW FORM B

PTI Number: 01-08117 Facility ID: 0145000010

FACILITY NAME Bowerston Shale Company

FACILITY DESCRIPTION	Loading in and out of raw material. Storage piles.	CITY/TWP	Hanover

7.32 lbs/hr x 8760 hrs/yr x 1 ton/2000 lbs = 32.1 tons/yr

OC: 0.112 lb/ton x 6.1 ton/hr = 0.68 lbs/hr
0.68 lbs/hr x 8760 hrs/yr x 1 ton/2000 lbs = 3.0 tons/yr

SO2: 0.5 wt % x 6.1 tons/hr x 2000 lbs/ton = 61.0 lbs/hr (assuming all high sulfur clay)
0.5 wt % x 13,359 tons/yr = 66.8 tons/yr (high sulfur clay)
0.76 lb/ton x 40,077 tons/yr x 1 ton/2000 lbs = 15.2 tons /hr (all other clay)

66.8 tons + 15.2 tons = 82.0 tons SO2/yr

Modeling was performed for this emissions unit. An emissions rate of 1 gr/sec was modeled and the result was multiplied by the emission rate in gr/sec. No exceedeces of the MAGCL were predicted.

If you have any questions concerning the above referenced information feel free to give me a call at (614) 728-3811.

Thanks,

Adam

Permit To Install Synthetic Minor Write-Up

V. Source Description

The Bowerston Shale Company has submitted a Synthetic Minor permit-to-install for their tunnel kiln (P002), used for producing clay and shale bricks. The kiln has been permitted in the past and the facility did not trigger Title V permitting. Recently, The Bowerston Shale Co. have decided to change their operating practices and accept a type of clay not specified in the original permit application. The clay has a high sulfur content and would exceed the Title V thresholds if used exclusively. The high sulfur clay (Kimble #4) proposed in this synthetic minor is extremely unique and Bowerston Shale Co. is proposing to limit their usage of this type of material in a synthetic minor permit.

VI. Facility and Source Emissions

The facility's PTE totals are as follows:

	Emissions	Before Synthetic Minor (tons)	After Synthetic Minor (tons)
P002 =	PM	12.0	12.0
	NOx	9.3	9.3
	CO	32.1	32.1
	OC	3.0	3.0

NEW SOURCE REVIEW FORM B

PTI Number: 01-08117 Facility ID: 0145000010

FACILITY NAME Bowerston Shale Company

FACILITY DESCRIPTION Loading in and out of raw material. Storage piles. CITY/TWP Hanover

	HF	**9.9**	**9.9**
	SO2	**267.2**	**82.0**
F001 =	**PM**	**5.0**	**5.0**
F002 =	**PM**	**1.0**	**1.0**

The PTE for SO2 referenced above assumes that the clay has a sulfur content of 0.5 percent by weight and that only the high sulfur clay is used in the emissions unit. It also assumes the unit operates at its maximum potential hourly rate for 8760 hours per year.

VII. Emissions Unit Limitation

The federally enforceable limitations for P002 shall effectively restrict the emissions to levels below those which trigger Title V permitting. The limitation of 0.5 % sulfur by weight of the clay used in the unit assures that our calculations and assumptions remain accurate. The usage restriction of 13,359 tons per year of the high sulfur clay is enforced through the cumulative monthly usage table for the 12 months following issuance of this permit. After the initial 12 months, compliance will be shown by the monthly 12 month summation of the usage totals. The emissions will not exceed 82.0 tons SO2 per 12 month summation if the emissions unit does not exceed the high sulfur clay usage restrictions..

VIII. Conclusion

This Synthetic Minor PTI will effectively restrict the SO2 emissions below Title V thresholds. The operational restrictions, record keeping and reporting incorporated into the terms and conditions shall ensure that compliance with this permit is achieved.

Please fill in the following for this permit:

TOTAL PERMIT TO INSTALL ALLOWABLE EMISSIONS

Pollutant	Tons Per Year
PM	**12**
HF	**9.9**
NOx	**9.3**
CO	**32.1**
OC	**3.0**
SO2	**82.0**

NEW SOURCE REVIEW FORM B

PTI Number: 01-08117 Facility ID: 0145000010

FACILITY NAME Bowerston Shale Company

FACILITY DESCRIPTION	Loading in and out of raw material. Storage piles.	CITY/TWP	Hanover