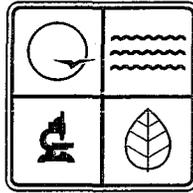


STATE OF MISSOURI  
DEPARTMENT OF NATURAL RESOURCES  
MISSOURI AIR CONSERVATION COMMISSION



PERMIT BOOK

## PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: **1 2 2 0 0 6 - 0 0 2** Project Number: **2006-09-076**

Owner: **O'Brien Industrial Holdings, LLC.**

Owner's Address: **4641 McRee Avenue, St. Louis, MO 63110**

Installation Name: **Christy Minerals Company**

Installation Address: **833 Booneslick Road, High Hill, MO 63350**

Location Information: **Montgomery County, S32, T48N, R4W**

Application for Authority to Construct was made for:

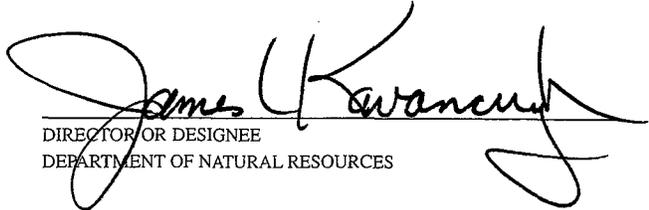
**Replacement of a 3-deck screen with a 5-deck screen (EP 304). This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.**

Standard Conditions (on reverse) are applicable to this permit.

Standard Conditions (on reverse) and Special Conditions (listed as attachments starting on page 2) are applicable to this permit.

DEC 6 2006

EFFECTIVE DATE

  
DIRECTOR OR DESIGNEE  
DEPARTMENT OF NATURAL RESOURCES

## STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

**You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review.** Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available not more than 60 days but at least 30 days in advance of this date. Also, you must notify the Department of Natural Resources Regional Office responsible for the area within which you are located within 15 days after the actual start up of this (these) air contaminant source(s).

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed Special Conditions as provided in RSMo 643.075. If you choose to appeal, the Air Pollution Control Program must receive your written declaration within 30 days of receipt of this permit.

If you choose not to appeal, this certificate, the project review, your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant source(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Department of Natural Resources has established the Outreach and Assistance Center to help in completing future applications or fielding complaints about the permitting process. You are invited to contact them at 1-800-361-4827 or (573) 526-6627, or in writing addressed to Outreach and Assistance Center, P.O. Box 176, Jefferson City, MO 65102-0176.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention Construction Permit Unit.

Page No.	3
Permit No.	
Project No.	2006-09-076

### SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

*The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."*

Christy Minerals Company  
Montgomery County, S32, T48N, R4W

1. PM<sub>10</sub> Emission Limitation
  - A. Christy Minerals Company shall emit less than 15 tons of particulate matter less than ten (10) microns in diameter (PM<sub>10</sub>) in any consecutive 12 month period from the East System Screener (EP304).
  - B. Christy Minerals Company shall maintain an accurate record of PM<sub>10</sub> emitted into the atmosphere from the East System Screener (EP304). Attachment A or an equivalent form shall be used for this purpose. Christy Minerals Company shall maintain all records required by this permit for not less than five (5) years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request.
  - C. Christy Minerals Company shall report to the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, Missouri 65102, no later than ten (10) days after the end of the month during which the records from Special Condition Number 1.B indicate that the source exceeds the limitation of Special Condition Number 1.A.
2. Baghouse Conditions
  - A. Christy Minerals Company shall control emissions from the the East System Screener (EP304) using a baghouse as specified in the permit application. The baghouse shall be operated and maintained in accordance with the manufacturer's specifications. The baghouse shall be equipped with a gauge or meter, which indicates the pressure drop across the control device. These gauges or meters shall be located such that Department of Natural Resources' employees may easily observe them. Replacement filters for the baghouse shall be kept on hand at all times. The bags shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance).
  - B. Christy Minerals Company shall monitor and record the operating pressure drop across the baghouses and drum filters at least once every

Page No.	3
Permit No.	
Project No.	2006-09-076

**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

24 hours. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.

- C. Christy Minerals Company shall maintain an operating and maintenance log for the baghouses and drum filters which shall include the following:
- (1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
  - (2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE  
SECTION (5) REVIEW

Project Number: 2006-09-076  
Installation ID Number: 139-0008  
Permit Number:

Christy Minerals Company  
833 Booneslick Road  
High Hill, MO 63350

Complete: October 3, 2006  
Reviewed: October 26, 2006

Parent Company:  
O'Brien Industrial Holdings, LLC.  
4641 McRee Avenue  
St. Louis, MO 63110

Montgomery County, S32, T48N, R4W

REVIEW SUMMARY

- Christy Minerals Company has applied for authority to replace a 3-deck screen with a 5-deck screen (EP 304).
- Hazardous Air Pollutant (HAP) emissions are not expected from the proposed equipment.
- None of the New Source Performance Standards (NSPS) apply to the proposed equipment.
- A filter baghouse and building enclosure are being used to control PM<sub>10</sub> emissions from the equipment in this permit.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM<sub>10</sub> are conditioned to de minimis levels.
- This installation is located in Montgomery County, an attainment area for all criteria air pollutants.
- This installation is not on the List of Named Installations [10 CSR 10-6.020(3)(B), Table 2].
- Ambient air quality modeling was not performed since potential emissions of the application are conditioned to below de minimis levels.
- Emissions testing is not required for the replacement screen.
- A revision to the Part 70 Operating Permit application is required for this installation

within 1 year of equipment startup.

- Approval of this permit is recommended with special conditions.

## INSTALLATION DESCRIPTION

Christy Minerals, LLC. processes clay for the manufacture of refractory materials (i.e. fire brick, etc.) at their installation in High Hill, Missouri. The processing of the clay involves calcinating, grinding, and sizing of the alumina silicate materials

This installation is considered an existing major source of air pollutants. The installation was issued a Part 70 operating permit (OP1999-108) on August 13, 1999 and amended on August 23, 2000. A Part 70 Operating Permit renewal was received January 22, 2004, and is currently under review.

The following New Source Review (NSR) permits have been issued to Christy Minerals Company from the Air Pollution Control Program.

Table 1: Previously Issued New Source Review Permits

Permit Number	Description
0393-020	Replacement of an outdated crusher and sizing screen with fully enclosed equipment. The conditions established in this permit were superceded by the conditions of Permit No. 1296-018.
0194-001	Modification to Permit Number 0393-020 to allow increased production. The conditions established in this permit were superceded by the conditions of Permit No. 1296-018.
1296-018 & 1296-018A	A Section (5) permit issued on November 19, 1996 for the addition of two (2) ball mill systems. All construction and/or modification projects after May 13, 1992 for this installation were limited to the de minimis level of 15 tons per year of PM <sub>10</sub> .
0898-030	A Section (5) permit issued on August 31, 1998 to re-configure the installation operations and to replace some existing equipment with new equipment at the plant including two (2) 50 ton bins, two (2) 9" screw augers, and a pneumatic collection system. The installation has also applied to add a semi-portable crushing/screening system and a semi-portable screening system.
082000-020	Replacement of an existing shaker spreader (Kinergy KDF 60-50) with a new gravity Spreader (LB & W 1.5), raising of the existing Moginson screen up one (1) floor and construction of a new Rotex screen (Model 803 DAMM) at the existing Moriginson screen elevation.
082000-019	Addition of a pneumatic conveying system, an automated palletizer and two (2) new sackers. This project will also allow the installation to utilize more of the capacity of two (2) sackers currently in operation.
082000-018	Replacement of a rubber belted stacker being cooled with a water spray with a new metal stacker that will be enclosed and vented to a baghouse.
082000-019A	Extension of Permit Number 082000-019.
082000-018A	Extension of Permit Number 082000-018
012006-001	Installation of an unloading station, a silo storage, a grinder, and a pneumatic conveying system to feed Biomass fuel into an existing kiln.

## PROJECT DESCRIPTION

Christy Minerals Co. is seeking authority to replace an existing 3-deck Rotex Screen with a 5-deck Rotex screen (EP304). At present, a screen arrangement of three decks with dimensions of 42" by 86" and a maximum hourly design rate of 40 tons per hour is used. The replacement screen will be five decks with sizes of 60" by 120". The capacity of the new 5-deck screen is limited by the capacity of the Barmac crusher at 40 tons per hour. Due to the bottleneck created by the crusher, there will not be any increase in production capacity and thus air emissions. A filter baghouse and building enclosure are used to control PM<sub>10</sub> emissions from the replacement screen.

Since Christy Minerals Co. is considered a major source under construction permits and emissions from the replacement screen are greater than de minimis levels, this project cannot be considered for exemption under the like-kind replacement rule, 10 CSR 10-6.061(3)(B)3.

## EMISSIONS/CONTROLS EVALUATION

The emission factor used with the screen were obtained from the Environmental Protection Agency document Factor Information Retrieval (FIRE) V6.24, *Source Classification Codes and Emission Factors Listing for Criteria Air Pollutants* (SCC # 3-05-003-08). Efficiencies of 80% for the filter baghouse (CD6) and 3.7% for the building enclosure (CD15) are used for controlling PM<sub>10</sub> emissions from the screen. According to Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Appendix B.2, the control efficiency associated with building enclosures is 3.7%. A 50% control efficiency was previously used for the building enclosure surrounding the existing screen.

The following table provides an emissions summary for this project. Potential emissions of the application represent the potential of the new screen. However, there will be no increase in existing potential emissions as a result of this project. Existing potential emissions were taken from Permit Number 012006-001. Existing actual emissions were taken from the installation's 2005 Emission Inventory Questionnaire (EIQ). Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year).

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions for the Installation	Existing Actual Emissions for the Installation (2005 EIQ)	Potential Emissions of the Application	Conditioned Potential for the Application
PM <sub>10</sub>	15.0	921.0	84.65	47.24	<15
SO <sub>x</sub>	40.0	1116.9	308.75	N/A	N/A
NO <sub>x</sub>	40.0	823.9	129.03	N/A	N/A
VOC	40.0	56.6	0.02	N/A	N/A
CO	100.0	438	92.16	N/A	N/A
HAPs	10.0/25.0	N/D	N/D	N/A	N/A

N/A = Not Applicable; N/D = Not Determined

### PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM<sub>10</sub> are conditioned to below de minimis levels.

### APPLICABLE REQUIREMENTS

Christy Minerals Company shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved. For a complete list of applicable requirements for your installation, please consult your operating permit.

### GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110  
The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of an Emissions Inventory Questionnaire (EIQ) is required April 1 for the previous year's emissions.
- *Operating Permits*, 10 CSR 10-6.065
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-3.090

## SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400

## STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

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Susan Heckenkamp  
Environmental Engineer

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Date

## PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated September 22, 2006, received September 24, 2006, designating O'Brien Industrial Holdings, LLC as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.



Ms. Robin Overkamp  
Regional Compliance Manager  
Christy Minerals Company  
PO Box 159  
High Hill, MO 63350

RE: New Source Review Permit - Project Number: 2006-09-076

Dear Ms. Overkamp:

Enclosed with this letter is your permit to construct. Please study it carefully. Also, note the special conditions, if any, on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files.

Operation in accordance with these conditions, your new source review permit application and with your revised operating permit is necessary for continued compliance. The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

If you have any questions, please contact me at (573) 751-4817, or write the Department of Natural Resources' Air Pollution Control Program, PO Box 176, Jefferson City, MO 65102. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale  
New Source Review Unit Chief

KBH: shk

Enclosures

c: Saint Louis Regional Office  
PAMS File: 2006-09-076

Permit Number: