

STATE OF MISSOURI

PERMIT BOOK



DEPARTMENT OF NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

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:

012011-013

Project Number: 2010-11-038

Installation Number: 027-0010

Parent Company:

A. P. Green Industries, Inc.

Parent Company Address: 400 Fairway Drive, Moon Township, PA 15108

Installation Name:

A. P. Green Industries - Fulton Plant

Installation Address:

111 Saint Eunice Road, Fulton, MO 65251

Location Information:

Callaway County, S5, T47N, R9W

Application for Authority to Construct was made for:

Installation of a new 6,100 cubic foot M&D Ball Clay Silo (EU0470), an M&D ball clay air transporter system with a receiving silo bin vent (EU0480) and a dust collector fines powder pump transport system with two material receiver vents (EU0490-1 and EU4. 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 are applicable to this permit.

JAN 25 2011

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.** In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the departments' Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available within 30 days of actual startup. 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 to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and 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 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 Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.

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**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."*

A. P. Green Industries - Fulton Plant  
Callaway County, S5, T47N, R9W

1. Control Device Requirement-Bin Vent Filters
  - A. A. P. Green Industries - Fulton Plant shall control particulate emissions from the following equipment using bin vent filters as specified in the permit application.
    - 1) 6,100 cubic foot M&D Ball Clay Storage (EU0470)
    - 2) M&D Ball Clay Storage, Bin #7 (EU0480)
    - 3) Bauxite Fines, Bin #8 (EU0490-1)
    - 4) Clay Fines, Bin #10 (EU0490-2)
  - B. The bin vent filters shall be operated and maintained in accordance with the manufacturer's specifications. The bin vent filters 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 the Department of Natural Resources' employees may easily observe them.
  - C. Replacement filters for the bin vent filters 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).
  - D. A. P. Green Industries - Fulton Plant shall monitor and record the operating pressure drop across the bin vent filter of the M&D Ball Clay Storage Silo (EU0470) at least once during each transfer operations event. In the case where there is more than one transfer event taking place in a 24-hour period, then only one reading is required. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.

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**SPECIAL CONDITIONS:**

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

- E. A. P. Green Industries - Fulton Plant shall monitor and record the operating pressure drop across the bin vent filters of the M&D Ball Clay Storage Bin (EU0480), the Bauxite Fines Bin (EU0490-1) and the Clay Fines Bin (EU0490-2) at least once every 24 hours. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.
  
- F. A. P. Green Industries - Fulton Plant shall maintain an operating and maintenance log for the bin vent 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.

Ms. Rhonda L. Vete  
Senior Manager, EHS  
A. P. Green Industries - Fulton Plant  
400 Fairway Drive  
Moon Township, PA 15108

RE: New Source Review Permit - Project Number: 2010-11-038  
Installation ID: 027-0010

Dear Ms. Vete:

Enclosed with this letter is your permit to construct. Please study it carefully. Also, note the special conditions on the accompanying pages. The document entitled, "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 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.

According to your application and subsequent emails, A. P. Green Fulton currently produces bauxite (BBAB) and fireclay (BBAF) type brands. In order to guarantee that these two product lines are properly separated from batching through firing, equipment is being added and several plant processes are being modified in order to reliably isolate incompatible materials and reduce the risk of a major quality problem caused by contamination. The equipment being added are a new 6,100 cubic foot M&D Ball Clay Silo with a silo bin vent (EU0470), an M&D ball clay air transporter system with a new receiving bin vent on Bin #7 (EU0480) and a dust collector fines powder pump transport system with two new material receiver vents (EU0490-1 and EU490-2) on Bin #8 and Bin #10.

As mentioned above, A.P. Green Fulton is planning to install a new 6,100 cubic foot M&D Ball Clay Silo Bin #7 with its own silo bin vent. From the silo, the materials are transported to Bin #7. Bin #7 is an existing M&D Ball Clay bin which will remain in this service. The new bin vent on the M&D Ball Clay Silo will discharge outside while the receiver bin vent on Bin #7 will discharge internally to the plant. The existing permitted bin vent (EU0280 – EP25) located on top of the existing #7 batch bin is being replaced by the new receiver bin vent.

In addition, a new fines powder pump associated with the VSI crusher dust collector (EU0020) is being installed to enable the plant to augment the recycle of dust collector fines to the batching bins in a more efficient manner. Two bins (Bin #8 and Bin #10) which are being modified with the new receiver vents (EU0490-1 and EU0490-2) are currently dedicated to M&D Ball Clay storage, but they are now being converted to dedicated bauxite fines bin and a clay fines bin, respectively. The powder pump will transport the collected fines from the bottom of the collector to batching bin #8 for the bauxite fines and batching bin #10 for the clay fines. A bin receiver vent will be installed on each bin for the receipt and deposit of the respective transported fines. These receiver vents will be controlled by the bin vent filters

and discharge internally to the plant. The existing permitted bin vent (EU0300 - EP27) controlled both Bins #8 & #10 will be replaced by the above powder pump transporter receivers.

Lastly, the two different product lines have different firing temperatures, and therefore A.P Green Fulton is planning to build kiln car trains to properly stage them when changing burns. This will be accomplished by installing green brick storage and staging kiln car tracks. There is no emissions associated with these changes, however, it should be noted that these changes require the demolition of two currently permitted units in order to gain the required real estate. These emission units are the Coking Oven (EU0400) and Coking Oven Thermal Oxidizer (EU0410).

The following table lists the new emission units associated with this project.

Table 1: Project Emission Units

Emission Unit	Description	Control Device	Maximum Hourly Design Rate (ton/hour) <sup>2</sup>
EU0470	M&D Ball Clay Silo	Silo Bin Vent	25
EU0480	Pneumatic Transport System to the M&D Ball Clay, Bin #7	Receiver Bin with Bin Vent Filter	2
EU0490-1 <sup>1</sup>	Pneumatic Transport to the Bauxite Fines Bin, Bin #8	Receiver Bin Vent	2
EU0490-2 <sup>1</sup>	Pneumatic Transport to the Clay Fines Bin, Bin #10 <sup>1</sup>	Receiver Bin Vent	

<sup>1</sup> Note that EU0490-1 and EU0490-2 will use the same new powder pump pneumatic transport system to transfer bauxite and clay fines from the VSI crusher (EU0020) to their respective bins.

<sup>2</sup> These maximum hourly design rates do not take into account the production limitations of the kiln or other process bottlenecks.

The project's potential emissions are primarily particulate matter (PM), particulate matter less than 10 microns in diameter (PM<sub>10</sub>), and particulate matter less than 2.5 microns in diameter (PM<sub>2.5</sub>) associated with transfer of bauxite and clay fines. The potential emissions of the project are based on the emission factor from Environmental Protection Agency document Factor Information Retrieval (FIRE) V6.25, *Source Classification Codes and Emission Factors Listing for Criteria Air Pollutants* (SCC # 3-05-003-03). Since there is no emission factor listed for PM<sub>2.5</sub>, it was assumed that all PM<sub>10</sub> is also PM<sub>2.5</sub>. The emissions associated with the transfer of materials are each controlled by a bin vent capable of a minimum of 99% control. Both the uncontrolled and controlled emissions for the project are stated below.

This project will not increase the total plant throughput or change the permitted bauxite/clay production ratio listed in the Operating Permit, OP2007-057. First, the bins are bottlenecked by the existing kilns downstream. In addition, A.P. Green took voluntary limits in their Operating Permit limiting total production through the tunnel kilns to 90,230 tons per year and limiting the dry crude/ball clay additions to 40% maximum in the refractory mix. These limits were taken in order to qualify for Intermediate status. Because throughput will not be increased, only the increases due to new equipment were included in the project totals.

As mentioned above, the transfer processes are bottlenecked by production limitations on the tunnel kilns. The potential emissions are also indirectly limited by other process bottlenecks, but they are not explained here due to the already low project potential emissions after consideration of controls.

MISSOURI DEPARTMENT OF NATURAL RESOURCES  
FOLDER TRANSMITTAL ROUTING SHEET

Document #:  
Division Log #:  
Program Log #:

**DEADLINE:** **Penalty for Missing Deadline: \$**

A. P. Green Industries - Fulton Plant

2010-11-038

Originator: Susan Heckenkamp

Telephone: 6-3835

Date: 1/26/2011

Typist: Linda

File Name: P:\APCP\Permits\Users\Susan Heckenkamp\Permits\2010-11-038 AP Green - Fulton Plant\2010-11-038 AP Green - Fulton plant.doc

**FOR SIGNATURE APPROVAL OF:**

DNR Director    DNR Deputy Director    Division Director    Division Deputy Director   X Other: James L. Kavanaugh

**PROGRAM APPROVAL:** Approved by: \_\_\_\_\_ Program: APCP Date: \_\_\_\_\_

Other Program Approval (Section/Unit): \_\_\_\_\_ Date: \_\_\_\_\_

Comments:

**ROUTE TO:**

**DIVISION DIRECTOR APPROVAL:** \_\_\_\_\_ Date: \_\_\_\_\_

Comments:

**FINANCIAL REVIEW – DIVISION OF ADMINSTRATIVE SUPPORT:**

DAS Director: \_\_\_\_\_ Date: \_\_\_\_\_

**Fee Worksheet Received By:** \_\_\_\_\_ Date: \_\_\_\_\_

Accounting: \_\_\_\_\_ Date: \_\_\_\_\_

Budget: \_\_\_\_\_ Date: \_\_\_\_\_

General Services: \_\_\_\_\_ Date: \_\_\_\_\_

Internal Audit: \_\_\_\_\_ Date: \_\_\_\_\_

Purchasing: \_\_\_\_\_ Date: \_\_\_\_\_

Comments:

**LEGAL REVIEW:**

General Counsel: \_\_\_\_\_ Date: \_\_\_\_\_

AGO: \_\_\_\_\_ Date: \_\_\_\_\_

Comments:

**DEPARTMENT DIRECTOR APPROVAL:** \_\_\_\_\_ Date: \_\_\_\_\_

Comments:

**NOTARIZATION NEEDED**

INITIALS/DATE