

# PERMIT BOOK

STATE OF MISSOURI



## 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: 012011-014

Project Number: 2010-09-006

Parent Company: ISP Minerals, Incorporated

Parent Company Address: 1101 Opal Court, Hagerstown, MD 21740

Installation Name: ISP Minerals, Incorporated

Installation Address: 1 Hillcrest Drive, Annapolis, MO 63620

Location Information: Iron County, S22, T31N, R3E

Application for Authority to Construct was made for:  
Installation of 4 new screens and 4 new conveyors. 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 27 2011

EFFECTIVE DATE

A handwritten signature in black ink, appearing to read "James L. Kavanaugh".  
\_\_\_\_\_  
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 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 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."*

ISP Minerals, Incorporated  
Iron County, S22, R31N, R3E

### 1. Capture Device Requirements

- A. ISP Minerals shall use hoods to capture emissions from the emission units indicated in Table 2. A hood is a shaped inlet to a pollution control system that does not totally surround emissions from an emissions unit.
- B. ISP Minerals shall use total enclosures to capture emissions from the emission units indicated in Table 2. A total enclosure is an enclosure that completely surrounds emissions from an emissions unit.

### 2. Control Device Requirements – Baghouses

- A. ISP Minerals shall control emissions from the emission units listed in Table 2 by using baghouses (CD13 and CD14) as specified in the permit application. The baghouses shall be operated and maintained in accordance with the manufacturer's specifications. Each 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 the Department of Natural Resources' employees may easily observe them. Replacement filters for the baghouses 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. ISP Minerals shall monitor and record the operating pressure drop across the baghouses at least once every 24 hours. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.
- C. ISP Minerals shall maintain an operating and maintenance log for the baghouses which shall include the following:
  - 1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and

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**SPECIAL CONDITIONS:**

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

- 2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.
  
3. Record Keeping Requirements  
ISP Minerals 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.

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

Project Number: 2010-09-006  
Installation ID Number: 093-0007  
Permit Number:

ISP Minerals, Incorporated  
1 Hillcrest Drive  
Annapolis, MO 63620

Complete: August 5, 2009

Parent Company:  
ISP Minerals, Incorporated  
1101 Opal Court  
Hagerstown, MD 21740

Iron County, S22, R31N, R3E

REVIEW SUMMARY

- ISP Minerals has applied for the authority to add 4 new screens and 4 new conveyors to their Mill building.
- Hazardous Air Pollutant (HAP) emissions are not expected from the proposed equipment.
- Subpart OOO, *Standards of Performance for Nonmetallic Mineral Processing Plants*, of the New Source Performance Standards (NSPS) applies to the emission units listed in Table 2.
- Baghouses (CD13 and CD14) are being used to control emissions of Particulate Matter less than 10 microns and 2.5 microns in diameter (PM<sub>10</sub>) and (PM<sub>2.5</sub>) 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*. Uncontrolled potential emissions of PM<sub>10</sub> and PM<sub>2.5</sub> exceed de minimis levels. Potential emissions, considering add-on pollution control devices, are below de minimis levels.
- This installation is located in Iron 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 below de minimis levels.

- Emissions testing is required to demonstrate compliance with 40 CFR 60 Subpart OOO, *Standards of Performance for Nonmetallic Mineral Processing Plants*.
- An application to amend the Basic Operating Permit for this installation is required within 30 days of equipment startup.
- Approval of this permit is recommended with special conditions.

## INSTALLATION DESCRIPTION

ISP Minerals is an existing manufacturer of roofing shingle granules located in Iron County, Missouri. ISP Minerals quarries granite on-site and processes the rock through crushing and screening operations to form raw roofing granules of a precise size. The raw roofing granules are then processed in a coloring plant where the raw granules are coated with a pigmented clay slurry and fired in a kiln to create a finished ceramic coated roofing granule.

This installation was originally classified as a major source of PM<sub>10</sub>. However, the facility has since installed a number of fabric filter control devices which has reduced the potential emissions of PM<sub>10</sub> to minor source levels. The facility is an existing minor source of PM<sub>10</sub> and Nitrogen Oxides (NO<sub>x</sub>). ISP Minerals currently holds a Basic State Operating Permit. The following construction permits have been issued to ISP Minerals from the Air Pollution Control Program.

Table 1: Construction Permit History

Permit Number	Description
0680-006	Rotary rock dryer for the secondary crusher, 20 MMBtu/hr burner, two conveyors
0680-007	4 Underground storage tanks
0680-008	Rock storage and conveyors
0680-009	Rock storage and conveyors
0680-010	Conveyor
0680-011	Hopper and conveyor
0680-012	2-500 ton storage bins and conveyors
0680-013	1-1000 ton storage bun and conveyor
1187-005	Incinerator
1290-002	Modifications to process
0792-034	Tertiary crusher, screens, elevators, conveyors, and storage bins
0393-006	Conveyor and screens
0394-015	Conveyor and slurry tank
0395-016	Outside storage stockpile
0395-017	2 screens
0298-002A	4 conveyors, 2 elevators, 2 screens for the Recovery System
122009-007	Replacement of preheater kilns in the coloring plant.
122009-007A	Correction to the potential emissions calculations.

## PROJECT DESCRIPTION

The throughputs, emission factors and maximum design rates have not been included in the permit because ISP Minerals has requested that the information be considered confidential due to the proprietary nature of the information. This information is contained in the confidential project folder and is available to employees of the Missouri Department of Natural Resources and the U.S. Environmental Protection Agency for review.

ISP Minerals proposes to install 4 new screens and 4 new conveyors inside the Mill production building. 2 new screens will be added to the “A” production line and 2 new screens will be added to the “B” production line. Two additional conveyors will also be added to each line. Emissions from these new units will be vented to existing baghouse dust collectors. All of the new emission units and control devices are listed in Table 2 below.

Table 2: New Emission Units

Emission Unit ID	Unit Description	Capture Device	Control Device	Control Device ID	Emission Point
EU13I	4A Screen	Total Enclosure	Baghouse	CD 13	EP13
EU13J	5A Screen	Total Enclosure	Baghouse	CD 13	EP13
EU13K	4&5A Conveyor	Hood	Baghouse	CD 13	EP13
EU13L	4&5A Conveyor	Hood	Baghouse	CD 13	EP13
EU14J	4B Screen	Total Enclosure	Baghouse	CD 14	EP14
EU14K	5B Screen	Total Enclosure	Baghouse	CD 14	EP14
EU14L	4&5B Conveyor	Hood	Baghouse	CD 14	EP14
EU14M	4&5B Conveyor	Hood	Baghouse	CD 14	EP14

The Mill building receives crushed rock from the secondary crusher building and produces raw roofing granules of a specific size. The processes within the Mill building include several screening and crushing operations in series. Since the raw roofing granules must be a certain size, the oversize rock is continually re-circulated through the crushing and screening operations within the Mill building until the rock is an acceptable size. ISP Minerals expects that the new screens will increase the efficiency of the Mill operations by reducing the amount of oversized rock that is re-circulated back to the crushing operations. The maximum design rate of the existing Mill operations will not change and the amount of rock entering the Mill building will not increase. Also, no change in yield or potential throughput is expected as a result of this project.

## EMISSIONS/CONTROLS EVALUATION

Emissions from the equipment that are vented to baghouse dust collectors are captured by either total enclosures or hoods. Total enclosures completely surround the emissions from an emission unit and are assumed to capture 100% of the emissions. Hoods are shaped inlets to a pollution control system that do not completely surround the emissions but are designed to capture and discharge the emissions to control equipment. The emission units with hoods are located inside a building and are assumed to capture at least 80% of the emissions.

The PM<sub>10</sub> emission factors for the screens and conveyors were obtained from Chapter 11.19.2 *Crushed Stone Processing and Pulverized Mineral Processing* (August 2004). The emission factors for PM<sub>2.5</sub> were calculated assuming 29.42% of the PM<sub>10</sub> emissions are PM<sub>2.5</sub> according to the particle size distribution table for aggregate handling and material processing contained in AP-42, Appendix B.2 *Generalized Particle Size Distributions* (September 1996). The control efficiencies applied to the baghouse dust collectors (CD13 and CD14) were determined to be 99.94% for PM<sub>10</sub> and 99.79% for PM<sub>2.5</sub> based on the test report entitled, "Efficiency Testing of Four Sources at the ISP Mineral Products, Inc Plant, in Annapolis, Missouri" (July 6, 1998). This test report includes inlet and outlet emissions of total particulate. Control efficiencies for PM<sub>10</sub> and PM<sub>2.5</sub> were calculated assuming 51% of the total inlet particulate is PM<sub>10</sub> and 15% of the total inlet particulate is PM<sub>2.5</sub> according to the particle size distribution table for aggregate handling and material processing contained in AP-42, Appendix B.2 *Generalized Particle Size Distributions* (September 1996).

Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year.) The following table provides an emissions summary for this project.

Table 3: Emissions Summary (tons per year)

Pollutant	Regulatory De Minimis Levels <sup>[1]</sup>	Existing Potential Emissions <sup>[2]</sup>	Existing Actual Emissions (2009 EIQ)	Potential Emissions of the Application
Total PM <sub>10</sub>	15.0	121.68	36.83	0.42
Non-Fugitive PM <sub>10</sub>	100.0	43.92	N/D	0.42
PM <sub>2.5</sub>	10.0	N/D	0.48	0.15
SO <sub>x</sub>	40.0	2.45	0.17	N/A
NO <sub>x</sub>	40.0	82.69	16.47	N/A
VOC	40.0	6.78	0.88	N/A
CO	100.0	75.36	3.29	N/A
HAPs	10.0/25.0	N/D	0.5	N/A

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

<sup>1</sup>For non-fugitive particulate emissions, the regulatory level is the Title V major source level.

<sup>2</sup>Existing potential emissions obtained from permit number 122009-007A

### PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Uncontrolled potential emissions of PM<sub>10</sub> and PM<sub>2.5</sub> exceed de minimis levels. Potential emissions, considering add-on pollution control devices, are below de minimis levels.

### APPLICABLE REQUIREMENTS

ISP Minerals, Incorporated 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 June 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 10-6.165*

#### SPECIFIC REQUIREMENTS

- *New Source Performance Regulations, 10 CSR 10-6.070 (3) New Source Performance Standards (NSPS) Subpart (OOO) Standards of Performance for Nonmetallic Mineral Processing Plants*

#### 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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Kathi Jantz  
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 1, 2010, received September 3, 2010, designating ISP Minerals, Incorporated as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Southeast Regional Office Site Survey, dated September 15, 2010.

Mr. Garry Pogue, Jr.  
EH&S Coordinator  
ISP Minerals, Incorporated  
1 Hillcrest Drive  
Annapolis, MO 63620

RE: New Source Review Permit - Project Number: 2010-09-006

Dear Mr. Pogue:

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 amended 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 regarding this permit, please do not hesitate to contact Kathi Jantz, at the departments' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale  
New Source Review Unit Chief

KBH:kjl

Enclosures

c: Southeast Regional Office  
PAMS File: 2010-09-006

Permit Number: