

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:

112009-011

Project Number: 2009-05-019

Parent Company:

Agrium Inc.

Parent Company Address: 10 Craig Street, Brantford, Ontario, N3R 7J1, Canada

Installation Name: Agrium Advanced Technologies

Installation Address: 566 County Highway 406, Marston, MO 63866

Location Information: New Madrid County, S20, T22N, R14E

Application for Authority to Construct was made for:

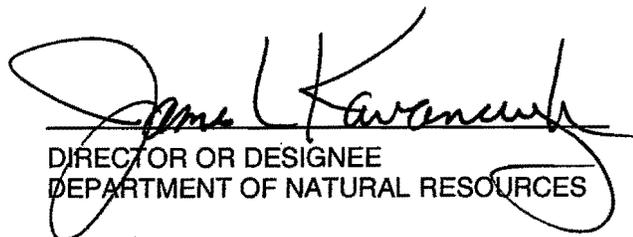
A urea fertilizer coating plant. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

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

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

NOV 23 2009

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 department's 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.

Page No.	3
Permit No.	
Project No.	2009-05-019

## 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."*

Agrium Advanced Technologies  
New Madrid County, S20, T22N, R14E

1. Annual Emission Limitation
  - A. Agrium Advanced Technologies shall emit less than 15.0 tons of particulate matter less than ten (10) microns in diameter (PM<sub>10</sub>) in any consecutive 12 month period from the entire installation.
  - B. Agrium Advanced Technologies shall emit less than 0.1 tons of 4,4 methylene diphenyl diisocyanate (MDI) in any consecutive 12 month period from the entire installation.
  - C. Agrium Advanced Technologies shall maintain an accurate record of PM<sub>10</sub> and MDI emitted into the atmosphere from the entire installation. Attachments A and B or equivalent forms shall be used for this purpose. Agrium Advanced Technologies 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.
  - D. Agrium Advanced Technologies shall report to the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten (10) days after the end of the month during which the records from Special Condition 1.C. indicate that the source exceeds the limitation of Special Condition 1.A. or 1.B. respectively.
2. Urea Unloading
  - A. Agrium Advanced Technologies shall unload urea only when the urea storage pile structure is completely enclosed from the ambient air and its vents are not in operation.
  - B. Agrium Advanced Technologies shall keep the urea storage pile structure completely enclosed and its vents non-operational for a period of three (3) hours after unloading has completed.

Page No.	4
Permit No.	
Project No.	2009-05-019

### SPECIAL CONDITIONS:

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

#### 3. Collection Devices

- A. Agrium Advanced Technologies shall construct and operate collection devices on the hopper (EU-06), urea screen (EU-11), and weigh belt (EU-15) such that PM<sub>10</sub> emissions from these processes are routed to baghouse CD-01, during all operating times.
- B. Agrium Advanced Technologies shall construct and operate a collection device on the preheater (EU-16) such that PM<sub>10</sub> emissions from this process are routed to baghouse CD-02, during all operating times.
- C. Agrium Advanced Technologies shall construct and operate collection devices on coating drum (EU-18), cooler (EU-19), and ESN screen (EU-20) such that PM<sub>10</sub> and MDI emissions from these processes are routed to scrubber (CD-03), during all operating times.

#### 4. Control Devices

- A. Agrium Advanced Technologies shall control emissions from the hopper (EU-06), urea screen (EU-11), and weigh belt (EU-16) using baghouse (CD-01), from the preheater (EU-17) using baghouse (CD-02) as specified in the permit application. The baghouses shall be operated at all times while the respective emission units are in operation, also operated and maintained in accordance with the manufacturer's specifications.
- B. Agrium Advanced Technologies shall control emissions from the coating drum (EU-18), cooler (EU-19), and ESN screen (EU-20) using scrubber (CD-03) as specified in the permit application. The scrubber shall be operated at all times while the respective emission units are in operation, also operated and maintained in accordance with the manufacturer's specifications.
- C. The baghouses 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 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).
- D. Agrium Advanced Technologies 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.

Page No.	5
Permit No.	
Project No.	2009-05-019

#### SPECIAL CONDITIONS:

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

- E. Agrium Advanced Technologies shall monitor and record the temperature of the water into the scrubber at least once every twenty-four (24) hours. The scrubber input line shall be equipped with a gauge or meter that indicates this temperature. The temperature shall be maintained within the design conditions specified by the manufacturer's performance warranty.
  - F. Agrium Advanced Technologies shall monitor and record the flow rate of the water at least once every twenty four (24) hours. The flow rate shall be maintained within the design conditions specified by the manufacturer's performance warranty.
  - G. Agrium Advanced Technologies shall maintain a written operating and maintenance log for the baghouses and scrubber 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.
5. Stack Testing
- A. Agrium Advanced Technologies shall conduct initial stack testing on the baghouse (CD-01), baghouse (CD-02), and scrubber (CD-03). The following process conditions shall be measured and recorded during the performance tests:
    - 1. Feed rate from the urea hopper (EU-06), weigh belt (EU-16), preheater (EU-17), coating drum (EU-18), and cooler (EU-19).
    - 2. Feed rate to and from the urea screen (EU-11) and ESN screen (EU-20), including offsize rate for each.
  - B. Compliance with Special Condition 3.A. through 3.C. shall be verified with a visual smoke test.
  - C. Emission factors for CD-01 and CD-02 shall be developed in the unit of pounds of PM<sub>10</sub> per hour of operation. Emission factors for CD-03 shall be developed in the units of pounds of PM<sub>10</sub> per hour of operation and pounds of MDI per hour of operation.
  - D. A completed Proposed Test Plan (form enclosed) must be submitted to the Air Pollution Control Program at least 30 days prior to the proposed test date of any such performance tests so that a pretest meeting may be arranged, if necessary, and to assure that the test date is acceptable for

Page No.	6
Permit No.	
Project No.	2009-05-019

**SPECIAL CONDITIONS:**

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

- an observer to be present. The Proposed Test Plan must include specification of test methods to be used and be approved by the director prior to conducting the required emissions testing.
- E. The stack testing shall be performed within sixty (60) days after achieving the maximum production rate of the coating drum (EU-18), but not later than 180 days after initial start of operation, and performed at the maximum production rate of the coating drum (EU-18).
- F. Two copies of a written report of the performance test results must be submitted to the director within 90 days of completion of the performance testing. The report must include legible copies of the raw data sheets, analytical instrument laboratory data, and complete sample calculations from the required Environmental Protection Agency (EPA) Method for at least one sample run for each air pollutant tested.
- G. No later than 30 days after the performance test results are submitted, Agrium Advanced Technologies shall provide the director with a report that establishes the potential emissions of each air pollutant tested in Special Condition 5.C. The results shall report the emission rates in pounds per hour and tons per year in order that the Air Pollution Control Program may verify the potential emissions from this installation.
- H. If the results of the performance testing shows that the emission rates are greater than those used in the emissions analysis herein (Table 1), then Agrium Advanced Technologies shall evaluate what effects these higher emission rates would have had on the permit applicability and modeling applicability of this project. Agrium Advanced Technologies shall submit the results of any such evaluation within 30 days of submitting the Performance Test Results report required in Special Condition 5.G. of this permit.

Table 1: Hourly Emissions Rates

Step	Step Description	Control Device	<sup>1</sup> Emission Rate
6	Hopper	Baghouse CD-01	0.531
11	Urea Screen	Baghouse CD-01	0.531
16	Weigh Belt	Baghouse CD-01	0.531
17	Preheater	Baghouse CD-02	0.531
18	Coating Drum	Scrubber CD-03	0.268 / <sup>2</sup> 0.0019
19	Cooler	Scrubber CD-03	0.268 / <sup>2</sup> 0.0019
20	ESN Screen	Scrubber CD-03	0.268 / <sup>2</sup> 0.0019

<sup>1</sup> Emission Rate in units of pounds of PM<sub>10</sub> per hour unless noted otherwise.

<sup>2</sup> Emission Rate in units of pounds of MDI per hour.

Page No.	7
Permit No.	
Project No.	2009-05-019

**SPECIAL CONDITIONS:**

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

- I. Agrium Advanced Technologies shall apply for an Amendment to this construction permit based upon the emissions data in Special Condition 5.G. This Amendment shall recalculate the potential emissions from this installation.

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

Project Number: 2009-05-019  
Installation ID Number: 143-0078  
Permit Number:

Agrium Advanced Technologies  
566 County Highway 406  
Marston, MO 63866

Complete: May 12, 2009

Parent Company:  
Agrium Inc.  
10 Craig Street  
Brantford, Ontario, N3R 7J1, Canada

New Madrid County, S20, T22N, R14E

REVIEW SUMMARY

- Agrium Advanced Technologies has applied for authority to construct a urea fertilizer coating plant.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment. The HAP of concern is MDI.
- None of the New Source Performance Standards (NSPS) apply to the proposed equipment.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) or currently promulgated Maximum Achievable Control Technology (MACT) regulations apply to the proposed equipment.
- Baghouse CD-01 and baghouse CD-02 are being used to control PM<sub>10</sub> emissions. Scrubber CD-03 is being used to control PM<sub>10</sub> and MDI emissions.
- 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 limited to below de minimis levels. Potential emissions of MDI are limited to below its SMAL.
- This installation is located in New Madrid 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 and SMAL levels, respectively.
- Emissions testing is required for CD-01, CD-02, and CD-03.
- No Operating Permit is required for this installation.
- Approval of this permit is recommended with special conditions.

## INSTALLATION DESCRIPTION

Agrium Advanced Technologies (AAT) is constructing a new fertilizer coating installation on property owned by the New Madrid Port Authority in New Madrid County, Missouri. The installation will be constructed on approximately nine acres of leased land, neighbored by United Agri Products (UAP), Riceland Foods Inc, Slackwater Harbor, and the Mississippi River. AAT is a strategic business unit of Agrium Inc. UAP is an indirect wholly-owned subsidiary of Agrium Inc. However, AAT and UAP have separate workforces and plant managers. UAP will be unloading urea from barges for AAT, and AAT will pay them a fee for that service. AAT will not purchase any raw materials from UAP. There is no contract between AAT and UAP. AAT and UAP are considered separate installations for permitting purposes.

AAT will coat granular urea fertilizer with a polymer shell, marketed as Environmentally Smart Nitrogen (ESN). AAT will be classified as a de minimis source of air pollutants. No operating permit is required. No permits have been issued to AAT from the Air Pollution Control Program.

## PROJECT DESCRIPTION

Barges carrying granular urea will arrive at Slackwater Harbor on the Mississippi River. They will be unloaded by equipment owned by UAP. Urea destined for AAT will pass a diverter valve and a covered belt conveyor before being unloaded to an indoor storage pile. Emissions attributable to AAT begin at the diverter valve. Three hours after unloading completes, a front-end loader takes urea from the storage pile and dumps it into a hopper. From the hopper, the urea will travel outside of the storage pile structure to outdoor day bins. The outdoor day bins will store urea in a sufficient quantity so that the front-end loader does not operate continuously. Urea will travel to the ESN manufacturing building, in a continuous process, where it will first be screened to uniform size. Offsize urea will be conveyed and stored in a silo for further distribution. Uniform urea will travel on a weigh belt, through a fluidized bed preheater, then to a rotating coating drum. Castor oil, olefin, isocyanate, dye, and proprietary chemicals will be sprayed into the drum to react and form a polymer coating on the urea granules. The coated granules will be cooled on a fluidized bed, screened for uniform size, conveyed to storage, and eventually be shipped via truck or rail. Offsize ESN will be conveyed and stored in a silo for further distribution. Particulate emissions from the

hopper loading, urea screen, and weigh belt are controlled by baghouse CD-01. Particulate emissions from the urea preheater are controlled by baghouse CD-02. Emissions from the coating drum, ESN cooler, and ESN screen are controlled by scrubber CD-03. Table 2 lists the urea and ESN handling steps for the installation. Emission factor units are pounds of PM<sub>10</sub> per ton of urea or ESN, respective to the step, unless otherwise noted.

Table 2: Process Steps

Step #	Step Description	<sup>1</sup> Process MHDR	<sup>1</sup> Bottlenecked MHDR	Emission Factor
1	diverter valve	320	17.30	0.02
2	covered belt conveyor	320	17.30	0.02
3	pile load-in	320	17.30	0.02
4	loader activity	150	16.16	<sup>2</sup> 0.60
5	pile load-out	150	16.16	0.02
6	hopper	150	16.16	0.0329
7	drag conveyor	150	16.16	0.02
8	bucket elevator	150	16.16	0.02
9	outdoor day bins	150	16.16	0.02
10	belt conveyor	16	16.16	0.02
11	urea screen	16	16.16	0.0329
12	off size conveyor	1	0.32	0.02
13	off size silo	1	0.32	0.02
14	off size load-out	1	0.32	0.02
15	off size urea haul road	1	0.32	<sup>2</sup> 0.12
16	weigh belt	16	15.84	0.0329
17	fluidized bed preheater	16	15.84	0.0329
18	coating drum	16	16.33	0.0164 / <sup>3</sup> 0.000117
19	fluidized bed ESN cooler	16	16.33	0.0164 / <sup>3</sup> 0.000117
20	ESN screen	16	16.33	0.0164 / <sup>3</sup> 0.000117
21	off size ESN conveyor	1	0.33	0.0176
22	off size ESN storage	1	0.33	0.0176
23	off size ESN load-out	1	0.33	0.0176
24	off size ESN haul road	1	0.33	<sup>2</sup> 0.12
25	cooler to conveyor	16	16.00	0.0176
26	conveyor to storage	16	16.00	0.0176
27	ESN truck load-out	16	16.00	0.0176
28	ESN haul road	16	16.00	<sup>2</sup> 0.12
29	primary boiler	<sup>5</sup> 6.45	<sup>5</sup> 6.45	<sup>4</sup> 7.600
30	reserve boiler	<sup>5</sup> 6.45	<sup>5</sup> 6.45	<sup>4</sup> 7.600
31	air heater	<sup>5</sup> 3	<sup>5</sup> 3	<sup>4</sup> 7.600

<sup>1</sup> Maximum hourly design rate (MHDR) in units of tons per hour.

<sup>2</sup> Pounds of PM<sub>10</sub> per vehicle mile traveled.

<sup>3</sup> 0.000117 pounds of 4,4 methylene diphenyl diisocyanate (MDI) per ton of ESN.

<sup>4</sup> 7.6 pounds of PM<sub>10</sub> per million standard cubic feet of natural gas.

<sup>5</sup> MHDR in units of million standard cubic feet of natural gas.

Process MHDR is an approximation given by AAT. The bottlenecked MHDR was calculated from the finished ESN shipping to the raw urea granules unloading. The true MHDR of the processes is not known. Sixteen tons per hour of ESN is the approximate expected annual production of 140,000 tons divided by 8,760 hours per year.

ESN is screened after passing through the cooler. This screening will remove off size ESN, approximately two percent of the amount produced in the coating drum. The chemicals applied to the urea granules inside the coating drum are approximately three percent of total ESN weight. Using this amount, the necessary weight of the urea granules to feed the drum was found, 15.84 tons per hour. Before coating, the urea is screened to remove off size material, again at two percent. This raises the MHDR for processes feeding the urea screener to 16.16 tons per hour. The urea storage building can hold approximately 10,000 tons of urea. This amount is summed with the necessary MHDR of the urea screen to yield 17.30 tons per hour for processes before the storage pile.

### EMISSIONS/CONTROLS EVALUATION

The emission factor used for various urea handling steps, 0.02 pounds of PM<sub>10</sub> per ton of urea for bulk loading operations, was obtained from the Environmental Protection Agency document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, section 8.3, Ammonium Nitrate, July 1993.

The emission factor used for the hopper, urea screen, weigh belt, and preheater, 0.0329 pounds of PM<sub>10</sub> per ton of urea, was developed from testing performed on an Agrium Advanced Technologies ESN installation in Sylacauga, Alabama. The emission factor was developed from baghouse exhaust, represented emissions from different processes and equipment than will be installed at the Missouri Agrium Advanced Technologies ESN facility, and did not account for uncontrolled emissions from each emitting source. More accurate emission factors will be verified through testing of the Missouri ESN facility.

The emission factors used for the coating drum, ESN cooler, and ESN screen, 0.0164 pounds of PM<sub>10</sub> and 0.000117 pounds of MDI per ton of ESN, were developed in a similar manner to the hopper, urea screen, weigh belt, and preheater emission factor. These emission factors will also be verified through testing.

The emission factor used for various ESN handling steps, 0.0176 pounds of PM<sub>10</sub> per ton of ESN, was developed from AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 13.2.4 "Aggregate Handling and Storage Piles", November 2006. A similar process was used for calculating emissions from handling wax coated fertilizer in an Indiana Department of Environmental Management Office of Air Management permit. The moisture content used in this review was 0.08 percent, specified in the ESN product specification sheet from the Carseland, Alberta, Canada facility.

Potential emissions of the application represent the potential of the new equipment, assuming continuous operation at 8,760 hours per year and MHDR estimated from total production. The following table provides an emissions summary for this project.

Table 3: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions (EIQ)	Potential Emissions of the Application	New Installation Conditioned Potential
PM	25.0	N/A	N/A	N/D	N/A
PM <sub>10</sub>	15.0	N/A	N/A	16.94	<15.0
SOx	40.0	N/A	N/A	0.04	N/A
NOx	40.0	N/A	N/A	6.83	N/A
VOC	40.0	N/A	N/A	0.40	N/A
CO	100.0	N/A	N/A	5.74	N/A
HAPs	10.0/25.0	N/A	N/A	0.15	N/A
MDI	<sup>1</sup> 0.1	N/A	N/A	0.03	<0.1

N/A = Not Applicable; N/D = Not Determined <sup>1</sup> Screening Model Action Level (SMAL)

Many of the conveyors and drop/transfer points are described by AAT as enclosed. For this review, totally enclosed drop/transfer points were assigned 99 percent control efficiency. Uncontrolled drop points including offsize material load-out and ESN load-out were assigned 0 percent control efficiency. Where a control efficiency is applied, a 100 percent capture efficiency is assumed, except for the indoor storage pile structure.

Emissions from the front-end loader operating inside the urea storage building and ESN shipping via truck were calculated by applying the paved haul road equation from AP-42 Section 13.2.1 "Paved Roads", November 2006. Emissions for ESN shipping were calculated for all ESN shipped via truck. This scenario presented the greatest potential emissions for the haul road. In actuality, AAT will use a combination of rail and truck shipping. Haul road emissions from shipping offsize urea and offsize ESN are less than 0.1 tons per year, combined. Silt loading for offsize urea, offsize ESN, and ESN was 0.6 grams per square meter, the default for paved public roads. Silt loading for front end loader activity was estimated at 4.0 grams per square meter.

Emissions from the polymer coating reactant storage tanks could not be determined by the EPA TANKS program version 4.0.9d. The reactants did not correspond to any of the liquids in program's pre-loaded chemical database. Each reactant's material safety data sheet (MSDS) did not include enough information to add a new chemical to the database. Since the reactants have low vapor pressures, the emissions from working and breathing losses exist but can be considered negligible.

### 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 limited to below de minimis levels. Potential emissions of MDI are limited to below its SMAL.

## APPLICABLE REQUIREMENTS

Agrium Advanced Technologies 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.

### 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.
- *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*
- *Restriction of Emission of Sulfur Compounds, 10 CSR 10-6.260*
- *Maximum Allowable Emissions of Particulate Matter From Fuel Burning Equipment Used for Indirect Heating, 10 CSR 10-3.060*

## 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.

---

David Little  
Environmental Engineer

---

Date

### PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated May 7, 2009, received May 11, 2009, designating Agrium Inc. 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, sent May 20, 2009.
- Indiana Department of Environmental Management, Office of Air Management. Registration 181-12045-00040. Cargill AgHorizons, 2000.
- Agrium ESN Product Specifications. Carseland Production Facility. Issue 1.00, March 1, 2004

## Attachment A – PM<sub>10</sub> Compliance Worksheet

Agrium Advanced Technologies  
 New Madrid County, S20, T22N, R14E  
 Project Number: 2009-05-019  
 Installation ID Number: 143-0078  
 Permit Number:

This sheet covers the period of \_\_\_\_\_ (copy this sheet as needed).  
 (month, year)

Emission Step Description	Monthly Throughput (tons)	Emission Factor	Emission Factor Units	<sup>6</sup> Monthly PM <sub>10</sub> Emissions (pounds)
Urea Unloaded from Barges		0.0104	Pounds of PM <sub>10</sub> / ton of urea	
Urea fed to Screen		0.0219		
Offsize Urea		0.0211		
Weigh Belt	<sup>1</sup>	<sup>3</sup>	Pounds of PM <sub>10</sub> / hour of operation	
Preheater	<sup>1</sup>	<sup>4</sup>		
Coating Drum	<sup>1</sup>	<sup>5</sup>		
Offsize ESN		0.0187	Pounds of PM <sub>10</sub> / ton ESN	
Properly Sized ESN		0.0187		
Natural Gas Combustion	<sup>2</sup>	7.6000	Pounds of PM <sub>10</sub> / million SCF natural gas	
<sup>7</sup> Total Monthly PM <sub>10</sub> Emissions (pounds)				
<sup>8</sup> Monthly PM <sub>10</sub> Emissions (tons)				
<sup>9</sup> Cumulative 12 Month PM <sub>10</sub> Emissions (tons)				

<sup>1</sup> Monthly hours of operation.

<sup>2</sup> Natural Gas Monthly Throughput in million standard cubic feet.

<sup>3</sup> The respective PM<sub>10</sub> Emission Factor determined from testing results for CD-01 according to Special Condition 5.

<sup>4</sup> The respective PM<sub>10</sub> Emission Factor determined from testing results for CD-02 according to Special Condition 5.

<sup>5</sup> The respective PM<sub>10</sub> Emission Factor determined from testing results for CD-03 according to Special Condition 5.

<sup>6</sup> Individual Monthly PM<sub>10</sub> Emissions (pounds) calculated by multiplying the Monthly Throughput by the respective Emission Factor.

<sup>7</sup> Total Monthly PM<sub>10</sub> Emissions (pounds) calculated by summing the individual Monthly PM<sub>10</sub> Emissions (pounds) from each Emission Step Description.

<sup>8</sup> Monthly PM<sub>10</sub> Emissions (tons) calculated by dividing Total Monthly PM<sub>10</sub> Emissions (pounds) by 2,000.

<sup>9</sup> Cumulative 12 Month PM<sub>10</sub> Emissions (tons) calculated by summing this month's PM<sub>10</sub> Emissions (tons) with the previous eleven months' PM<sub>10</sub> Emissions (tons). A cumulative total of less than 15.0 tons for any twelve month period indicates compliance.

## Attachment B – MDI Compliance Worksheet

Agrium Advanced Technologies  
 New Madrid County, S20, T22N, R14E  
 Project Number: 2009-05-019  
 Installation ID Number: 143-0078  
 Permit Number:

This sheet covers the period of \_\_\_\_\_ (copy this sheet as needed).  
 (month, year)

Emission Step Description	Monthly Hours of Operation	Emission Factor	Emission Factor Units	<sup>2</sup> Monthly MDI Emissions (pounds)
Coating Drum		<sup>1</sup>	Pounds of MDI / hour of operation	
<sup>3</sup> Monthly MDI Emissions (tons)				
<sup>4</sup> Cumulative 12 Month MDI Emissions (tons)				

<sup>1</sup> The respective MDI Emission Factor determined from testing results for CD-03 according to Special Condition 5.

<sup>2</sup> Monthly MDI Emissions (pounds) calculated by multiplying the Monthly Hours of Operations by the respective Emission Factor.

<sup>3</sup> Monthly MDI Emissions (tons) calculated by dividing Total Monthly MDI Emissions (pounds) by 2,000.

<sup>4</sup> Cumulative 12 Month MDI Emissions (tons) calculated by summing this month's MDI Emissions (tons) with the previous eleven months' MDI Emissions (tons). A cumulative total of less than 0.1 tons for any twelve month period indicates compliance.

Director of Operations  
Agrium Advanced Technologies  
New Madrid County Port Authority  
566 County Highway 406  
Marston, MO 63866

RE: New Source Review Permit - Project Number: 2009-05-019

Dear Mr. Oglesby:

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 and your new source review 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 David Little, 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:dll

Enclosures

c: Southeast Regional Office  
PAMS File: 2009-05-019  
Permit Number: