

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: 012012-002 Project Number: 2011-09-053

Installation Number: 510-0031

Parent Company: ADM Grain Company

Parent Company Address: 4666 Faries Parkway, Decatur, IL 62525

Installation Name: ADM Grain Company - St. Louis

Installation Address: 1 East Grand Blvd, St. Louis, MO 63147

Location Information: City of St. Louis, LG 3125

Application for Authority to Construct was made for:

Replacement of east truck receiving, small rail pit, small rail shipping, and cleaning equipment; new large rail receiving and shipping equipment. This review was conducted in accordance with Section (6), 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.

IAN 6 2012

EFFECTIVE DATE

A handwritten signature in cursive script, appearing to read "Kymberly Moore".  
\_\_\_\_\_  
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 these air contaminant sources. 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 these air contaminant sources.

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 sources(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."*

ADM Grain Company - St. Louis  
City of St. Louis County, LG 3125

1. Emission Limitation
  - A. ADM Grain Company - St. Louis shall emit less than 15.0 tons of particulate matter less than ten microns in diameter (PM<sub>10</sub>) in any consecutive 12-month period from the emission points in Table 2.
  - B. Attachment A or equivalent forms, such as electronic forms, approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Conditions 1.A.
2. Control Device Requirement-Baghouse
  - A. ADM Grain Company - St. Louis shall control emissions from East Truck Receiving (Emission Unit (EU)-01), East Truck Leg (EU-05), Grain Cleaner (EU-11), and Large and Small Rail/Truck Shipping (EU-13 and EU-14) using baghouses as specified in the permit application.
  - B. The baghouses 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 the Department of Natural Resources' employees may easily observe them.
  - C. 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. ADM Grain Company - St. Louis 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.
  - E. ADM Grain Company - St. Louis shall maintain an operating and maintenance log for the baghouses which shall include the following:

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**SPECIAL CONDITIONS:**

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

- 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.
3. Control Device Requirement-Pit Baffles  
ADM Grain Company – St. Louis shall install and operate one way gravity flow baffles on the East Truck Receiving pit (EU-01). The baffles shall be operated and maintained in accordance with the manufacturer's specifications.
4. Control Device Requirement-Hopper  
ADM Grain Company – St. Louis shall install and operate a Dust Suppression Hopper at the end of each rail and truck shipping conveyor. The Dust Suppression Hoppers shall be operated and maintained in accordance with the manufacturer's specifications.
5. Record Keeping and Reporting Requirements
- A. ADM Grain Company - St. Louis shall maintain all records required by this permit for not less than five years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request.
  - B. ADM Grain Company - St. Louis shall report to the Air Pollution Control Program's Compliance/Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten days after the end of the month during which any record required by this permit shows an exceedance of a limitation imposed by this permit.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE  
SECTION (6) REVIEW

Project Number: 2011-09-053  
Installation ID Number: 510-0031  
Permit Number:

ADM Grain Company - St. Louis  
1 East Grand Blvd  
St. Louis, MO 63147

Complete: September 22, 2011

Parent Company:  
ADM Grain Company  
4666 Faries Parkway  
Decatur, IL 62525

City of St. Louis, LG 3125

REVIEW SUMMARY

- ADM Grain Company - St. Louis has applied for authority to install replacement east truck receiving, small rail pit, small rail shipping, and cleaning equipment as well as new large rail shipping equipment.
- Hazardous Air Pollutant (HAP) emissions are not expected from the proposed equipment.
- None of the New Source Performance Standards (NSPS) apply to the installation. 40 CFR Part 60 Subpart DD, *Standards of Performance for Grain Elevators* does not apply.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) apply to this installation. None of the currently promulgated Maximum Achievable Control Technology (MACT) regulations apply to the proposed equipment.
- Enclosure with negative pressure to baghouses, a loading spout, and receiving pit baffles are being used to control the 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>) emissions.
- This review was conducted in accordance with Section (6) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM<sub>10</sub> are conditioned below the de minimis level. Potential emissions of PM<sub>2.5</sub> are indirectly conditioned below the de minimis level. Potential emissions of PM are indirectly conditioned to minor source levels.
- This installation is located in City of St. Louis, a nonattainment area for the 1997 PM<sub>2.5</sub> National Ambient Air Quality Standard (NAAQS), a moderate area for the 1997 8-hour ozone NAAQS, and an attainment area for all other criteria pollutants.

- This installation is not on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation's major source level is 100 tons per year each for PM<sub>2.5</sub>, nitrogen oxides (NO<sub>x</sub>), and volatile organic compounds (VOC), and 250 tons per year for remaining criteria pollutants. Fugitive emissions are not counted toward major source applicability.
- Ambient air quality modeling was not performed for PM<sub>10</sub> since potential emissions are conditioned below the de minimis level. Modeling was not performed for PM<sub>2.5</sub> since potential emissions are indirectly conditioned below the de minimis level. Modeling is not required for PM.
- Emissions testing is not required for the equipment.
- An application to amend the intermediate operating permit is required for this installation within 90 days of equipment startup.
- Approval of this permit is recommended with special conditions.

#### INSTALLATION DESCRIPTION

ADM Grain Company – St. Louis is an existing grain elevator located northeast of the intersection of Hall Street and Prairie Avenue, along the Mississippi River in St. Louis. The installation is referred to as ADM in this permit. ADM receives grain including corn, beans, wheat, and milo by hopper truck, straight truck, and rail from other elevators. Grain may be stored, dried, cleaned, or cracked in roller mills before being shipped by truck, rail, or barge.

The Missouri Department of Agriculture Grain Database showed a packed storage capacity of 2,154,000 bushels on October 24, 2011. According to ADM, this capacity was reduced when a bin was removed, leaving 1,573,000 packed bushels. Using an ADM supplied United States Department of Agriculture (USDA) bin chart showing a packed capacity of 1,573,000 bushels which includes a site specific packing factor of 6.922 percent and adds 474 bushels to round even, the unpacked storage capacity is calculated as 1,470,723 bushels. Unpacked bushels are used towards NSPS Subpart DD applicability.

According to correspondence with ADM, the roller mills were used to crack corn for animal feed export. They maintain the ability to mill corn, but have not done so since 2004. The mills are not defined as dry corn mills for human consumption, so although the storage capacity exceeds 1,000,000 bushels the facility is not defined as a grain storage elevator. Nor is it defined as a grain terminal elevator since the capacity is less than 2,500,000 bushels. NSPS Subpart DD does not apply at this time. Past permits for the facility also declare NSPS Subpart DD does not apply.

ADM is a minor source for construction permits and an intermediate terminal elevator under operating permits. The following permits have been issued to ADM Grain Company - St. Louis from the City of St. Louis.

Table 1: Permit History

Permit Number	Description
OP97043	Intermediate operating permit
00-10-046	Construction permit for railcar receiving
02-09-019	Construction permit for roller mills
05-01-001	Construction permit for grain dryer
05-01-001PM	Construction permit for grain dryer
09-03-007	Construction permit for grain dryer throughput

## PROJECT DESCRIPTION

ADM has requested confidentiality for design rates, capture, and control efficiencies. Therefore, this is the public permit. A confidential version is available under project 2011-09-054.

ADM proposes to install a replacement █ bushel per hour (bph) small rail pit/drag conveyor, replacement █ bph east truck receiving drag and leg, replacement █ ton per hour (tph) grain cleaner, replacement █ bph small rail loading, and new █ bph large rail loading. Portions of this project were submitted to the City of St. Louis in December of 2010. Subsequent submittals were received throughout 2011. All submittals were received by the Air Pollution Control Program on September 22, 2011 and combined into one project.

The existing small rail pit/drag is rated at █ bph, but is limited to █ bph by the leg. The leg will also limit the proposed █ bph pit/drag to █ bph. This replacement is proposed to allow for dust collection inside the pit with a baffled grate. As the design rate and potential to emit of this source is not increasing it is not considered a new emission unit for this review.

The existing █ bph east truck receiving drag and leg are being replaced with enclosed and baghouse controlled █ bph drag and leg.

The existing grain cleaner is being replaced by a Cimbria Bratney Mega Cleaner model 157 with an enclosed design routed to baghouse dust collection.

The existing █ bph small rail/truck shipping will be upgraded to █ bph. New large rail/truck shipping will be rated at █ bph. One new █ bph conveyor will supply both rail/truck shipping points. The design rate is shared and the full rate can only be applied to one shipping point at once. Also, per shipping point, either truck or rail can be filled, not both at once. Emissions will be controlled by a Dust Suppression Hopper brand hopper/spout and baghouse intake.

On an annual basis, the increase in receiving, handling, and shipping capabilities increases the design rate of grain to and from the existing silos. A new silo design rate of █ tph was developed from the sum of both barge shipping, east truck shipping, and one rail/truck shipping point. Grain density of 60 pounds per bushel was selected for this review. ADM proposes to receive and ship bean meal, corn gluten pellets, gluten meal, and distiller's dried grain (DDG).

Haul roads have not been considered an emission unit in previous permits or emission inventories, but haul road emissions specific to this project have been included in this review.

Table 2: Project Emission Units

Emission Unit	Description	Maximum Design Rate (tons/hour)
1	East truck receiving: hopper truck	█
1a	East truck receiving: straight truck	
5	East truck receiving leg	█
11	Grain cleaner	
7	Silo vents	
13	Truck shipping from rail/truck shed	█
20	Paved haul roads	

### EMISSIONS/CONTROLS EVALUATION

The emission factors used in this analysis were obtained from the Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 9.9.1 *Grain Elevators & Processes* May 2003, and Section 13.2.1 *Paved Roads*, January 2011.

As the emissions inventory and ADM records indicate different existing design rates, this review conservatively evaluated emissions from the proposed replacements at their maximum design rate without considering potentials minus actuals.

East truck receiving occurs in a 2-sided shed with a roof and proposed pit grate baffles and baghouse intake inside the pit. This design was assigned █ percent capture efficiency and █ percent control efficiency for an overall removal efficiency of █ percent for PM, PM<sub>10</sub>, and PM<sub>2.5</sub>. Receiving truck type was obtained from ADM as █ percent hopper truck and █ percent straight truck. Straight trucks have the potential to emit more particulate matter per ton of grain received compared to hopper trucks. Conservatively, a 50/50 ratio was used in the review to avoid limiting truck type and grain throughput. The east truck receiving leg and grain cleaner will be enclosed and routed to a baghouse. These units were assigned █ percent capture efficiency and █ percent control efficiency. Silo vent emissions were evaluated without any control devices. Only truck shipping from one of the two rail/truck shipping points was evaluated for this review. Truck shipping was evaluated at the full █ bph supplying one point. Truck shipping occurs at the same rate as rail shipping, has higher emission factors, and has associated haul road emissions. Rail shipping potential emissions were not included as they are less than the truck shipping potential emissions, and cannot occur at the same time. Truck shipping emissions from the rail/truck shed were evaluated considering reductions from a 2-sided shed with a roof, a Dust Suppression Hopper brand hopper/spout and baghouse intake in the shed.

This design was assigned █ percent capture efficiency and █ percent control efficiency for an overall removal efficiency of █ percent. Paved haul road emissions were calculated using a silt loading of 1.1 grams per square meter for corn wet mills in AP-42. Receiving, handling, and shipping of bean meal, corn gluten pellets, gluten meal, and

DDG are typically evaluated using the same emission factors as for whole grain, therefore these products were not evaluated as a new emission source. The installation fumigates stored grain, however potential VOC and HAP emissions from fumigation were not included in this review and are expected to be negligible.

Existing potential emissions are cited from permit 09-03-007. Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8,760 hours per year). Conditioned potential emissions of the application represent a voluntary limit to avoid refined modeling at the time of permitting for PM<sub>10</sub>. Attachment A contains composite emission factors for tracking emissions from all emission units that are evaluated towards the voluntary limit. The new installation conditioned potential represents the sum of the installation wide limit of 99.0 tons per year of PM<sub>10</sub> from permit 09-03-007 and the increase in PM<sub>10</sub> emissions from this review. 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 (2010 EIQ)	Potential Emissions of the Application	Conditioned Potential Emissions of the Application	New Installation Conditioned Potential
PM	25.0	N/D	N/D	825.50	52.78	N/D
PM <sub>10</sub>	15.0	< 99.0	5.15	234.61	< 15.0	< 114.0
PM <sub>2.5</sub>	10.0	N/D	3.26	41.28	2.64	N/D
SO <sub>x</sub>	40.0	N/D	0.01	N/A	N/A	N/D
NO <sub>x</sub>	40.0	N/D	1.33	N/A	N/A	N/D
VOC	40.0	N/D	0.07	N/A	N/A	N/D
CO	100.0	N/D	1.12	N/A	N/A	N/D
HAPs	10.0/25.0	N/D	N/D	N/A	N/A	N/D

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

### PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (6) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM<sub>10</sub> are conditioned below the de minimis level. Potential emissions of PM<sub>2.5</sub> are indirectly conditioned below the de minimis level. Potential emissions of PM are indirectly conditioned to minor source levels.

### APPLICABLE REQUIREMENTS

ADM Grain Company - St. Louis 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
- *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

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400 applies to the silo vents and the receiving and shipping of bean meal, corn gluten pellets, gluten meal, and DDG.

## STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (6), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

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David Little  
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 December 3, 2011, received December 7, 2010, designating ADM Grain Company as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.



Ms. Miranda Gerard  
Environmental Specialist  
ADM Grain Company - St. Louis  
4666 Faries Parkway  
Decatur, IL 62525

RE: New Source Review Permit - Project Number: 2011-09-053

Dear Ms. Gerard:

Enclosed with this letter is your public version permit to construct. Please study it carefully. Also, note the special conditions 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 David Little, at the Department's 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

Susan Heckenkamp  
New Source Review Unit Chief

SH:dll

Enclosures

c: St. Louis Regional Office  
PAMS File: 2011-09-053

Permit Number: