

217/782-2113

CONSTRUCTION PERMIT  
PREVENTION OF SIGNIFICANT DETERIORATION APPROVAL

PERMITEE

MGP Ingredients of Illinois, Inc.  
Attn: Bob Taphorn  
1301 South Front Street  
Pekin, Illinois 61554

Application No.: 04060009

I.D. No.: 179060AAD

Applicant's Designation:

Date Received: June 2, 2004

Subject: New Feed Dryer System D6500

Date Issued: **DRAFT**

Location: 1301 South Front Street, Pekin

This Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of a new feed dryer system controlled by cyclones and thermal combustion as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

In conjunction with this permit, approval is given with respect to the Prevention of Significant Deterioration of Air Quality Regulations (PSD) to construct the above referenced project, in that the Illinois Environmental Protection Agency (Agency) finds that the application fulfills all applicable requirements of 40 CFR 52.21. This approval is issued pursuant to the Clean Air Act, as amended, 42 U.S.C. 7401 et. seq., the Federal regulations promulgated there under at 40 CFR 52.21 for Prevention of Significant Deterioration of Air Quality (PSD), and a Delegation of Authority agreement between the United States Environmental Protection Agency and the Illinois EPA for the administration of the PSD Program. This approval becomes effective in accordance with the provisions of 40 CFR 124.15 and may be appealed in accordance with the provisions of 40 CFR 124.19. This approval is also based upon and subject to the following findings and the conditions, which follow:

Findings

1. MGP Ingredients of Illinois, Inc. (MGP) has requested a construction permit for a new feed dryer system, at its Pekin manufacturing complex. The dryer reduces moisture from the wet feed material remaining after production of fuel ethanol by fermentation of grain and starch (which is a waste stream from production of wheat gluten elsewhere at the complex). Emissions from the dryer would be controlled by a multi-stage control system, including cyclones and, finally combustion. This combustion would be integral to the dryer as an Eco-Dry system or similar dryer would be used in which the burner of the dryer serves as the afterburner.

2. MGP is located in Tazewell County. The area is designated attainment for all criteria pollutants.
3. The new feed dry system will have potential annual emissions of 17.1 tons of particulate matter (PM<sub>10</sub>); 39.42 tons each, of sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>) and volatile organic material (VOM); and 43.80 tons of carbon monoxide (CO).
4. This project is subject to PSD review because it is a significant project for emission of PM and represents a modification to the operation of two existing dryer systems that are potentially subject to PSD. As a project subject to PSD, Best Available Control Technology (BACT) is required for the new feed dryer system.
5. After reviewing the materials submitted by MGP, the Illinois EPA has determined that the project, as proposed, would (i) be in compliance with applicable Board emission standards and (ii) utilize Best Available Control Technology (BACT).
6. The Illinois EPA has determined that the project, as proposed, would comply with all applicable Illinois Air Pollution Board Regulations and the federal Prevention of Significant Deterioration of Air Quality Regulations (PSD), 40 CFR 52.21.
7. A copy of the application and a summary of the Illinois EPA's review of the application and a draft of this permit were placed in a location in the vicinity of the project, and the public was given notice and an opportunity to examine this material and to submit comments and to request a public hearing on this matter.

The Illinois EPA is issuing this approval subject to the following conditions and consistent with the specifications and data included in the application. Any significant departure from the terms expressed in the application would need to receive prior written authorization by Illinois EPA.

Standard Conditions

1. Standard conditions for issuance of construction permits, attached hereto and incorporated herein by reference, shall apply, unless superseded by the following special conditions.

Best Available Control Technology

- 2a. The new feed dryer system shall be equipped, operated, and maintained with an Eco-Dry system or other similar system in which the exhaust from the dryer serves as combustion air for the dryer burner. The new feed dryer system shall be operated and maintained in conformance with good air pollution control practices.
- b. i. The emissions from the new feed dryer system shall not exceed the following emission rates:

<u>Pollutant</u>	<u>Limit</u>
VOM	0.12 lb/million Btu
CO	0.16 lb/million Btu
PM*	0.01 grain/dscf (0.3 lb/ton dried feed)

\* PM shall be measured by Method 5 (filterable emission).

- ii. Lower limits may be set for VOM, (as low as 0.10 lb/million Btu) pursuant to Condition 13, which requires reevaluation of the above limit based on the actual emissions of the new feed dryer.

Condition 2 addresses Best Available Control Technology (BACT), for emissions of VOM, CO and PM as required by Section 165 of the Clean Air Act. The VOM limits, which are expressed in terms of lb/million Btu, are roughly equivalent to limits expressed in lb/1000 lb water evaporated, and are intended to be equivalent of 95 percent reduction of emissions from conventional dryer.

#### Emission Standards

- 3a. The new feed dryer system is subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Industrial, Commercial, and Institutional Boilers and Process Heaters, 40 CFR 63, Subpart DDDDD and related provisions in 40 CFR 63, Subpart A, General Provisions. The Illinois EPA is administering NESHAP in Illinois on behalf of the United States under a delegation agreement.
  - i. The emission of carbon monoxide from the new feed dryer system shall not exceed 400 ppm by volume on dry basis corrected to 3 percent oxygen (3-run average).
  - ii. At all times, the Permittee shall maintain and operate the new feed dryer, including associated air pollution control equipment, in a manner consistent with good air pollution practices for minimizing emissions.
- b.
  - i. The new feed dryer is subject to 35 IAC 212.321, which provides that the emission of PM into the atmosphere in any one hour period from new process units, including the new dryer, shall not exceed the allowable emission rates specified in 35 IAC 212.321(c). [35 IAC 212.321(a)]
  - ii. The new feed dryer is subject to 35 IAC 212.123(a), which generally provides that the emission of smoke or other PM, from emission units shall not have an opacity greater than 30 percent into the atmosphere.
- c. The new feed dryer is subject to 35 IAC 214.301, which provide that the Permittee shall not cause or allow emission of sulfur dioxide (SO<sub>2</sub>) into the atmosphere from any process emission unit to exceed 2000 ppm.

- d. The new feed dryer is subject to 35 IAC 216.121, which provides that no person shall cause or allow the emission of carbon monoxide (CO) into the atmosphere from any fuel combustion emission unit, with actual heat input greater than 2.9 MW (10 million Btu/hr) to exceed 200 ppm, corrected to 50 percent excess air. For this purpose, the affected dryer is considered a fuel combustion emission unit because it is not direct-fired and instead uses a heat exchanger to heat air going into the dryer.

Non-Applicable Regulation

- 4. This permit does not address 35 IAC 215.301, which limits emissions of organic material into the atmosphere from certain emission unit, because organic material emissions are expected to qualify as non-photochemically reactive material and the burner of the new feed dryer system must be designed and operated to achieve greater than 85 percent control of organic material emissions.

Operating and Emission Limitations

- 5a. The new feed dryer shall only be fired with natural gas and biogas.
- b. Emissions from the new feed dryer system shall not exceed the following limitations. These limitations are based on information in the application.

<u>Pollutant</u>	<u>Hourly (Lb/Hr)</u>	<u>Annual (Tons/Year)</u>
PM	2.0	8.8
PM <sub>10</sub> *	3.9	17.1
SO <sub>2</sub>	9.0	39.4
NO <sub>x</sub>	9.0	39.4
VOM	9.0	39.4
CO	10.0	43.8

\* Includes condensibles.

- c.
  - i. If the Permittee intends to continue operating existing Gluten Dryers 721 or 731 after December 31, 2005, the Permittee shall expeditiously complete the stack height extension for these dryers as authorized by Construction Permit 04040074.
  - ii. Beginning April 1, 2006, the Permittee shall not operate Gluten Dryer 721 or 731 unless and until it has completed the extension of the stack for the dryer.
  - iii. The Permittee shall notify the Illinois EPA within 10 days of the following events with respect to the extension of the heights of the stacks for these Gluten Dryers 721 and 731:

- A. Any changes in the schedule submitted to the Illinois EPA for this activity;
- B. Completion of the stack height extension for each dryer; and
- C. If the stack height extension(s) are not completed by March 31, 2006, confirmation that Gluten Dryer 721 and/or 731 is not operating and will not be operated until and unless the extension of its stack has been completed.

Good Operating Practices

- 6. The Permittee shall operate, maintain, and repair the new feed dryer system and its control system in a manner assuring compliance with the requirements of applicable Board rules and Conditions 2,3, and 4 by implementing the following procedures.
  - a. Operating Procedures for the Cyclones: Written operating procedures shall be developed and maintained describing normal air pollution control equipment operation. Such procedures shall include maintenance practices and may incorporate the manufacturers recommended operating instructions.
  - b. Operating Procedures for the Burner System: Written operating practices shall be developed and maintained, including establishment of target levels for the following operating parameters for the burner system:
    - i. Flame temperature,
    - ii. Balance between "fresh" air and recirculated dryer exhaust.
  - c. Inspections: Visual inspections of new feed dryer system and its air pollution control and monitoring equipment shall be conducted on at least a weekly basis.
  - d. Repairs: Prompt repairs shall be made upon identification of need either as a consequence of formal inspections or other observations in conformance with good air pollution control practice.
  - e. Records: Records of inspection, maintenance, and repair activities for the new feed dryer, including associated control devices, shall be kept on site and shall include as a minimum:
    - i. Date of inspection, maintenance, and repair activities.
    - ii. Description of maintenance or repair activity if not routine preventative maintenance.

- iii. Probable cause for requiring maintenance or repair if not routine or preventative.

Emission Testing

- 7a.
  - i. Within 180 days of startup of the new feed dryer system, the Permittee shall have PM, NO<sub>x</sub>, VOM, SO<sub>2</sub> and CO emissions and opacity from new feed dryer system measured at its expense by an approved testing service, during conditions which are representative of maximum emissions to verify compliance with the requirements of this permit. This period may be extended by the Illinois EPA upon request of the Permittee if additional time is needed to complete shakedown or perform emission testing.
  - ii. Emission measurements shall also be conducted upon written request from the Illinois EPA.
- b. The following methods and procedures shall be used for these measurements unless other USEPA-based methods are approved by the Illinois EPA. Refer to 40 CFR 51, Appendix M and 40 CFR 60, Appendix A for USEPA test methods.

Location of Sample Points	USEPA Method 1
Gas Flow and Velocity	USEPA Method 2
Flue Gas Weight	USEPA Method 3
Moisture	USEPA Method 4
Particulate Matter (PM)	USEPA Method 5*
Particulate Matter 10 (PM10)	USEPA Methods 5*/202
Sulfur Dioxide (SO <sub>2</sub> )	USEPA Method 6
Nitrogen Oxides (NO <sub>x</sub> )	USEPA Method 7E
Carbon Monoxide (CO)	USEPA Method 10
Volatile Organic Material (VOM)	USEPA Method 25A
Opacity	USEPA Method 9

\* Due to the high moisture levels in the exhaust from the feed dryer, USEPA test methods for measurement of filterable PM less than 10 microns (filterable PM<sub>10</sub>) are not considered reliable and measurements of filterable PM<sub>10</sub> are not required.

- c. For purpose of determining compliance of new feed dryer with NESHAP (Condition 3a), the emission tests for new feed dryer shall be conducted in accordance with 40 CFR 63.7(c), (d), (f), and (h) and the test methods and procedures specified in 40 CFR 63.7520 (Table 5) that shall include USEPA Method 10, 10A, or 10B of 40 CFR 60, Appendix A or ASTM D6522-00 (Refer to 63.14(b)), as applicable to firing of natural gas.
- d. The Permittee shall submit a written test plan to the Illinois EPA for review and comment for the initial testing and if a significant change in the procedures for this testing is planned from the procedures followed in the previous test. This plan shall be submitted at least

30 days prior to the actual date of testing and include the following information as a minimum:

- i. A description of the planned test procedures.
  - ii. The person(s) who will be performing sampling and analysis and their experience with similar tests.
  - iii. The specific conditions under which testing will be performed, including a discussion of why these conditions will be representative of maximum emissions.
- e. The Permittee shall notify the Illinois EPA prior to conducting these measurements to enable the Illinois EPA to observe testing. Notification for the expected date of testing shall be submitted a minimum of 30 days prior to the expected date. Notification of the actual date and expected time of testing shall be submitted a minimum of 5 working days prior to the actual date of the test. The Illinois EPA may accept shorter advance notice if it does not interfere with the Illinois EPA's ability to observe testing.
- f. Copies of the Final Report(s) for these tests shall be submitted to the Illinois EPA within 30 days after the test results are compiled and finalized. These reports shall include as a minimum:
- i. General information, i.e., date of test, names of testing personnel, and names of Illinois EPA observers.
  - ii. A summary of results, e.g. PM, NO<sub>x</sub>, VOM, CO and SO<sub>2</sub> emissions, lb/million Btu, lb/ton dried feed, and lb/hour.
  - iii. Detailed description of operating conditions of the dryer system, including:
    - A. Process information, e.g. feed composition and moisture content, dryer operating rate, and amount of water evaporated;
    - B. Control system-operating parameters, including combustion chamber temperature, during testing.
  - iv. Data and calculations.
  - v. Conclusions.

#### Monitoring

8. The Permittee shall install, operate and maintain instrumentation to monitor the temperature of the combustion chamber in the new dryer system, which monitoring shall be conducted in accordance with good practices for operational monitoring.

Recordkeeping

- 9a. The Permittee shall maintain a file with the followings:
  - i. Maximum firing rate of the burner system (million Btu/hr);
  - ii. Configuration of the control system (cyclones, burner system), including bypass of any unit and significant changes in air flow rates or in its usage of units;
- b. The Permittee shall maintain the following operating records for the new feed dryer system:
  - i. Dryer throughput based on the daily production records for the plant, relative loading of the different feed dryers and feed moisture levels (output percent, moisture), recorded at least once per shift.
  - ii. Log of inspection and maintenance of the cyclones and burner system.
- c. The Permittee shall maintain the following information related to emission and compliance:
  - i. The emission rates or emission factors used by the Permittee for estimating emissions of the dryer during normal operation, with supporting documentation.
  - ii. Records for any period during which the new dryer system was in operation and when its air pollution control equipment was not in operation or was not operating properly, including:
    - A. For each incident, the date, duration and description of the incident. For each period when a monitored parameter of the control system deviated outside the level set as good air pollution control practice the monitored value of the parameter and the level set as good air pollution practice.
    - B. For each incident, the cause for pollution control equipment not operating properly or being out of normal service, an explanation of the cause, the corrective actions that were taken, and the steps that were taken to prevent any such reoccurrence.
    - C. Identification of any incident in which emissions exceeded applicable emission limits with detailed explanation of the cause for noncompliance, and the corrective action(s) and preventive measures taken to prevent any such reoccurrence if any.

- iii. Monthly emissions of PM, NO<sub>x</sub>, SO<sub>2</sub>, VOM and CO, determined as the summation of (1) the product of the level of dryer activity and applicable emission factor or rate, and (2) the additional emissions attributable as recorded above.
- iv. Annual emissions of PM, NO<sub>x</sub>, SO<sub>2</sub>, VOM and CO, based on the above records.

Records Retention and Availability

- 10a. The Permittee shall retain all records required by this permit at the source for at least three years, at a location where the records are readily accessible for inspection by the Illinois EPA.
- b. The Permittee shall make all records required by this permit available for inspection at the source by the Illinois EPA, providing copies of records to the Illinois EPA upon request. For this purpose, the Permittee may keep records in a computerized data system provided that, upon request by the Illinois EPA during the source's normal working hours, requested information is retrieved and available prior to inspection completion to the Illinois EPA.

Notification

- 11a. The Permittee shall fulfill applicable reporting and notification requirements of 40 CFR 63.7545 and 63.7550 for the new feed dryer system.
- b. The Permittee shall notify the Illinois EPA within 5 days of the initial startup of the new feed dryer system.
- c. If there is an exceedance of the emission limits of this permit as determined by the records required by this permit or by other means, the Permittee shall promptly submit a report to the Illinois EPA's Compliance Section in Springfield, Illinois. For this purpose, such reports shall be submitted within 30 days after the exceedance, unless the CAAPP permits set different time(s) for submittal of such reports. The report shall include the emissions released in accordance with the recordkeeping requirements, a copy of the relevant records, and a description of the exceedance or violation and efforts to reduce emissions and future occurrences.

Illinois EPA Addresses

- 12a. All reporting and notifications and reports required by this permit shall be made in writing
- b. All required reports and notifications shall be sent to the Illinois EPA at the following address unless otherwise indicated. Two copies of reports shall be submitted, except for the Annual Emission Report.

Illinois Environmental Protection Agency  
Division of Air Pollution Control  
Compliance Section (#40)  
P.O. Box 19276  
Springfield, Illinois 62794-9276  
Telephone: 217/782-5811 Fax: 217/524-4710

A copy of all required reports and notifications, shall also be sent to the Illinois EPA at the following address, except the Annual Emission Report required by 35 IAC Part 201.302, which need only be sent to the Illinois EPA in Springfield:

Illinois Environmental Protection Agency  
Division of Air Pollution Control  
5415 North University  
Peoria, Illinois 61614  
Telephone: 309/693-5461

Evaluation of VOM Emission Limits

- 13a. i. The Permittee shall evaluate emissions from the new feed dryer to determine whether lower VOM limits may be reliably achieved without unacceptable consequences, i.e., inability to reliably comply with other applicable emission limits and requirements or significant risk to equipment or personnel, and without unreasonable consequences, i.e., a significant reduction in the operating capacity of the dryer, a significant increase in fuel consumption, or a significant increase in the maintenance and repair needed for the dryer.
- ii. If the Permittee fails to complete the evaluation or submit the required report in a timely manner the VOM emission limits in Condition 2(b) (i) shall automatically become 0.1 lb/million Btu.
- iii. This permit will be revised to set lower limit(s) for VOM emissions (but no lower than the above default limits), if the Illinois EPA, after considering the result of any evaluation performed by the Permittee, finds that the dryer can consistently comply with such limit(s) without unacceptable or unreasonable consequences. Additional factors, e.g., the load of the dryer, may be included with such limits to address specific modes of operation during which particular limits may or may not be achievable.
- b. The Permittee shall perform this evaluation in accordance with a plan submitted to the Illinois EPA for review and comment. The initial plan shall be submitted to the Illinois EPA no later than 180 days after initial start-up of the dryer. The plan shall provide for systematic evaluation of change or variation, within the normal or feasible range of operation, in the following elements as related to the VOM emissions:

- i. Dryer load, in terms of weight of wet feed, moisture content, and source (breakdown between whole grain and gluten plant residual material).
  - ii. Burner firing rate, combustion chamber temperature and combustion settings, including excess oxygen.
  - iii. Recycle air rate.
- c. The Permittee shall promptly begin this evaluation after the dryer demonstrates compliance with all applicable short-term emission limits as shown by emission testing. At this time, the Permittee shall submit an update to the plan that describes its findings with respect to control of VOM emissions during the shakedown of the dryer, which highlights possible areas of concern for this evaluation.
- i. This evaluation shall be completed and a detailed written report submitted to the Illinois EPA within 18 months after the initial startup of the dryer. This report shall include proposed alternative limit(s) for VOM emissions.
  - ii. This deadline may be extended by the Illinois EPA for an additional 6 months if the Permittee submits an interim report demonstrating the need for additional time to effectively evaluate VOM emissions.

#### Other Requirements

14. This permit does not relieve the Permittee of the responsibility to comply with all applicable local, state and federal requirements which are part of Illinois' State implementation Plan, as well as all other applicable local, state and federal requirements.
- 15a. i. The new feed dryer system may be initially operated for a period of one year under this construction permit. During this period the Permittee shall demonstrate initial compliance by emission testing by Condition 7 with the emission standards and limitation in Conditions 2, 3 and 5.
- ii. The Illinois EPA may extend this period upon request of the Permittee if additional time is needed to complete shakedown or perform emission testing.
- iii. Following successful completion of emission testing, the Permittee may continue to operate the new feed dryer under this Construction Permit until the Illinois EPA takes final action on the Permittee's request to modify its CAAPP Permit to include feed dryer covered under this permit, provided 1) such testing demonstrate compliance with applicable emission standards, and 2) the Permittee submits a timely and complete application for modification of its CAAPP Permit to address the new feed dryer.

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If you have any questions on this, please call Minesh Patel at 217/782-2113.

Donald E. Sutton, P.E.  
Manager, Permit Section  
Division of Air Pollution Control

DES:MVP:psj

cc: Region 2