217/782-2113

CONSTRUCTION PERMIT
PREVENTION OF SIGNIFICANT DETERIORATION APPROVAL

PERMITTEE

Archer Daniels Midland Company
Attn: Mark Carroll, Environmental Compliance Manager—Corn Processing Plant
4666 Faries Parkway
Decatur, Illinois 62526

Application No.: 03100060 I.D. No.: 115015AAE
Applicant's Designation: #3 GLUTEN DRYER Date Received: October 27, 2003
Subject: Wet Corn Mill #3 Gluten Dryer
Date Issued: March 4, 2005
Location: 4666 Faries Parkway, Decatur

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of a recirculating dryer with internal combination furnace/oxidizer, as described in the above referenced application. This Permit is subject to the following special condition(s) and standard conditions attached hereto, except as superseded by a special condition.

In conjunction with this permit, approval is given with respect to the Prevention of Significant Deterioration of Air Quality Regulations (PSD) for the above referenced project, in that the Illinois Environmental Protection Agency (Illinois EPA) 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 thereunder 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 that follow:

1a. Archer Daniels Midland (ADM) has requested a construction permit to install a third gluten dryer in the wet corn mill at its Decatur manufacturing complex. The new dryer (the affected dryer) would produce a high protein animal feed from the gluten that is contained in the corn. Emissions from the affected dryer will be controlled by a multi-stage control system, including cyclones, wet scrubbing, and an internal thermal oxidizer. This oxidizer is an integral part of the affected dryer because it serves as the source of heat, through a heat exchanger, for the air into the dryer.

b. The proposed new gluten dryer is related to the existing germ, gluten and feed production operations at the wet corn mill, all of which are subject to emission reduction projects required by the Consent Decree entered into by the Permittee with the United States and State of Illinois, in the United State District Court for the Central District of Illinois, United States, v. Archer Daniels Midland Company, Civil Action No. 03-2066. New regenerative thermal oxidizers (RTOs), will be installed on the exhaust streams for the germ, gluten and feed production operations. The new RTOs will significantly reduce emissions of VOM and CO from these operations. The Consent Decree will also act to reduce PM and SO_2 emissions from existing units.

2. The source is located in Decatur Township in Macon County. The area is designated attainment for all pollutants.

3a. The project is subject to PSD review for particulate matter (PM_{10}), volatile organic material (VOM), and carbon monoxide (CO). This is because the proposed dryer may increase the mill's capacity through changes to the existing germ, gluten and feed production operations through process optimization which could then result in an overall significant increase in emission of PM, VOM, and CO, i.e., more than 15, 40, and 100 tons/year respectively. This permit would limit annual PM_{10}, VOM, and CO emissions to 12, 26, and 63 tons respectively from the new Gluten Dryer, so that it would not be a major modification if it's effects on other units did not have to be considered.

b. This permit is issued based on the affected dryer not being subject to PSD for SO_2 or NO_x because emissions of SO_2 and NO_x are less than the significant emission rate threshold.

4a. After reviewing the materials submitted by ADM, 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).

b. Pursuant to a source request and demonstration of BACT compliance the affected dryer has met the requirements for Clean Unit Status.

5a. The air quality analysis accompanying the application shows that the affected dryer may increase utilization of the corn wet mill by approximately 4,000 bushels per day, which represents approximately a 1.0% increase in utilization of the current capacity of 550,000 bushels. This is due to better separation and recovery properties of the affected dryer.

b. The affected dryer will only be accompanied by a temporary increase in emissions because the PM_{10}, VOM and CO emissions from the other operations at the wet corn mill will be reduced over the next few years in accordance with the Consent Decree. As a result this project is considered a temporary project for which a full analysis of air quality impacts is not required.

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 departure from the conditions of this approval or terms expressed in the application would need to receive prior written authorization by Illinois EPA.

1. Best Available Control Technology

   a. The affected dryer shall be equipped, operated, and maintained with a multi-stage control system consisting of cyclones, wet scrubbing and internal thermal oxidization. The control system shall be operated and maintained in conformance with good air pollution control practices.

   b. i. The PM emission control system shall be designed, constructed, and maintained to achieve PM emission rate from the affected dryer that is no more than 0.010 gr/dscf. For this purpose, PM shall be determined as filterable particulate matter, as measured by USEPA Method 5 (See also Condition 5).

      ii. The affected dryer shall be equipped, operated, and maintained with low NO_x natural gas burner. The burners shall be operated and maintained in conformance with good air pollution control practices.

   c. i. The affected dryer shall only fire natural gas. The dryer combustion system shall be operated and maintained in conformance with good air pollution control practices.

   d. The internal oxidizer system for the affected dryer shall be designed, constructed, and maintained to comply with the following limits:

      i. A CO emission rate that is no more than 186 ppm;

      ii. A VOM emission rate from the affected dryer that is no more than 30 ppm, expressed as propane.

      iii. A VOM emission rate that is no more than 0.10 lb/million Btu.

e. The wet scrubbing system for the affected dryer shall be designed, constructed, and maintained to comply with one of the following limits:

i. At least 90 percent reduction of SO_2 by mass, (comparing the SO_2 in the inlet and outlet of the system), or

ii. An SO_2 emission rate from the dryer that is no more than 20 ppm.

Condition 1 addresses Best Available Control Technology for PM, CO, and VOM emissions as required by Section 165 of the Clean Air Act.

2. Limitations

a. Emissions of PM, PM_{10}, SO_2, CO, VOM and NO_x from the affected dryer shall not exceed the following limits:

i. PM – 2.1 lb/hour and 9.0 tons/year.

ii. PM_{10} – 3.0 lb/hour and 12 tons/year

iii. NO_x (including the contribution from the oxidizer/burner) 6.75 lb/hour and 30 tons/year.

iv. SO_2 – 4.8 lb/hour and 21.0 tons/year.

v. CO – 14.4 lb/hour and 63.0 tons/year.

vi. VOM – 3.8 lb/hour and 16.6 tons/year.

b. This permit does not authorize physical changes to the mill that are unrelated to the affected dryer that would increase the mill’s capacity.

3. Compliance Requirements

a. i. The oxidizer system shall be operated with the combustion chamber at a temperature that shall be set based on emission testing that demonstrates compliance with the limits for emissions of VOM and CO in Conditions 1 and 2.

ii. The scrubbing system shall be operated with ph and scrubbant flow rate maintained at levels established based on emission testing that demonstrates compliance with the limits of Condition 2.

b. i. All short-term emissions limits and operating parameter ranges and limits apply at all times when the affected dryer is operating, except, in the case of process equipment or pollutions control systems, during previously planned startup and shutdown periods (including planned

maintenance periods), and malfunctions as defined in 40 CFR Part 63. These startup and shutdown periods shall not exceed the minimum amount of time necessary for these events, and during these events, the Permittee shall minimize emissions to the extent practicable. To the extent practicable, startup and shutdown of pollution control systems will be performed during times when process equipment is also shut down. Also, the Permittee shall to the extent practicable, control emissions during a malfunction event in a manner consistent with good air pollution control practice for minimizing emissions.

ii. Annual emission limits address all emissions, including emissions during startup, shutdown and malfunction.

4. Good Operating Practices

The Permittee shall operate, maintain, and repair the affected dryer and its control system in a manner that is consistent with the following:

a. Operating Procedures for Control System: Written operating procedures shall be developed and maintained describing normal air pollution control equipment operation, including startup and shutdown. Such procedures shall include maintenance practices and may incorporate the manufacturers recommended operating instructions.

b. Operating Procedures for Burner: Written operating practices shall be developed and maintained, including establishment of target levels for the following operating parameters for the low NO_x burner:

i. Combustion chamber temperature operating range;

ii. Air-fuel mixture; and

iii. Recirculated air, and secondary air.

c. Inspections: Visual inspections of the dryer 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 all equipment affecting emissions 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.

These requirements and related monitoring, recordkeeping and reporting requirements in Conditions 6, 7 and 9 may be revised and relaxed by the Illinois EPA in the CAAPP Permit issued to the source.

5. Emission Testing Requirements

a. i. Within 180 days of startup of the affected dryer, the Permittee shall have PM, NO_x, SO_2, CO and VOM emissions and opacity from the dryer and the destruction efficiency of the oxidizer system for CO and VOM measured at its expense by an approved testing service, during full load operation of the dryer and conditions that are representative of maximum emissions to verify compliance with the requirements of this permit. If the Permittee is relying on control efficiency for SO_2 as provided in Condition 2 the Permittee shall also measure SO_2 at an appropriate location in the ductwork prior to the SO_2 wet scrubbing system used for SO_2 control.

ii. Emission measurements shall also be conducted upon written request from the Illinois EPA. For this purpose, the Permittee need not conduct measurements prior to the control system for SO_2, VOM or CO as appropriate, unless it will be relying upon control efficiency to demonstrate compliance.

b. i. The following testing methods and procedures shall be used, as further specified in Section 9.0 of the Control Technology Plan that accompanies the Consent Decree. Refer to 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 5/202*
Sulfur Dioxide (SO_2)	USEPA Method 6/6c
Opacity	USEPA Method 9
Carbon Monoxide (CO)	USEPA Method 10
Nitrogen Oxides (NO_x)	USEPA Method 7E
Volatile Organic Material (VOM)	USEPA Method 18 and 25 or 25A**

* Measurements shall also be taken and reported for the back half of the sampling train, to obtain additional measurements of condensable particulate matter. Refer to 40 CFR 51 Appendix M for Method 202.

** Outlet testing and control efficiency testing will be based on either Method 25 or Method 25A calibrated to propane, whichever is applicable depending on concentration (i.e., Method 25 shall be used on both the inlet and outlet when the outlet total hydrocarbon concentration is > 50 ppm as carbon and Method 25A shall be used on both the inlet and outlet when the outlet THC concentration is < 50 ppm as carbon).

ii. Due to the high moisture levels in the exhaust from the affected dryer, USEPA PM_{10} Methods 201 and 201A are not considered reliable and are not being required to measure PM_{10}.

c. The Permittee shall submit a written test plan to the Illinois EPA for review and approval 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 60 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.

d. 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.

e. 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, VOM, and CO emissions, lb/hour and gr/scf or ppmv.

iii. Detailed description of operating conditions of the dryer, including:

A. Process information, e.g. feed composition, operating rate, and moisture content.

B. Control system operating parameters during testing.

C. Flowrate and ph of scrubbant stream.

D. Temperature drop across the waste heat evaporator, if one is installed.

iv. Data and calculations.

v. Conclusions.

6. Monitoring

a. The Permittee shall install, maintain and operate continuous monitors on the burner/thermal oxidizer system for the following parameters:

i. Firing rate (cubic feet/hour of gas to the burner).

ii. Furnace temperature.

b. The Permittee shall install, maintain and operate continuous monitors on each scrubber that supply continuous readings and store average hourly values for the following parameters:

i. Scrubbant flow rate (gallons/minute).

ii. Pressure drop, if a packed bed or Venturi scrubber.

iii. Ph of scrubbant, if caustic or other reagent is added to the scrubbant for control of SO_2 emissions.

c. The Permittee shall install, maintain and operate a continuous monitor for the temperature of the heated air on the gluten side of the heat exchanger.

d. If the control system is equipped with bypass vent(s), the Permittee shall install, operate and maintain device(s) to indicate flow through the bypass vent(s), which device(s) shall record such information at least once every hour.

e. All required monitoring devices shall be installed, calibrated, and maintained according to the supplier's specifications and/or good industry standards and shall be operated at all times that the affected dryer is in use.

7. Recordkeeping

a. The Permittee shall maintain the following operating records for the affected dryer. This data shall be recorded whenever a new measurement is taken or an item is changed, except as specified below:

i. Maximum water evaporation capacity of the dryer, lb/hr, with supporting calculations.

ii. Dryer throughput based on the firing rate and other operating data (e.g. pounds of wet gluten) recorded at least once per shift, with supporting calculations.

iii. Configuration of the control system, including bypass of any unit, significant changes in its usage of units, changes in water supply to units, or changes in reagent.

iv. Desired values of the operating parameters of the control system, including the optimum furnace temperature operating range as determined by the Permittee based on testing.

b. The Permittee shall maintain records of the following operating parameters for the affected dryer and associated control devices, recorded at least every two hours. In addition, for control device operating parameters for which there is continuous monitoring (See Condition 6), data shall be manually recorded at least every two hours, if automatic measurement and recording device(s) are not in service for more than two hours. For this purpose, alternative forms of measurement may be made as necessary due to the circumstances. For example, for the firing rate of the burner/oxidizer system, firing rate might be based on percent valve opening and gas pressure.

i. Volumetric flow rate of recirculated air and secondary air (e.g. based on damper position), if these parameters may be controlled by the operator in the control room or are routinely adjusted, i.e., damper settings are not bolted in place.

c. The Permittee shall keep records of all emission measurements conducted for affected dryer including:

i. Records of emission measurements conducted pursuant to Condition 6.

ii. Records of other measurements of emissions conducted as part of the evaluation of the dryer and its control system.

d. The Permittee shall maintain records for any period during which affected dryer was in operation when its air pollution control equipment was not in operation or was not operating properly.

i. These records shall include each period of time when an operating parameter of a control system, as monitored or recorded above, deviated outside the level set as good air pollution control practice (date, duration and description of the incident).

ii. These records shall include the cause for pollution control equipment not operating properly or being out of normal service, for incidents when control equipment failed to operate properly and shall identify the corrective actions that were taken, the repairs that were made, and the steps that were taken to prevent any such reoccurrence.

iii. These records shall also identify any such periods during which an emission unit exceeded the requirements of this permit, including applicable emission limits. This record shall include the cause for noncompliance, if known, and the corrective action(s) and preventive measures taken to prevent any such reoccurrence if any.

e. The Permittee shall keep emission records for the affected dryer as follows:

i. PM emission rate, in lb/hour, determined for each configuration and condition of the dryer and its control system, based on test data or other engineering estimates with supporting explanations and calculations. Until emission testing is conducted, this determination shall be based on design data.

ii. Number of hours operated at each emission rate identified above on a monthly basis, with explanation.

iii. Monthly emissions of PM, NO_x, CO, VOM, and SO_2, determined as the summation of the product of the above records.

iv. Annual emissions of PM, NO_x, CO, VOM, and SO_2.

8. Retention and Availability of Records

a. The Permittee shall retain all records required by this permit at the source for at least five 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 sources normal working hours, requested information is retrieved and available prior to inspection completion to the Illinois EPA.

9. Notification

a. The Permittee shall notify the Illinois EPA within 5 days of the initial startup of the affected dryer.

b. If there is an exceedance of the annual emission limits of this permit as determined by the records required by this permit or by other means, the Permittee shall submit a report to the Illinois EPA within 30 days after the exceedance. 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. Other deviations or exceedances shall be submitted with the quarterly report.

10. Reporting

a. For the affected dryer, the Permittee shall submit quarterly compliance reports to the Illinois EPA. For any calendar quarter during which there are exceedances by the dryer, this report shall include information as specified in Condition 9(b). If there are no exceedances during the calendar quarter, the Permittee shall state that no excess emissions occurred during the reporting period. This report may be combined with other quarterly reports for units in the mill.

b. For VOM and CO emissions from the dryer, excess emissions are defined as any 3-hour block average in which the average combustion chamber temperature of the oxidizer system when the dryer is operating, is more than 50°F below the temperature during testing that demonstrated compliance with applicable requirements.

11. Illinois EPA Addresses

Any required reports and notifications concerning equipment operation, emissions testing, or a monitoring system shall be sent to the Illinois EPA at the following address unless otherwise indicated:

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, except the Annual Emission Report required by 35 IAC Part 254, shall also be sent to the Illinois EPA at the following address:

Illinois Environmental Protection Agency
Division of Air Pollution Control
2009 Mall Street
Collinsville, Illinois 62234

Telephone: 618/346-5120

12. Other Requirements

a. 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.

b. In particular, this permit does not address the requirements applying to the Permittee under the Consent Decrees entered into by the Permittee with the United States and State of Illinois, in the United State District Court for the Central District of Illinois, United States, v. Archer Daniels Midland Company, Civil Action No. 03-2066, and United States of America, People of the State of Illinois, v. Archer Daniels Midland Company, Defendant, Civil No. 00-2338. As an emission unit that is to be constructed in the future, the affected dryer itself, is not directly addressed by the provisions of the Consent Decree.

c. i. The affected dryer may be operated for a period of one year under this construction permit. During this period the Permittee shall demonstrate initial compliance with the short-term emission limitations in Condition 2 and 3 by emission testing in accordance with Condition 5.

i. The Illinois EPA may extend this period upon request of the Permittee if additional time is needed to complete shakedown or perform emission testing.

If you have any questions concerning this permit, please contact Kevin Smith at 217/782-2113.

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

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cc: Region 3