

217/782-2113

CONSTRUCTION PERMIT -- PSD -- REVISED

PERMITTEE

Archer Daniels Midland Company  
Attn: Michelle Bublitz  
4666 Faries Parkway  
Decatur, Illinois 62526

Application No.: 83050033

I.D. No.: 001815AAF

Applicant's Designation:

Date Permit Initially Issued: August 18, 1983

Subject: Coal Fired Boilers 1 and 2

Date Revision Request Received: February 15, 2006

Date Revision Request Issued:

Location: 2100 Gardner Expressway, Quincy, Adams County

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of two coal fired boilers with a spray dryer absorber and bag filter, coal handling and storage system with a bag filter, a coal crusher with a bag filter, and an ash silo with a bag filter, and other ancillary operations, as described in the above referenced application. This Permit is subject to standard conditions attached hereto and the following special conditions.

In conjunction with this permit, revise approval for the above activity is given with respect to the federal rules for Prevention of Significant Deterioration of Air Quality (PSD), 40 CFR 52.21, for the above referenced equipment as described in the application, in that the Illinois Environmental Protection Agency (Illinois EPA) finds that the application for revised permit 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 PSD regulations promulgated thereunder at 40 CFR 52.21, and a Delegation of Authority agreement between the United States Environmental Protection Agency (USEPA) and the Illinois EPA for the administration of the PSD Program. This revised 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 findings and conditions which follow:

Findings for the Revised Permit

- 1a. At its soybean processing plant in Quincy, Archer Daniels Midland (ADM) operates two coal-fired boilers (the affected boilers). ADM has requested that the construction permit for the boilers be revised to include alternative requirements for Best Available Control Technology (BACT) for emissions of SO<sub>2</sub> to appropriately address use of an add-on control system for control of emissions of SO<sub>2</sub> from the affected boilers. For emission of SO<sub>2</sub>, the original permit set a BACT limit of 1.8 lbs/million Btu heat input, 3-hour average, based on use of compliant fuel. The boilers currently are fired with compliant coal, which is normally a mixture of higher and lower sulfur coals.

- b. The affected boilers were constructed pursuant to Construction Permit 83050033, issued August 1983, to Quincy Soybean Company (ADM now and owns and operates this plant). This permit also provided approval pursuant to the federal PSD rules for construction of the boilers, addressing emissions of sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>) and carbon monoxide (CO). The permit was issued based upon a contemporaneous decrease in particulate matter (PM) emissions accompanying the increase from the affected boilers so that PM emissions were not subject to PSD.
  - c. ADM has obtained a permit to construct a spray dryer absorber system on the affected boilers (Construction Permit 06020065). This add-on emission control system will enable ADM to fire coal in the boilers whose sulfur content would not comply with applicable standards and limits for emissions of SO<sub>2</sub> in the absence of this control system.
2. ADM's Quincy plant is located in Melrose Township in Adams County. The air quality in this area is still designated attainment for SO<sub>2</sub> and other PSD pollutants.
- 3a. This revised permit sets an equivalent alternate BACT limit for SO<sub>2</sub> emissions from the affected boilers with an add-on control system for SO<sub>2</sub>, i.e., 1.2 lbs SO<sub>2</sub> per million Btu, on a 30 day rolling average. This limit is equivalent to the original BACT limit for the affected boilers given the difference in the compliance time period associated with the limits. That is, the original BACT limit of 1.8 lbs/million Btu applied as a 3-hour average, whereas the alternate limit applies on a longer 30-day average.
- b. This revised permit also includes other revisions to the original permit to address use of an add-on control system for SO<sub>2</sub> emissions.
- 4a. This revised permit is issued based on these changes to the operation of the affected boilers not being subject to PSD for emissions of SO<sub>2</sub> or PM because the net increases in emissions of these pollutants are below the applicable significant emission rates, 40 and 25 tons per year, set by the PSD rules, as demonstrated in the application.
- b. The changes to the operation of the boilers are not subject to PSD for other PSD pollutants (NO<sub>x</sub>, VOM, CO, etc.) because this project does not affect the emissions of other PSD pollutants.
5. The air quality analysis submitted by ADM and reviewed by the Illinois EPA shows that the requested permit revision will not cause a violation of the ambient air quality standards for SO<sub>2</sub>.
6. The Illinois EPA determined that the application for a revised permit complies with applicable requirements of state regulations and the federal rules for PSD, 40 CFR 52.21.

7. The revised permit also includes revision to the originally issued permit, which clarifies applicable requirements.
8. A copy of ADM's request for revision of the permit, the project summary prepared by the Illinois EPA and a draft of this permit were placed in a location nearby in a public repository, and the public has been given notice and opportunity to examine this material and to submit comments and to request and participate in a public hearing on this matter.

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

Conditions for the Revised Permit

1. Standard Conditions
  - a. Standard conditions for issuance of construction permits, attached hereto and incorporated herein by reference, shall apply to this project.
2. Control Technology Determination
  - a. The sulfur dioxide (SO<sub>2</sub>) emissions from the affected boilers shall not exceed the following limits. For this purpose, after the add-on control system for SO<sub>2</sub> commences operation, the affected boilers shall be considered to be firing non-compliant coal except during periods when the Permittee is operating the affected boilers to comply by means of compliant coal, that is, the Permittee has loaded coal into the bunker for the boilers that has a sulfur content that is intended to comply with an SO<sub>2</sub> emission rate of 1.8 lbs/million Btu without any control provided by a control system.
    - i. Scenario A: Operation with compliant coal  
1.8 lbs/million Btu.
    - ii. Scenario B: Operation with non-compliant coal  
1.2 lbs/million Btu, 30 day rolling average, with compliance determined using the compliance procedures of the NSPS, 40 CFR 60.47b(b).
  - b. The nitrogen oxide (NO<sub>x</sub>) emissions from the affected boilers shall not exceed 0.61 lbs/million Btu.

Note: The annual NO<sub>x</sub> emissions from the boilers are limited to 469 tons by a Consent Decree entered into by the Permittee with the United States and State of Illinois, in Federal District

Court for the Central District of Illinois, United States v.  
Archer Daniels Midland Company, Civil Action No. 03-2066.

- c. For emissions of carbon monoxide (CO), each affected boiler shall be equipped with a continuous oxygen analyzer and shall be operated so as to minimize CO emissions and optimize combustion efficiency while meeting the above emission limit for NO<sub>x</sub>. However, in no event shall CO emissions exceed 200 ppm corrected to 50 percent excess air, as allowed by 35 IAC 216.121.

Condition 2 represents the application of the Best Available Control Technology (BACT) as required by Section 165 of the Clean Air Act.

3. Performance Limits for Particulate Matter

- a. Emissions of particulate matter (PM) from the affected boilers are limited to 0.075 lbs/million Btu, measured as filterable PM by using USEPA Method 5.
- b. PM emissions from the coal storage silos, coal crushers, and ash silo shall be controlled by bag filters designed to emit no more than 0.03 grains/dry standard cubic feet.

4. Annual Emission Limits

- a. Annual emissions from the affected boilers shall not exceed the following limits. These limits are based upon the maximum emission rates specified in the original application.
  - i. PM - 81.8 tons/year, as filterable particulate, as would be measured by USEPA Method 5 or 17.
  - ii. SO<sub>2</sub> - 1963 tons/year.
  - iii. NO<sub>x</sub> - 664 tons/year.
  - iv. VOM - 3 tons/year.
  - v. CO - 237 tons/year.

Note: Annual emissions of SO<sub>2</sub> of the boilers are restricted to 1,420 tons/year by Construction Permit 06020065. Annual emissions of NO<sub>x</sub> are limited to 469 tons/year by a Consent Decree based on achievement of an annual average NO<sub>x</sub> emission rate by the boilers of no more than 0.43 lbs/mmBtu.

- b. This permit is issued based upon the minimal hourly emission rate from the coal storage silos, coal crushers, and ash silo, and negligible annual emissions of PM (less than 0.1 tons/year).

- c. Fugitive emissions of PM from coal handling, e.g., coal unloading and storage pile operations, are estimated at 1.7 tons/year, based on the information presented in the application.

5. Emission Testing Requirements

- a. Within 180 days of a written request from the Illinois EPA, the Permittee shall have the PM and NO<sub>x</sub> emissions of the affected boilers measured by an approved independent testing service as follows.
- b. Emissions testing shall be conducted using appropriate USEPA reference methods and test procedures, including the following test methods:
  - i. PM: USEPA Method 5 or 17 and Method 202.
  - ii. NO<sub>x</sub>: USEPA Method 7 or 19.
- c. The Illinois EPA may witness these tests. The Illinois EPA shall be notified a minimum of 30 days prior to the expected date of these tests and further notified a minimum of 5 working days prior to the test of the exact date, time and place of these tests.
- d. The results of these tests, in triplicate, shall be submitted to the Illinois EPA within 14 days after the test results are compiled and finalized.

6. Monitoring and Instrumentation Requirements

- a.
  - i. The Permittee shall install, operate, calibrate and maintain a continuous opacity monitoring system for the affected boilers.
  - ii. The Permittee shall fulfill relevant requirements for opacity monitoring in the NSPS, 40 CFR 60.13(d), (e), (f) and (h), and 40 CFR 60 Appendix B, which require that the Permittee maintain detailed records for both the measurements made by these systems and the maintenance, calibration and operational activity associated with the opacity monitoring systems.
  - iii. On or before the 30th day of each calendar quarter, the Permittee shall submit quarterly reports to the Illinois EPA of all opacity measurements exceeding 30 percent. These excess emission reports shall provide the percent opacity measured as well as the date and span of each such incident. They shall also specify whether each such incident occurred during startup, shutdown or malfunction of a boiler, malfunction of the monitoring system or is believed to be attributable to water vapor in the exhaust.

If a malfunction is indicated in the report, all corrective actions taken, if any, shall be reported. The report should also list those periods when the monitoring system was not in operation.

- b. The Permittee shall conduct continuous emissions monitoring for SO<sub>2</sub> emissions from the affected boilers in accordance with Condition 1.6(a) of Construction Permit 06020065.
- c. The Permittee shall operate instrumentation on the control devices for the affected boilers in accordance with Condition 1.6(b) of Construction Permit 06020065.

7. Fuel Sampling and Analysis

- a. The Permittee shall sample and analyze the sulfur and heat content of the solid fuel supply to the affected boilers using applicable analysis methods in IAC 214.104(c) as follows:
  - i. Sampling and analysis shall be conducted on at least an annual basis to have current representative data for each source of coal for the boilers.
  - ii. Additional sampling and analysis shall be conducted as follows if the SO<sub>2</sub> emissions monitoring system addressed by Condition 1.6 has not yet been installed or is out of service for a boiler operating day or longer:
    - A. If non-compliant coal is being fired (i.e., the Permittee is relying on the SO<sub>2</sub> control device for compliance), the Permittee shall take and analyze either a single grab sample or a composite sample for each boiler operating day.
    - B. If compliant coal is being fired (i.e., the Permittee is relying on the sulfur content of the coal for compliance without any reliance on the SO<sub>2</sub> control device), the Permittee shall analyze a daily sample (either a grab or composite sample) or a multi-day composite sample made up of a number of consecutive daily samples (either daily grab samples or composite samples). The period during which multi-day samples are collected, which shall be on a "block basis," shall be no longer than either: 1) A week (samples for at least 5 out of 7 days) if a mix of coal from different sources is being fired that is blended at the plant, or 2) A month (samples for at least 20 out of at least 28 days) if coal from a single source is being fired.
- b. The Permittee shall maintain records for the sampling and analysis required above for the coal supply for the boilers.

- c. The Permittee shall submit quarterly reports to the Illinois EPA that provide the results of any sampling and analysis required to be conducted by Condition 7(a)(ii)(A) or (B).

8. Recordkeeping Requirements

- a. The Permittee shall maintain records for the affected boilers in accordance with Condition 1.7 of Construction Permit 06020065.
- b. The Permittee shall maintain operating log(s) or other operating records for the affected boilers, including the combustion system and associated baghouse, that, at a minimum, include the following information:
  - i. Information identifying periods when the affected boiler(s) were in operation;
  - ii. For periods when the boilers and baghouse are operating normally, relevant process information to generally confirm normal operation; and
  - iii. For periods when the affected boiler(s) or baghouse is not operating normally, identification of each such period, with detailed information describing the operation of the unit(s) and the potential consequences for additional emissions from the boiler(s), with explanation.
- c. The Permittee shall maintain inspection, maintenance and repair log(s) or other operating records for the affected boilers and associated baghouse on the affected boilers that, at a minimum, include the following information:
  - i. For inspections, a description of the inspection, findings, and any recommended actions, with reason; and
  - ii. For maintenance and repair activity, a description actions taken, reason for action, e.g., preventative measure or corrective action as a result of inspection, and the condition of equipment following completion of the activity.
- d. The Permittee shall maintain the following operating records for the affected boilers:
  - i. Records for the consumption of different fuels by the affected boilers, by type or source of fuel (tons/month and tons/year, gallons/month and gallons/year, and scf/month and scf/year, as appropriate).
  - ii. The activity of the affected boilers on a daily basis, expressed in terms of amount of coal burned (tons or

million Btu per day) or the steam production of the boilers (pounds per day).

- e. The Permittee shall maintain records of the following items related to the emissions of the affected boilers:
  - i. A file containing the emission factors for NO<sub>x</sub>, CO, PM and VOM used by the Permittee to determine emissions, with copies of emission tests and other documentation supporting these factors.
  - ii. The Permittee shall maintain detailed records for any period when the SO<sub>2</sub>, NO<sub>x</sub> or PM emissions of the boilers exceeded the applicable limit in Condition 2(a), 2(b), 2(c) or 3(a) which records shall include the date, time and duration of the exceedance; for SO<sub>2</sub>, the limit that was exceeded (1.2 or 1.8 lbs/million Btu); the actual emission rate and the means by which it was determined; and other information required to be reported for a deviation as specified by Section 39.5(7)(f)(ii) of the Environmental Protection Act.
  - iii. Records of the emissions of SO<sub>2</sub>, NO<sub>x</sub>, CO, PM, and VOM from the affected boilers (tons/month and tons/year), with supporting data or calculations.
- 9. The Permittee shall notify the Illinois EPA of deviations with the requirements by this permit for the affected boilers as follows. These notifications shall include the information specified by Section 39.5(7)(f)(ii) of the Environmental Protection Act:
  - a. Deviations from requirements for SO<sub>2</sub> emissions or opacity shall be reported with the quarterly coal usage reports and the periodic continuous emissions monitoring reports, as appropriate.
  - b. Other deviations shall be reported in accordance with the provisions in the CAAPP permit for the source addressing reporting of deviations by the affected boilers.
- 10. Administrative Requirements

General requirements of the CAAPP permit for the source, CAAPP Permit 96030065, with respect to retention and availability of records and submission of reports to the Illinois EPA, shall apply for recordkeeping and reporting requirements established by this permit.
- 11. Other Requirements

This approval to construct does not relieve the Permittee of the responsibility to comply with all Local, State and Federal Regulations which are part of the applicable Illinois State Implementation Plan, as well as all other applicable Federal, State and Local requirements.

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If you have any questions on this permit, please contact Shashi Shah at 217/782-2113.

Edwin C. Bakowski, P.E.  
Acting Manager, Permit Section  
Division of Air Pollution Control

Date Signed: \_\_\_\_\_

ECB:SRS:psj

cc: Region 1