

217/782-2113

CONSTRUCTION PERMIT - PSD APPROVAL - NSPS SOURCE

PERMITTEE

EnviroPower of Illinois, LLC
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Application No.: 00080042

I.D. No.: 055802AAG

Applicant's Designation: EPOWR-1

Date Received: August 15, 2000

Subject: Electrical Generation Facility

Date Issued: July 3, 2001

Location: Site of Old Ben 24 Coal Mine, Benton, Franklin County

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of 2 circulating fluidized bed (CFB) boilers, solid fuel handling and storage, ash handling and storage, limestone handling and storage, cooling towers, fuel oil storage and ancillary operations as described in the above referenced application and summarized in Attachment A. This Permit is granted based upon and subject to the findings and conditions that follow.

In conjunction with this permit, approval for the above activity is given with respect to the federal rules for Prevention of Significant Deterioration of Air Quality Regulations (PSD) for the above referenced equipment as described in the application, in that the Illinois Environmental Protection Agency (IEPA) 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 (USEPA) 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 provisions of 40 CFR 124.19. This approval is also based upon and subject to the findings and conditions that follow:

Findings

1. EnviroPower of Illinois, LLC (EnviroPower) has requested a permit for two circulating fluidized bed (CFB) boilers, each with limestone injection, a baghouse, and a selective non-catalytic NO_x reduction system; solid fuel handling and storage; ash handling and storage; limestone handling and storage; cooling towers; fuel oil storage and ancillary operations. Together the CFB boilers will have the ability to generate the steam for up to about 500 MW of electricity (nominal net

output). The CFB boilers will be fired on coal tailings and coal as their primary fuels with natural gas and distillate oil as startup fuels. The coal refuse/coal mixture for which the boilers would generally be designed would nominally have 4 percent sulfur by weight and 4,000 Btu per pound, which is equivalent to an uncontrolled sulfur dioxide emission rate of 10.0 pounds per million Btu heat input.

2. The plant will be located on an approximately 900-acre site near the City of Benton in Franklin County. The site is in an area that is currently designated attainment for all criteria pollutants.
3. The proposed plant is a major source under PSD rules. The plant will have potential annual emissions of 5595 tons of sulfur dioxide (SO₂), 2808 tons of nitrogen oxides (NO_x), 466 tons of particulate matter, 6040 tons of carbon monoxide (CO), 162 tons/yr of volatile organic materials (VOM) and 9.6 tons/yr of fluorides. The project is therefore subject to PSD review as a major new source for the above pollutants.
4. The proposed plant is also a major source for emissions of hazardous air pollutants (HAP). The potential HAP emissions from the plant will be greater than 10 tons of certain individual HAP i.e. hydrogen fluoride and hydrogen chloride and more than 25 tons in aggregate for a combination of HAP. Therefore, the plant is being subjected to review under Section 112(g) of the Clean Air Act even though the USEPA'S related determination under Section 112(n) of the Clean Air Act has been appealed in federal court.
5. After reviewing the materials submitted by EnviroPower, the Illinois EPA has determined that the project will (i) comply with applicable Board emission standards (ii) comply with applicable federal emission standards, (iii) utilize Best Available Control Technology (BACT) on emissions of NO_x, SO₂, PM/PM₁₀, CO, VOM and fluorides as required by PSD, and (iv) utilize Maximum Achievable Control Technology (MACT) for emissions of HAP as required by 112(g) of the Clean Air Act.
6. The CFB boilers are affected units under the Acid Rain Deposition Control Program pursuant to Title IV of the Clean Air Act and are subject to certain control requirements and emissions monitoring requirements pursuant to 40 CFR Parts 72, 73 and 75. As affected units under the Acid Rain Program, EnviroPower must hold calendar year allowances for each ton of SO₂ that is emitted.
7. The air quality analysis submitted by EnviroPower and reviewed by the Illinois EPA shows that the proposed project will not cause violations of the ambient air quality standard for NO_x, SO₂, PM/PM₁₀, CO and ozone. The air quality analysis shows compliance with the allowable increment levels established under the PSD regulations.
8. The Illinois EPA has determined that the proposed plant complies with all applicable Illinois Pollution Control Board Air Pollution Regulations; the federal Prevention of Significant Deterioration of Air Quality Regulations (PSD), 40 CFR 52.21; applicable federal New Source Performance Standards (NSPS) 40 CFR 60; and Section 112(g) of the Clean Air Act and 40 CFR 63, Subpart B.
9. A copy of the application, the plant summary and a draft of this permit were placed in the Benton Public Library, and the public was given

notice and an opportunity to examine this material and to submit comments and to participate in a public hearing on this matter.

The Illinois EPA is issuing 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 must receive prior written authorization of the Illinois EPA.

Conditions

1. Standard conditions for issuance of construction permits, attached hereto and incorporated herein by reference, shall apply to this project, unless superseded by the following:
- 2a. The CFB boiler shall be operated and maintained with the following features to control emissions.
 - i. Good combustion practices;
 - ii. Fluidized bed combustion with limestone bed material;
 - iii. Selective non-catalytic reduction (SNCR);
 - iv. Supplementary injection of lime, limestone, or other sorbent material for SO₂ using a Natural Integrated Desulfurization System™ or other similar technique that introduces additional sorbent prior to the fabric filter; and
 - v. Fabric filter.
- b. The emissions from each CFB boiler shall not exceed the following limits:
 - i. PM - 0.015 lb/mmBtu
 - ii. A. SO₂ - 0.25 lb/mmBtu
B. 8% of potential combustion concentration (92% reduction), if emissions are 0.20 lb/mmBtu or greater.

These limits shall apply on a 30 day rolling average with compliance determination using the compliance procedures set forth in the NSPS, 40 CFR Part 60.43a(g).
 - iii. NO_x - 0.125 lb/mmBtu, or such lower limit as set by the Illinois EPA following the Permittee's evaluation of NO_x emissions and the SNCR system as provided in Condition 2(d).

This limit shall apply on a 30 day rolling average using the compliance procedures of the NSPS, 40 CFR Part 60, Subpart D_a.
 - iv. CO - 0.27 lb/mmBtu

Compliance shall be determined on a 30 day rolling average basis.
 - v. VOM - 0.007 lb/mmBtu

Compliance shall be determined by emission testing in accordance with Condition 8.

- c. The Permittee shall use reasonable practices to minimize emissions during startup and shutdown of a boiler as further addressed in Condition 6(a)(ii), including the following:

- i. Use of natural gas, with distillate fuel oil as a backup fuel, during startup to heat the boiler prior to initiating firing of solid fuel;
 - ii. Operation of the boilers and associated air pollution control equipment in accordance with written operating procedures that include startup, shutdown and malfunction plan(s); and
 - iii. Inspection, maintenance and repair of the boilers and associated air pollution control equipment in accordance with written maintenance procedures.
 - d. The Permittee shall evaluate NO_x emissions from the CFB boilers to determine whether a lower NO_x emission limit (as low as 0.07 lb/mmBtu) may be reliably achieved while complying with other emission limits and without significant risk to equipment or personnel. This evaluation shall also examine whether there will be significant increase in ammonia emissions, as well as unreasonable increase in maintenance and repair needed for the boilers (see also Condition 17).
- 3a.
 - i. Emissions of particulate matter from the limestone handling and storage (excluding the raw limestone storage pile), ash handling shall be controlled with enclosures and bag filters designed to emit no more than 0.01 grains/dry standard cubic foot (gr/dscf).
 - ii. Emissions of particulate matter from solid fuel handling (excluding storage piles) and conveying shall be controlled with enclosures and aspiration to bag filters designed to emit no more than 0.01 gr/dscf.
 - iii. Emissions from solid fuel storage silos, and limestone storage silos shall be controlled by enclosures.
 - iv. Emissions of particulate matter from the limestone and solid fuel storage piles shall be controlled by material quality and enclosure as practicable.
- b. Emission from combustion of fuel in the limestone mills shall be controlled by use of only natural gas and distillate oil as fuel and good combustion practices.
- c. The Permittee shall follow good air pollution control practices to minimize nuisance fugitive dust from plant roads, parking areas, storage piles and other open areas of the plant. These practices shall provide for pavement on all regularly traveled roads and treatment (flushing, vacuuming, dust suppressant application, etc.) of paved and unpaved roads and areas that are routinely subject to vehicle traffic for very effective and effective control of dust, respectively (nominal 90 percent for paved roads and areas and 80 percent control for unpaved roads and areas).

- 4a. The CFB boilers shall comply with one of the following requirements with respect to emissions of mercury:
 - i. An emission rate of 0.000004 lb/mmBtu or emissions below the detection level of established emission test methodology;

- ii. A removal efficiency of 95 percent achieved without injection of activated carbon or other similar material specifically used to control emissions of mercury, comparing the emissions and the mercury contained in the fuel supply;
 - iii. Injection of powdered activated carbon or other similar material specifically used to control emissions of mercury in a manner that is designed to achieve the maximum practicable degree of mercury removal;
 - iv. Such other requirement for effective control of mercury emissions as may be established pursuant to Section 112(g) of the Clean Air Act in a revised PSD permit if the Permittee demonstrates that it cannot reasonably obtain performance guarantees or engineering confirmation for compliance with the above requirements; or
 - v. The requirements for control of mercury emissions established by USEPA pursuant to Section 112(d), once applicable rules are adopted by USEPA.
- b. Compliance with the requirements in paragraphs (a)(i) through (ii) above shall be demonstrated by periodic testing related to mercury emissions and proper operation of the CFB boiler consistent with other applicable requirements that apply to the CFB boiler (e.g., requirements applicable to control of particulate matter and sulfur dioxide) as may be further developed or revised in the source's CAAPP Permit. Compliance with the requirements in paragraphs (a)(iii) and (iv) above shall be demonstrated by proper operation of the CFB boiler and such other measures specified by the applicable permit. Compliance with the requirements in paragraph (a)(v) above shall apply as specified by the relevant rule.
- c. This Condition shall take effect 18 months after initial startup of the CFB boiler. However, as related to paragraphs (a)(i) through (iv) above, the Permittee may at any time thereafter, upon written notice to the Illinois EPA, declare an interruption in compliance for a period of 18 months if needed for detailed evaluation of mercury emissions of the CFB boiler or physical changes to the CFB boiler as related to control of mercury emissions. As part of its notice for this period, the Permittee shall identify the activities that it intends to perform to evaluate mercury emissions or further enhance control for mercury emissions and specify the particular practices it will use during this period as good air pollution control practice to minimize emissions of mercury.

Condition 2, 3 and 4 represent application of Maximum Achievable Control Technology to emissions of hazardous air pollutants as required by Section 112(g) of the Clean Air Act.

- 5a. i. The two CFB boilers are subject to a New Source Performance Standard (NSPS) for Electric Utility Steam Generating Units, 40

CFR 60, Subparts A, and Da. The Illinois EPA administers NSPS in Illinois on behalf of the USEPA under a delegation agreement.

- ii. The emissions from each boiler shall not exceed the applicable limits pursuant to the NSPS. In particular, the NO_x emissions from the CFB boiler system shall not exceed 1.6 lb/MW-hr gross energy output, based on a 30-day rolling average, pursuant to 40 CFR 60.44a(d).

- iii. The particulate matter emissions from the CFB boiler shall not exceed 20 percent opacity (6-minute average), except for one 6-minute period per hour of not more than 27 percent opacity pursuant to 40 CFR 60.42a(b).
- b. i. The limestone handling and storage process is subject to the NSPS for Nonmetallic Mineral Processing Plants, 40 CFR 60, Subparts A and 000.
 - ii. A. Fugitive emissions of particulate matter from grinding mills, screens (except truck dumping), storage bins, and enclosed truck or railcar loading operations shall not exceed 10% opacity. (40 CFR 60.672(b) and (d))
 - B. Fugitive emissions of particulate matter from the crushers shall not exceed 10% opacity. (40 CFR 60.672(c))
 - C. Truck dumping of limestone into any screening operation, feed hopper, or crusher is exempt from the requirements of 40 CFR, Subpart 000. (40 CFR 60.672(d))
- c. i. Fuel oil storage tanks are subject to the NSPS for Volatile Organic Liquid Storage Vessels, 40 CFR 60, Subpart A and Kb.
- ii. The Permittee shall maintain a permanent file, for the life of each fuel oil storage tank, of the dimensions of the tank and an analysis showing the capacity of the tank.
- d. As the Permittee will handle coal, solid fuel handling and storage are subject to the NSPS for Coal Preparation Plants, 40 CFR 60, Subpart A and Y.
- e. At all times, the Permittee shall maintain and operate emission units that are subject to NSPS, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions, pursuant to 40 CFR 60.11(d).
- 6a. i. Emissions from the CFB boilers shall not exceed the limits in Table I. The limits in Table I are based upon the emission rates and the maximum firing rate specified in the permit application consistent with the air quality analysis submitted by the Permittee to comply with PSD. Compliance with hourly limits shall be determined as a 3-hour average, consistent with testing and monitoring as required by Conditions 8, 9, 10 and 11.
- ii. The Permittee shall operate the CFB boilers and associated air pollution control equipment in accordance with good air pollution control practice to minimize emissions, by operating in accordance

with detailed written operating procedures as it is safe to do so, which procedures at a minimum:

- A. Address startup, normal operation, shutdown and malfunction events and provide for review of relevant operating parameters of the boiler systems during startup, shutdown and malfunction as necessary to make adjustments to reduce or eliminate any excess emissions.

- B. With respect to startup, address readily foreseeable startup scenarios, including so called "hot startups" when the operation of a boiler is only temporarily interrupted and provide for appropriate operating review of the operational condition of a boiler prior to initiating startup of the boiler.
- C. With respect to malfunction, identify and address likely malfunction events with specific programs of corrective actions and provide that upon occurrence of a malfunction that will result in emissions in excess of the applicable limits in Condition 2, the Permittee shall, as soon as practicable, repair the affected equipment, reduce the operating rate of the boiler system or remove the boiler system from service so that excess emissions cease.

Consistent with the above, if the Permittee has maintained and operated the CFB boiler and air pollution control equipment so that malfunctions are infrequent, sudden, not caused by poor maintenance or careless operation, and in general are not reasonably preventable, the Permittee shall begin shutdown of the boiler system within 90 minutes, unless the malfunction is expected to be repaired within 120 minutes or such shutdown could threaten the stability of the regional electrical power supply. In such case, shutdown of the system shall be undertaken when it is apparent that repair will not be accomplished within 120 minutes or shutdown will not endanger the regional power system. In no case shall shutdown of the CFB boiler system be delayed solely for the economic benefit of the Permittee.

Note: If the Permittee determines that the continuous emission monitoring system (CEMS) is inaccurately reporting excess emissions, a CFB boiler may continue to operate provided the Permittee records the information it is relying upon to conclude that the boiler and associated emission control systems are functioning properly and the CEMS is reporting inaccurate data and the Permittee takes prompt action to resolve the accuracy of the CEMS.

- iii. The Permittee shall maintain the CFB boilers and associated air pollution control equipment in accordance with good air pollution control practice to assure proper functioning of equipment and minimize malfunctions, including maintaining each CFB boiler system in accordance with written procedures developed for this purpose.
- iv. The Permittee shall review its operating and maintenance

procedures as required above on a regular basis and revise them if needed consistent with good air pollution control practice based on actual operating experience and equipment performance. This review shall occur at least annually if not otherwise initiated by occurrence of a startup, shakedown, or malfunction event that is not adequately addressed the existing plans or a specific request by the Illinois EPA for such review.

- b.
 - i. Emissions from other emission units associated with the CFB boilers shall not exceed the limitations in Table II. These limits are based on data presented in the construction permit application and continuous operation (8,760 hours/year).
 - ii. The Permittee shall comply with the following requirements with respect to opacity and visible emissions.
 - A. The emission of smoke or other particulate matter from baghouses associated with the fuel storage, and ash storage silos shall not have an opacity greater than 30 percent, pursuant to 35 IAC 212.123(a), except as allowed by 35 IAC 201.149, 212.123(b) or 212.124. Opacity measurements taken to demonstrate compliance with these provisions shall be based on a 6-minute average.
 - B. Visible emission of particulate matter associated with fuel storage pile, and the associated material handling operations.
- 7a. The CFB boilers and associated equipment covered by this Permit may each be operated under this construction permit for a shakedown period of 365 days* after initial startup. During this period (365 days), notwithstanding Condition 2(b)(ii), the SO₂ reduction for a CFB boiler need only comply with the reduction requirement of the NSPS, 40 CFR Part 60, Subpart Da.
 - * This period of time may be extended by the Illinois EPA for up to an additional 365 days upon written request by the Permittee as needed to reasonably accommodate unforeseen difficulties in the shakedown of the plant.
- b. For emission units that are subject to NSPS, the Permittee shall fulfill applicable notification and recordkeeping requirements of the NSPS, 40 CFR 60.7, 60.49a, and 60.676 including:
 - i. Written notification of commencement of construction, no later than 30 days after such date (40 CFR 60.7(a)(1));
 - ii. Written notification of anticipated date of initial startup, at least 30 days but not more than 60 days prior to such date (40 CFR 60.7(a)(2)).; and
 - iii. Written notification of the actual date of initial startup, within 15 days after such date (40 CFR 60.7(a)(3) and 40 CFR 60.49b(a) and 40 CFR 60.676(h)(i)).
- c. The Permittee shall notify the Illinois EPA in writing at least 30 days prior to initial firing of any solid fuel other than coal or coal tailings in a CFB boiler.

- 8a. i. Within 60 days after achieving the maximum production rate at which the CFB boilers and other new emission units will be operated but not later than 180 days* after initial startup, the Permittee shall have performance tests conducted as follows below by an approved testing service at its expense under conditions that are representative of maximum emissions.

- * This period of time may be extended by the Illinois EPA for each CFB boiler for up to an additional 365 days upon written request by the Permittee as needed to reasonably accommodate unforeseen difficulties in the startup and testing of these boilers, provided that initial performance testing required by the NSPS, 40 CFR Part 60, Subpart Da has been completed for the boiler and the test report submitted to the Illinois EPA.
- ii. In addition to the initial performance testing specified above, the Permittee shall perform emission tests within 45 days of a written request by the Illinois EPA. The Illinois EPA may request these tests if, based on observations by field personnel, an emission unit or air pollution control systems are poorly maintained or operated so as to make compliance with permit limitations uncertain.
- b. The following methods and procedures shall be used for emission testing:
 - i. For the CFB boilers, the following USEPA methods and procedures shall be used for testing opacity and emissions of NO_x, CO, PM, VOM, SO₂, hydrogen chloride, hydrogen fluoride, and mercury and other metals, unless otherwise specified or approved by the Illinois EPA.

Opacity	Method 9
Location of Sample Points	Method 1
Gas Flow and Velocity	Method 2
Flue Gas Weight	Method 3 or 3A
Moisture	Method 4
Particulate Matter ¹	Method 5, or Method 201, or 201A (40 CFR 51,Appendix M), or Method 19 as specified in 40 CFR 60.48a(b)
Nitrogen Oxides	Method 7, 7E or 19 as specified in 40 CFR 60.48a(d)
Sulfur Dioxides	Method 6 or 19 as specified in 40 CFR 60.48a(c)
Carbon Monoxide	Method 10
Volatile Organic Material ²	Method 18, 25, or 25A
Hydrogen Chloride	Method 26
Hydrogen Fluoride	Method 26
Metals ^{3, 4}	Method 29

Notes:

¹ The Permittee may report all PM emissions measured by USEPA Method 5 as PM₁₀, including back half condensable particulate. If the Permittee reports USEPA Method 5 PM emissions as PM₁₀, testing using USEPA method 201 or 201A

need not be performed.

² The Permittee may exclude methane, ethane and other exempt compounds from the results of any VOM test provided that the test protocol to quantify and correct for any such compounds is included in the test plan approved by the Illinois EPA.

³ For purposes of this permit, metals are defined as mercury, arsenic, beryllium, cadmium, chromium, lead, manganese, and nickel.

⁴ During the initial emissions testing for metals, the Permittee shall also conduct measurements using established test methods for the principle forms of mercury present in the emissions, i.e., particle bound mercury, oxidized mercury and elemental mercury.

ii. The following USEPA methods and procedures shall be used for particulate matter and opacity measurements for the limestone handling and storage operations, as specified in 40 CFR 60.67:

Particulate Matter	Method 5 or Method 17
Opacity	Method 9

iii. The following USEPA methods and procedures shall be used for particulate matter and opacity measurements for solid fuel handling:

Particulate Matter - Method 5, the sampling time and sample volume for each run shall be at least 60 minutes and 0.85 dscm (30 dscf). Sampling shall begin no less than 30 minutes after startup and shall terminate before shutdown procedures begin (40 CFR 60.254)

Opacity - Method 9, opacity measurements shall be performed by a certified observer.

c. At least 60 days prior to the actual date of testing, a written test plan shall be submitted to the IEPA for review. This plan shall describe the specific procedures for testing and shall include at a minimum:

i. The person(s) who will be performing sampling and analysis and their experience with similar tests.

ii. The specific conditions, e.g., fuel supply, firing rate and control device operating rates, under which testing shall be performed including a discussion of why these conditions will be representative of maximum emissions and the means by which the operating parameters for the CFB boiler system will be tracked and recorded.

iii. The specific determinations of emissions that are intended to be made, including sampling and monitoring locations. As part of this plan, the Permittee may set forth a strategy for performing

emission testing in the normal load range of the CFB boiler.

- iv. The test method(s) which will be used, with the specific analysis method if the method can be used with different analysis methods.

- d. i. The Permittee shall notify the Illinois EPA prior to each of these tests to enable the Illinois EPA to observe these tests. Notification for the expected date of testing shall be submitted a minimum of 30 days* prior to the expected date, and shall be accompanied by a detailed plan describing the testing which will be performed. 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 at its discretion accept notifications with shorter advance notice provided that the Illinois EPA will not accept such notifications if it interferes with the Illinois EPA's ability to observe testing.
- ii. This notification shall also identify the parties that will be performing testing and the set or sets of operating conditions (i.e., boiler load and fuels) under which testing will be performed.
- e. Three copies of the Final Reports for these tests shall be forwarded to the Illinois EPA within 30 days after the test results are compiled and finalized. The Final Report from testing shall contain a minimum:
 - i. A summary of results;
 - ii. General information;
 - iii. Description of test method(s), including a description of sampling points, sampling train, analysis equipment, and test schedule;
 - iv. Detailed description of test conditions, including for the CFB boilers:
 - A. Fuel consumption (in tons) of the unit being tested.
 - B. Composition of fuel (Refer to Condition 11(a) and (c)).
 - C. Firing rate (million Btu/hr) of the unit being tested.
 - D. Control device operating rates, e.g., SNCR reagent injection rate, supplementary ash/lime injection rate, etc.
 - E. Turbine/Generator output rate (MWe).
 - v. Data and calculations, including copies of all raw data sheets and records of laboratory analysis, sample calculations, and data on equipment calibration.
- 9a. At a minimum, to confirm compliance with Condition 2(b)(i), the Permittee shall test particulate matter (PM) emissions from each CFB boiler in accordance with Condition 8 at a regular interval that is no greater than 36 months, i.e., PM testing of each CFB boiler at least once every 36 months. Notwithstanding the above, if the results of two of these PM tests consecutively for a boiler demonstrate PM emissions of

0.010 lb/mmBtu or less, the maximum interval for testing of such boiler may be doubled, i.e., PM testing at least once every 72 months. Provided however, if a PM test for such a boiler then shows PM emissions above 0.010 lb/mmBtu, the maximum interval between testing shall revert to 36 months until two consecutively tests again show PM emissions of 0.010 lb/mmBtu or less.

- b. Whenever PM testing for a CFB boiler is performed as required above, testing for emissions of mercury shall also be performed in accordance with Condition 8.
- 10a.
- i. The Permittee shall install, evaluate, operate, and maintain continuous opacity, SO₂, NO_x and CO monitoring systems and either an O₂ or CO₂ monitoring system on each CFB boilers.
 - ii. The type, location, and operating procedures for the monitoring equipment for the CFB boilers shall be approved by the Illinois EPA, prior to installation.
 - iii. The Permittee shall fulfill the applicable requirements for monitoring in the NSPS, 40 CFR 60.13, 60.47a, and 40 CFR 60 Appendix B.
- b. In addition, when NO_x or SO₂ emission data are not obtained from a continuous monitoring system because of system breakdowns, repairs, calibration checks and zero span adjustments, emission data will be obtained by using standby monitoring systems, emission testing using USEPA Reference Methods (Method 7 or 7A for NO_x and Method 6 for SO₂), or other approved methods as necessary to provide emission data for a minimum of 75 percent of the operating hours in a steam generating unit operating day, in at least 22 out of 30 successive steam generating unit operating days, pursuant to 40 CFR 60.47a(f) and (h).
- 11a.
- i. The Permittee shall sample and analyze the sulfur and heat content of the solid fuel supplied to the CFB boilers in accordance with USEPA Reference Method 19 (40 CFR 60, Appendix A, Method 19).
 - ii. This sampling and analysis shall include separate measurements for the sulfur and heat content of the solid fuel supplied to each of the CFB boilers.
- b. The Permittee shall install, evaluate, operate, and maintain meters to measure and record consumption of different fuels by each boiler.
 - c. The Permittee shall analyze representative sample of the various solid fuels that are components in the solid fuel supply to the CFB boilers and the fuel supply itself for mercury and other metals and chlorine content, as follows:
 - i. Analysis shall be conducted in accordance with USEPA Reference Method or other method approved by USEPA.
 - ii. Sampling of the fuel supply to the boiler itself shall be conducted in conjunction with performance testing of a CFB boiler.

- iii. Testing of the various solid fuels shall be conducted in conjunction with acceptance of a fuel from a new mine or coal waste disposal site and on at least a biennial basis thereafter.
- iv. The CAAPP permit may relax these requirements.

- 12a. i. The Permittee shall maintain a written fugitive dust control program describing the measures being implemented in accordance with Condition 3(c) to control fugitive dust at each area of the plant with the potential to generate significant quantities of fugitive dust. This program shall include estimated dust emissions control technique (e.g., water spray surfactant spray, water flushing, or sweeping); typical flow of water and additive concentration; normal frequency with which measures would be implemented; circumstances, e.g., recent precipitation, in which the measure would not be implemented; triggers for additional control, e.g. observation of 10 percent opacity; and calculated control efficiency.
- ii. The program shall be accompanied by maps or diagrams indicating the location of areas at the plant with the potential to generate fugitive dust, with description (length, width, surface material, etc.) and volume and nature of expected traffic or other activity.
- b. The Permittee shall submit a copy of this program to the Illinois EPA for review within 90 days of initial plant start up.
- 13a. The Permittee shall maintain the following records for the continuous monitoring systems required on the CFB boilers required pursuant to Conditions 10 and 11(b).
 - i. Records of the output of the systems.
 - ii. Records of maintenance, calibration and operational activity associated with the monitoring systems.
 - b. The Permittee shall maintain the following records with respect to operation and maintenance of each CFB boiler and associated control equipment:
 - i. An operating log for each CFB boiler system that at a minimum shall address:
 - A. Each startup of the boiler, including the nature of the startup, sequence and timing of major steps in the startup, any unusual occurrences during the startup, and any deviations from the established startup procedures, with explanation;
 - B. Each shutdown of the boiler including the nature and reason for the shutdown, sequence and timing of major steps in the shutdown, any unusual occurrences during the shutdown, and any deviations from the established shutdown procedures, with explanation; and

- C. Each malfunction of the boiler system that significantly impairs emission performance, including the nature and duration of the event, sequence and timing of major steps in the malfunction, corrective actions taken, any deviations from the established procedures for such a malfunction, and preventative actions taken to address similar events.

- ii. Inspection, maintenance and repair log(s) for each CFB boiler system that at a minimum shall identify such activities that are performed as related to components that may effect emissions; the reason for such activities, i.e., whether planned or initiated due to a specific event or condition, and any failure to carry out the established maintenance procedures, with explanation.
 - iii. Copies of the steam charts and daily records of steam and electricity generation from the plant.
- c. For each of the CFB boilers, the Permittee shall maintain records of the following items related to fuel and emissions:
- i. Records of SO₂ NO_x and PM emissions, as specified by 40 CFR 60 60.49a.
 - ii. The amount of fuel combusted in each boiler by type of fuel as specified in Method 19.
 - iii. A. The sulfur content of solid fuel, lb S/mmBtu, supplied to each boiler, as determined pursuant to Condition 11(a); and
B. The sulfur content of solid fuel supplied to each boiler on a 30-day rolling average, determined from the above data.
 - iv. With respect to the SO₂ reduction based limit in Condition 2(b)(ii), for each 30 day averaging period, the SO₂ emissions in lb/mmBtu and the required SO₂ emission rate as determined by applying the permissible emission fraction to the potential SO₂ emission rate of the solid fuel supply.
 - v. Records of the sampling and analysis of solid fuel supply to the CFB boilers conducted in accordance with Condition 11 (c).
- d. The Permittee shall keep inspection and maintenance logs for the PM filters associated with handling and storage of solid fuel and limestone.
14. All records, including written procedures and logs, required by this permit shall be kept at a readily accessible location at the plant and be available for inspection and copying by the Illinois EPA. These records shall also be retained for five years unless otherwise specified in a particular provision of this permit.
15. The Permittee shall comply with applicable reporting requirements under the Acid Rain Program, with a single copy of such report sent to Illinois EPA, Division of Air Pollution Control, Compliance Section, upon request.

16a. The Permittee shall fulfill applicable reporting requirements in the NSPS, 40 CFR 60.7(c) and 60.49a, for the CFB boilers. For this purpose, the semiannual reports shall be submitted no later than 30 days after the end of each six month period. (40 CFR 60.49a (i))

- b. In lieu of semiannual reports in Condition 15a, the facility may submit electronic quarterly reports for SO₂ and/or NO_x and/or opacity. The electronic reports shall be submitted no later than 30 days after the end of the calendar quarter and shall be accompanied by a certification statement from the owner/operator, indicating whether compliance with applicable emission standards and minimum data requirements of 40 CFR 60.49a were achieved during the reporting period. (40 CFR 60.49a (j))
 - c. Either as part the quarterly NSPS report or accompanying such report, the Permittee shall report to the Illinois EPA any and all opacity or emission measurements, which exceed the respective requirements, set by this permit. These reports shall provide for each such incident, the pollutant emission rate, the date and duration of the incident, and whether it occurred during startup, malfunction, breakdown, or shutdown. If an incident occurred during malfunction or breakdown, all corrective actions taken shall also be reported. These reports shall also specify periods during which the continuous monitoring systems were not in operation.
 - d. The Permittee shall report any other exceedance or violation of the requirements of this permit, not addressed above, to the Illinois EPA within 90 days of the discovery of the event. This report shall include the date and time of the incident, a description of the incident, the level of emissions on an hourly basis, and magnitude of the incident, a description of the corrective measures taken and efforts made to prevent future occurrences.
- 17a. The Permittee shall perform the evaluation of NO_x emissions from the CFB boilers required by Condition 2(c) in accordance with a plan submitted to the Illinois EPA for review and comment. The initial plan shall be submitted to the Illinois EPA for review and comment no later than 60 days after initial start-up of the CFB boiler.
- b. The plan shall provide for systematic evaluation of changes, within the normal or feasible range of operation, in the following elements as related to the monitored NO_x emissions:
 - i. Boiler operating load and operating settings.
 - ii. Operating rate and settings of the SNCR system.
 - iii. Flue gas temperature at SNCR injection point(s).
 - iv. Bed and combustion settings, including excess oxygen.
 - v. Amount and type of limestone added to the bed.
 - vi. Nitrogen content of the fuel supply.

- vii. Fabric filter pressure drop, cleaning cycle and operation.
- viii. Opacity and particulate matter emissions.
- ix. Ammonia slip.

- c. The Permittee shall promptly begin this evaluation after a CFB boiler demonstrates compliance with the applicable emission limits as shown by emission testing and monitoring. At this time, the Permittee shall submit an update to the plan that describes its findings with respect to control of NO_x emissions during the shakedown of the boiler, which highlights possible areas of concern for the evaluation.
 - d.
 - i. This evaluation shall be completed and a detailed written report submitted to the Illinois EPA within two years after the initial startup of a CFB boiler.
 - ii. These deadlines may be extended for an additional year if the Permittee submits an interim report demonstrating the need for additional time to effectively evaluate NO_x emissions and propose an alternative limit or limits for NO_x emissions.
 - e.
 - i. More stringent emission limits for NO_x emissions (but no more stringent than 0.07 lb/million Btu) shall be set as a result of this evaluation if the Illinois EPA finds that a CFB boiler can consistently comply with such limits. Additional parameters or factors, e.g., the nitrogen content of the fuel supply, may be included in such limits to address particular modes of operation during which such limits may or may not be achievable.
 - ii. If the Permittee fails to complete the evaluation or submit the required report in a timely manner, the NO_x emission limit shall automatically revert to the lower limit identified above, i.e., 0.070 lb NO_x per mmBtu.
18. Two copies of required reports and notifications concerning equipment operation or repairs, performance testing or continuous monitoring system shall be sent to:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Compliance Section
P.O. Box 19276
Springfield, Illinois 62794-9276

and one copy, except the Annual Emission Report required by 35 IAC 254, shall be sent to the Illinois EPA's regional office at the following address unless otherwise indicated:

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

19a. This permit shall become invalid as follows, pursuant to 40 CFR 52.21 (r)(2). This condition supersedes standard Condition 1. The Illinois EPA is administering these standards in Illinois on behalf of the United States EPA under a delegation agreement.

This Permit shall become invalid if construction of CFB boilers is not commenced within 18 months after this permit becomes effective, if construction of these boilers is discontinued for a period of 18 months or more, or if construction of these boilers is not completed within a reasonable period of time.

- b. For purposes of the above provisions, the definitions of "construction" and "commence" at 40 CFR 52.21 (b)(8) and (9) shall apply, which require that a source must enter into a binding agreement for on-site construction or begin actual on-site construction. (Also see the definition of "begin actual construction," 40 CFR 52.21 (b)(11))
20. 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.

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

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

cc: Region 3
USEPA

ATTACHMENT A

Table I

CFB Boiler Emission Limitations

Pollutant	Lb/mmBtu	Total Pounds/Hour	Total Tons/Year
NO _x	0.125	638	2,792
CO	0.27	1,377	6,031
VOM	0.007	35.7	161
SO ₂	0.25	1,275	5,590
TSP/PM ₁₀	0.015	76.5	336

Notes:

The permitted NO_x emission rate of 0.125 lb/mmBtu is subject to an optimization program.

Compliance with the emission rates expressed in pounds per million Btu heat input (lb/mmBtu) shall be determined in accordance with the provisions in Condition 2(b).

Compliance with hourly emission limits, which are total for both boilers, shall be based on 24-hour block averages (NO_x, CO and SO₂) and 3-hour block average (VOM and TSP/PM₁₀). Short-term emission rates do not apply during startup, shutdown or malfunction addressed by Condition 6(a)(ii).

All particulate matter (PM) shall be considered PM-10 unless emissions are tested by an appropriate USEPA test method for measurement of PM-10, as specified in 35 IAC 212.110(e).

Table II

Emission Limitations for Emission Units Other Than the CFB Boilers
(Pounds Per hour/Tons per Year)

Emission Unit	SO ₂	NO _x	PM	CO	VOM
Ash Handling and Storage			4.4/19.2		
Limestone Milling (Dryers)	1.0/4.4	2.8/12.5	12.3/53.9	1.6/7.4	0.2/0.5
Solid Fuel Handling and Storage			0.8/3.3		
Diesel Engine	1.2/0.3	11.1/2.78	0.1/0.03	1.0/0.25	0.4/0.1
Cooling Towers			1.3/5.6		
Fuel Oil Storage					0.1/0.1
Fugitive Dust (Roads, etc.)			11.0/48.1		
Total (Tons Per Year)	4.7	15.3	130	7.65	0.7

SRS:jar