

217/782-2113

CONSTRUCTION PERMIT

PERMITTEE

AmerenEnergy Resources Generating Company
Attn: Michael L. Menne, Vice President
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Post Office Box 66149
St. Louis, Missouri 63166-6149

Application No.: 06070048

I.D. No.: 057801AAA

Applicant's Designation:

Date Received: July 21, 2006

Subject: Alterations to Boiler, Turbine and Ancillary Equipment

Date Issued: February 16, 2007

Location: 17751 North Cilco Road, Canton, Fulton County

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and air pollution control equipment consisting of alterations to the boiler and turbine to increase capacity, accompanied by improvements to emission control equipment, as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special conditions.

If you have any questions on this permit, please call Shashi Shah at 217/782-2113 (TTD 217/782-9143).

Edwin C. Bakowski, P.E.
Acting Manager, Permit Section
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ECB:SRS:psj

cc: Region 2
USEPA Region V

TABLE OF CONTENTS

	Page
FINDINGS	3
SECTION 1: SOURCE-WIDE CONDITIONS	5
1.1 Effect of Permit	
1.2 Applicability of PSD to the Project	
1.3 Authorization to Operate	
SECTION 2: UNIT-SPECIFIC CONDITIONS FOR PARTICULAR EMISSION UNITS	7
2.1 Boiler	
2.2 Bulk Material Handling, Processing and Storage Operations	
2.3 Roadways	
SECTION 3: GENERAL PERMIT CONDITIONS	34
3.1 Standard Conditions	
3.2 Requirements for Emission Testing	
3.3 Requirements for Records for Deviations	
3.4 Retention and Availability of Records	
3.5 Notification or Reporting of Deviations	
3.6 General Requirements for Notification and Reports	
ATTACHMENTS	
1 Emission Limitations for the Affected Boiler	1-1
2 Summary of Emission Changes	2-1
3 Standard Permit Conditions	3-1
4 Applicable Emission Standards	4-1

FINDINGS

- 1a. AmerenEnergy Resources Generating (AmerenEnergy) has requested a construction permit for alterations to the single coal-fired generating unit at its Duck Creek Station. This project is intended to increase the potential steam output of the boiler to be able to consistently match the current capacity of the generator, 444 MW nominal gross output. The proposed alterations to the boiler include work on the superheater, economizer, soot blowers and induced draft fans. This work would be accompanied by improvements to the air pollution control equipment serving the boiler, including installation of a new ESP for enhanced control of particulate matter (PM) and additional catalyst in the selective catalytic reduction (SCR) system for enhanced control of nitrogen oxides (NO_x). The project will also include installation of an advanced combustion management system on the boiler, which will reduce the boiler's emissions of carbon monoxide (CO). The boiler would also be served by a new scrubber for control of sulfur dioxide (SO₂) and sulfuric acid mist, which scrubber was recently approved by the Illinois EPA under a separate permit, Construction Permit No. 06070049. The proposed alterations to the generating unit may also include work on the steam turbine-generator and other ancillary equipment to improve efficiency and capacity, which would potentially increase the capacity of the generating unit, so that it would be able to produce about 465 MW.
- b. After planned alterations to the boiler, its rated heat input capacity would be approximately 4,500 million Btu/hour. The boiler would continue to fire coal as its primary fuel, with distillate fuel oil used for startup. The design coal supply for the boiler after alterations would have 3.63 percent sulfur by weight and 10,750 Btu per pound as received, for an equivalent nominal SO₂ emission rate of 6.75 lbs per million Btu.
2. The Duck Creek Generating Station is located in Fulton County. The area is designated attainment for all criteria air pollutants.
3. The project is being permitted based on the project not being subject to PSD for emissions of PSD pollutants, including emissions of SO₂, NO_x, PM (both as filterable particulate matter and particulate matter 10 (PM₁₀)), volatile organic material (VOM), sulfuric acid mist, and CO. This is because AmerenEnergy has shown that the project should not be accompanied by significant increases in emissions of these pollutants, as defined by the PSD rules. In particular, Ameren has submitted a demonstration comparing the past actual emissions of the existing Duck Creek Unit and the project future emissions with this project. This demonstration shows that this project should be accompanied by decreases in annual emissions of at least 6,300 tons of SO₂, 350 tons of NO_x, 350 tons of PM and 300 tons of PM₁₀, and 50 tons of CO. (See also Attachment 2, Table 2-A.)
4. After reviewing the materials submitted by AmerenEnergy, the Illinois EPA has determined that this project is being designed to

comply with applicable state and federal emission standards and requirements.

5. A copy of the application, the project summary prepared by the Illinois EPA, and a draft of this permit were placed in a public repository near the source, and the public was given notice and an opportunity to examine this material and to participate in a public hearing and to submit comments on these matters.

6. The advanced combustion management system and related improvements to the combustion features of the boiler were added to this project after the close of the public comment period. This occurred after Ameren decided to expand the scope of this project to also include these improvements to the boiler related to combustion. Based on the supplement to the application submitted by Ameren, with these additional improvements, this project was no longer a major project for emissions of CO, as CO emissions of the boiler would be reduced below historic levels. Ameren requested that it only be issued a state construction permit for the project, rather than a PSD permit. In light of this request, a BACT determination was not made for CO emissions and other requirements of the PSD rules for a proposed major modification ceased to be applicable to this project. Provisions of the draft permit that would have been imposed pursuant to or otherwise related to the requirements of the PSD rules for a major project were not carried over from the draft permit into this permit.

SECTION 1: SOURCE-WIDE PERMIT CONDITIONS

CONDITION 1.1: EFFECT OF PERMIT

- a. This permit does not relieve the Permittee of the responsibility to comply with all local, state and federal regulations that are part of the applicable Illinois' State Implementation Plan, as well as all other applicable federal, state and local requirements.
- b. In particular, this permit does not relieve the Permittee from the responsibility to carry out practices during the construction and operation of the project, such as application of water or dust suppressant sprays to unpaved traffic areas, as necessary to minimize fugitive dust and prevent an air pollution nuisance from fugitive dust, as prohibited by 35 IAC 201.141.

CONDITION 1.2: APPLICABILITY OF PSD TO THE PROJECT

- a. This Permit is issued based on this project not being subject to PSD for emissions of PSD pollutants, including emissions of SO₂, NO_x, PM, PM₁₀, VOM, sulfuric acid mist, and CO. In particular, Ameren has submitted a demonstration comparing the past actual emissions from the existing Duck Creek Unit and the projected future actual emissions that would occur after this project, showing that this project should be accompanied by decreases in annual emissions of PSD pollutants or less than significant increases (VOM). (See also Attachment 2, Table 2-A.)
- b. The Permittee shall, for a period beginning with the first alteration of the boiler addressed by this permit with the potential to increase emissions and continuing for 10 years following resumption of regular operation after this project is completed, operate the source in such a manner that this project does not result in a significant increase in emissions of and qualify as a major modification for emissions of PSD pollutants.
- c. The Permittee shall fulfill the relevant recordkeeping and reporting requirements of the PSD rules, 40 CFR 52.21(r)(6)(iii) and (iv), for the affected emissions units at this source and this project, to verify that the project has not resulted in a significant increase in emissions of PSD pollutants.
- d.
 - i. If the new induced draft fans on the boiler will be installed and begin operation prior to completion of the improvements to the emission control equipment on the boiler, (i.e., additional catalyst in the SCR, new ESP, new scrubber, and advanced combustion management system), the Permittee shall notify the Illinois EPA, describing the measures that will be taken to ensure that emissions of PSD pollutants will not increase during the interim period until all improvements to emissions control equipment are completed.
 - ii. If the existing scrubber on the boiler is not able to continue in service to control emissions of the boiler until the new scrubber begins operation, the Permittee shall notify

the Illinois EPA, describing the measures, e.g., use of low-sulfur compliant coal, that will be taken to ensure that emissions of PSD pollutants will not increase during the interim period until the new scrubber is operational.

CONDITION 1.3: AUTHORIZATION TO OPERATE

- a.
 - i. Under this permit, the affected boiler and associated control equipment may be operated for a period that begins when the first change is made to the boiler pursuant to this project and ends on the date that emissions testing for the boiler required by Condition 2.1.8 must be performed (which period allows for equipment shakedown and required emissions testing). This condition supersedes Standard Condition 6. (See Attachment 3.)
 - ii. Upon successful completion of emission testing of the affected boiler demonstrating compliance with applicable limitations and requirements, the Permittee may continue to operate the boiler and associated control equipment under this permit if the Permittee has submitted a timely and complete application for revision of its CAAPP permit, as provided for by Section 39.5(5) of the Environmental Protection Act.
- b. As part of its application for a revised CAAPP permit to address this project, the Permittee shall comply with applicable requirements of 40 CFR Part 64, Compliance Assurance Monitoring (CAM), by submitting CAM Plans for pollutant-specific emission units at the source.

SECTION 2: UNIT-SPECIFIC CONDITIONS FOR PARTICULAR EMISSION UNITS

CONDITION 2.1: UNIT-SPECIFIC CONDITIONS FOR THE BOILER

2.1.1 Emission Unit Description

The affected unit for the purpose of these unit-specific permit conditions is the coal-fired utility boiler and associated air pollution control train (Duck Creek Unit 1), as altered pursuant to the project addressed by this permit. In addition to continuing to fire coal, the boiler would also continue to have the capability to burn oil, which would be used for startup of the boiler. The boiler would be considered to be altered when planned changes to the boiler are completed or such earlier date that the capacity of the induced draft fans on the boiler is increased, which by itself would act to effectively increase the heat input capacity and potential emissions of the boiler.

2.1.2 List of Emission Units and Air Pollution Control Equipment

Unit I.D.	Description	Emission Control Equipment
Boiler B-1	Riley Stoker Boiler	Advanced Combustion Management System, LNB, SCR, ESP and FGD

2.1.3 Applicable Emission Standards

- a. This permit does not affect the federal or state emission standards that are applicable to the affected boiler, including applicability of the federal New Source Performance Standards (NSPS) for Electric Utility Steam Generating Units, 40 CFR 60, Subpart D, to the boiler, as addressed in existing permits for the boiler.
- b. The affected boiler is subject to 35 IAC Part 225, Subpart B: Control Of Mercury Emissions From Coal-Fired Electric Generating Units. The emissions of mercury from the boiler shall begin complying with the applicable emission standards pursuant to these rules by the specified compliance dates and the Permittee shall comply with all applicable requirements of these rules, consistent with the particular option selected by the Permittee for compliance.

2.1.4 Nonapplicability Provisions

- a. This permit is issued based on the affected boiler not being subject to the NSPS, 40 CFR 60, Subpart Da, for any pollutants for which this NSPS sets standards because this project will not be accompanied by any increase in emissions of such pollutants from the affected boiler on an hourly basis, comparing past emissions and future emissions of the boiler, which increase in emissions would result in applicability of the NSPS for a pollutant. This is a consequence of the enhanced control of emissions provided by the new ESP and scrubber. The affected boiler would only be

considered modified for purposes of applicability of 40 CFR 60, Subpart Da to a particular pollutant if future emissions of such pollutant from the boiler exceed the past actual emission rate. (See Attachment 2, Table 2-B.)

2.1.5. Applicability of Emissions Control Programs

- a. The affected boiler is an affected unit under the Acid Rain Deposition Control Program, as addressed in the existing Acid Rain Permit issued to the Permittee. As an affected unit, the boiler is subject to an emission standard for NO_x and the Permittee must conduct emission monitoring for SO₂ and NO_x emissions and hold SO₂ allowances for the SO₂ emissions of the boiler during each year, in accordance with 40 CFR Parts 72, 73 and 75.
- b.
 - i. The affected boiler is an Electrical Generating Unit (EGU) for purposes of 35 IAC Part 217, Subpart W, the NO_x Trading Program for Electrical Generating Units, pursuant to which the Permittee must hold NO_x allowances for the NO_x emissions of the boiler during each seasonal control period.
 - ii. The affected boiler will also be an EGU for purposes of the USEPA's Clean Air Interstate Rule (CAIR). When this program takes effect for Illinois, the Permittee will be required to hold both SO₂ and NO_x allowances for the emissions of the boiler in accordance with requirements of Illinois's CAIR program.

2.1.6 Operating Requirements

- a. The Permittee shall minimize emissions of the affected boiler during startup by use of oil or other liquid or gaseous auxiliary fuel during startup to heat the affected boiler prior to initiating firing of coal.
- b. The Permittee shall operate the affected boiler and associated air pollution control equipment (including the combustion management system) in accordance with good air pollution control practices to minimize emissions of CO and other pollutants for which limitations have been established in this permit, by operating in accordance with detailed written operating procedures as it is safe to do so. These procedures at a minimum shall:
 - i. Address startup, normal operation, shutdown, and malfunction events with detailed provisions for review of relevant operating parameters of the affected boiler and control equipment during these events as necessary to make adjustments and corrections to reduce or eliminate any excess emissions.

- ii. Specifically with respect to startup, address readily foreseeable startup scenarios, including so called "hot startups" when the operation of the boiler is only temporarily interrupted, and provide for appropriate review of the operational condition of the boiler prior to initiating startup of the boiler.
 - iii. 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, the Permittee shall, as soon as practicable, repair the affected equipment, reduce the operating rate of the boiler, remove the boiler from service or take other action so that excess emissions cease.
- c. The Permittee shall inspect, maintain and repair the affected boiler and associated air pollution control equipment in accordance with good air pollution control practices to assure proper functioning of equipment and minimize malfunctions, including maintaining the boiler in accordance with written procedures developed for this purpose.
 - d. The Permittee shall handle the fuel for the affected boiler in accordance with a written fuel management plan that shall be designed to provide the boiler with a consistent fuel supply that meets relevant criteria needed for proper operation of the boiler and its control systems.
 - e. The Permittee shall review its operating and maintenance procedures and its Fuel Management Plan for the boiler as required above on a regular basis and revise them, if needed, consistent with good air pollution control practices 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 by the existing plans or a specific request by the Illinois EPA for such review.

2.1.7 Emission Limitations

- a. The emissions of PM, SO₂ and NO_x from the affected boiler shall not exceed 367, 5,400 and 2,200 pounds/hour, respectively. Compliance with these limitations shall be determined from equipment operation, as addressed by Condition 2.1.6, emissions testing as required by Conditions 2.1.8, and monitoring as required by Condition 2.1.9.

2.1.8 Emissions Testing

- a. i. A. Not later than 180 days after initial startup of the affected boiler with new induced draft fans or 60 days after achieving the maximum

production rate at which the affected boiler with new induced draft fans will be operated, whichever occurs first, the Permittee shall have tests conducted for emissions of CO, PM (filterable and condensable), VOM, hydrogen chloride, fluorides, sulfuric acid mist, and mercury and other metals and for opacity from the boiler, as follows, at its expense by an approved testing service while the boiler is operating at maximum operating load and other representative operating conditions. (In addition, the Permittee may also perform emissions measurements to evaluate emissions at other load and operating conditions.)

- B. The period of time for performance of emissions testing may be extended by the Illinois EPA for up to an additional 365 days upon written request by the Permittee as needed to accommodate unforeseen difficulties in the shakedown and testing of the affected boiler, provided that an operational evaluation of the emissions of CO and PM of the boiler has been completed and the results of such evaluation submitted to the Illinois EPA.

- ii. Between 9 and 15 months after performance of the initial emissions testing that demonstrates compliance with applicable requirements, the Permittee shall have the emissions of PM (filterable and condensable), VOM, fluorides and sulfuric acid mist from the affected boiler retested in accordance with this condition.

- iii. A. Thereafter, until the Permittee is subject to provisions of a CAAPP permit that address periodic emissions testing, the Permittee shall also test emissions of PM (filterable and condensable) and sulfuric acid mist from the affected boiler, as provided below, at a regular interval that is no greater than 30 months, except as follows. If the results of two of these PM tests for the boiler in series demonstrate filterable PM emissions that are 0.015 lb/million Btu or less, the maximum interval for PM testing of such boiler will be at least once every 48 months. However, if a PM test for such affected boiler then shows PM emissions that are more than two thirds of an applicable limit, the maximum interval between testing shall revert to 30 months until two consecutive tests again show PM emissions that are two thirds or less than the applicable limits. For the purpose of these provisions,

the two consecutive tests must be at least 24 months apart.

- B. Whenever PM testing for the boiler is performed as required above, emissions testing for CO shall also be conducted if continuous emissions monitoring is not conducted pursuant to Condition 2.1.9(b)(i).
- iv. In addition to the emissions testing required above, the Permittee shall have testing of the boiler performed in accordance with this condition within 45 days of a written request by the Illinois EPA or such later date agreed to by the Illinois EPA, as requested by the Illinois EPA.
- b. The following methods and procedures shall be used for testing:
 - i. The following test methods shall be used unless use of other methods adopted by or being developed by USEPA is approved by the Illinois EPA as part of the approval of a test plan.

Sampling Points	Method 1
Gas Flow/Velocity	Method 2
Flue Gas Weight	Method 3 or 3A
Moisture	Method 4
PM - Filterable ¹	Method 5 or 5B and Method 201 or 201A (40 CFR 51, Appendix M), with Method 19
PM - Condensable	Method 202 ²
CO	Method 10
VOM ³	Methods 18 and 25A
Hydrogen Chloride	Method 26
Fluorides (HF)	Method 26
Sulfuric Acid Mist	Method 82
Metals ⁴	Method 29
Opacity	Method 9

Notes:

1. The Permittee may report all PM emissions measured by USEPA Method 5 or 5B as filterable PM, in which case separate testing using USEPA Method 201 or 201A need not be performed to measure filterable PM₁₀.
2. The following procedures in Method 202 shall be used to minimize potential biases in the measurement: Paragraph 5.2.1 (post-test nitrogen purge), Paragraph 5.3.2.3 (counting NH₄Cl as particulate, with air drying of final 1 ml of liquid), and Paragraph 8.1 (determination of NH₄⁺ retention by titration). Alternatively,

the determination of condensable PM may be determined with USEPA's Conditional Test Method 0-39, *Measurement of PM_{2.5} And PM₁₀ Emissions by Dilution Sampling (Constant Sampling Procedures)*.

3. The Permittee may exclude methane, ethane and other exempt organic compounds from the results of any VOM test provided that the method used to quantify and correct for the presence of any such compounds in the exhaust of the boiler is included in the test plan approved by the Illinois EPA.
 4. Testing for metals shall address emissions of mercury, arsenic, beryllium, cadmium, chromium, lead, manganese, and nickel.
- ii. The results of emission testing may be summarized as the average of individual test runs to determine compliance, as provided by 40 CFR 60.8(f) and 35 IAC Part 283.
- c. i. Test plans, test notifications, and test reports shall be submitted to the Illinois EPA in accordance with the Condition 3.2.
- ii. In addition to other information required in a test report, test reports shall include detailed information on the operating conditions of the boiler during testing, including:
- A. Fuel consumption (in tons);
 - B. Composition of fuel (Refer to Condition 2.1.10-1(a)), including the metals, chlorine and fluorine content, expressed in pound per million Btu;
 - C. Firing rate (million Btu/hr) and other significant operating parameters of the boiler;
 - D. Control device operating parameter, as monitored during emissions testing;
 - E. Monitored SO₂ and NO_x emissions from the boiler;
 - F. Monitored opacity of the boiler, 6-minute averages and 1-hour averages; and
 - G. Turbine/Generator output (MW gross).

2.1.9 Emissions Monitoring - SO₂, NO_x and Opacity

- a. The Permittee shall continue to conduct continuous emissions monitoring for SO₂, NO_x and opacity in accordance with currently applicable requirements of the Acid Rain Program and the NO_x Trading Program and future applicable requirements of CAIR. As new emissions monitoring systems are installed or existing systems are relocated, these systems must be certified in accordance with applicable requirements, which certifications shall be completed no later than the initial emissions testing required by Condition 2.1.8.
- b.
 - i. The Permittee shall conduct continuous emissions monitoring for CO in accordance with relevant requirements of the NSPS, including Performance Specification 4 (40 CFR 60, Appendix B, Performance Specification 4). This system must be certified in accordance with applicable requirements, which certifications shall be completed prior to or in conjunction with the initial emissions testing required by Condition 2.1.8.
 - ii. After at least two years of operation of this system, if the emissions of CO from the affected boiler measured by monitoring are no more than 0.120 lb/million Btu during normal operation of the boiler, the Permittee may request and the Illinois EPA may approve conversion of the CO monitoring system to an operational monitoring system. If such approval is given, the system shall no longer be subject to relevant requirements for an emissions monitoring system and shall instead be subject to general requirements for operational monitoring in accordance with good monitoring practice.
- c. The data management system(s) associated with the continuous emissions monitoring systems shall have the ability to appropriately handle collected monitoring data, as well as relevant operational data, to determine emissions in the various terms that are needed to verify compliance with applicable emission standards, limits, and requirements.
- d. The Permittee shall keep logs for the operation, calibration and maintenance of these monitoring systems.

2.1.10-1 Sampling and Analysis of Coal

- a. The Permittee shall analyze samples of all coal supplies that are components of the coal supply to the boiler and the coal supply, itself, for heat content and sulfur, mercury and other metals and chlorine content, as follows. Analyses shall be conducted in accordance with relevant USEPA Reference Methods or standard ASTM method.

- i. Analysis of the fuel supply to the boiler, itself, shall be conducted in conjunction with emissions testing.
- ii. Analysis of representative samples of coal shall be conducted in conjunction with the acceptance of coal from a new source by the Permittee.
- iii. Analysis of representative samples of coal shall be conducted at least every three years, if a more frequent analysis is not needed pursuant to the above requirements.

2.1.10-2 Operational Monitoring and Instrumentation

- a. The Permittee shall install, operate, and maintain instrumentation to measure consumption of oil and other auxiliary fuels by the affected boiler.
- b. The Permittee shall install, operate and maintain instrumentation and continuous monitoring systems to measure key operating parameters of the control system for the boiler, as follows:
 - i. For the SCR system, instrumentation to measure reagent injection rate(s) and flue gas temperature(s);
 - ii. For the ESP, a monitoring system for:
 - A. For any flue gas conditioning system, the injection rate of condition agent(s), by type;
 - B. For each ESP field, the following numerical data: (1) Primary voltage and current; (2) Secondary voltage and current; and (3) Sparking rate; and
 - C. For the ESP as a whole, total electrical power to the ESP.
 - iii. For the scrubber, a monitoring system for:
 - A. For the absorber section, scrubbant circulation rate and rate of supplemental chemical addition, if any; and
 - B. For the demister section, water flow rate.
- c. The Permittee shall maintain records of the measurements made by these systems and records of maintenance and operational activity associated with these systems.

2.1.11 Recordkeeping

- a. The Permittee shall maintain the following records with respect to operation and maintenance of the affected boiler and associated control equipment (including the combustion management system):
 - i. An operating log or other record 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 or control equipment 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 to address such a malfunction, and preventative actions taken to address similar events.
 - ii. Inspection, maintenance and repair log(s) for the components of the boiler that may affect emissions, and for each item of control equipment that, at a minimum, shall identify such activities that are performed; 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. Records of steam production and electricity generation from the boiler/generating unit.
- b. The Permittee shall maintain the following records related to the fuel used in the affected boiler:
 - i. Records of the amount of fuel fired in the boiler by type.
 - ii. Records of the sulfur content of coal supply for the boiler, lb sulfur/million Btu.

- iii. Records of the sampling and analysis of the coal supply for the boiler conducted pursuant to Condition 2.1.10-1.
- c. The Permittee shall maintain the following records related to emissions of pollutants other than PM from the affected boiler:
- i. Records for operation and SO₂ and NO_x emissions, as specified by the NSPS, 40 CFR 60 Subpart D.
 - ii. For SO₂ and NO_x (and CO, if continuous emissions monitoring is performed), records of hourly emissions for the boiler as determined from the continuous emissions monitors and other means when monitored data is not available.
 - iii. For pollutants for which continuous emissions monitoring is not performed, i.e., sulfuric acid mist, VOM, lead, fluorides, hydrogen chloride and CO, if applicable, the following records:
 - A. Records of the unit-specific emission factors used by the Permittee to determine emissions, with supporting documentation.
 - B. Records of emissions based on fuel usage, operating data for the boiler and associated control equipment, and appropriate emission factors, as addressed above, with supporting calculations.
- d. The Permittee shall maintain the following records related to PM emissions of the boiler:
- i. Records of the unit-specific PM emission factor(s) used by the Permittee to determine emissions, with supporting documentation.
 - ii. Records for the affected boiler that identify the upper bound of the 95% confidence interval for value(s) of operational parameters for the boiler and associated control equipment, considering an hour of operation, within which compliance with the applicable PM emission factor is assured, with supporting explanation and documentation, including results of historic emission tests. At a minimum, these records shall be reviewed and revised as necessary following performance of each subsequent PM emission tests on the affected boiler.
 - iii. Each hour when the measured operating parameter(s) of the affected boiler were above the upper bound, as specified above, with: (1) Date, time, explanation of the incident; (2) Whether PM emissions may have

exceeded the standard PM factor; (3) The estimated actual PM emission factor, with explanation; and (4) Whether the PM emissions may have exceeded applicable emission standards or requirements, with explanation.

- iv. Records of PM emissions based on fuel usage, operating data for the boiler and associated control equipment, and appropriate emission factors, as addressed above, with supporting calculations.
- e. The Permittee shall record the following information for any period during which the operation or emissions of the affected boiler deviated from an applicable requirement:
 - i. Identification of each such deviation, including applicable emission limits or requirements from which the deviation occurred, which records shall include at least the information specified by Condition 3.3.
 - ii. Each period during which the value(s) of operating parameters exceeded the level at which the Permittee has determined that the boiler would comply with applicable PM emission standards.

2.1.12 Notifications

- a. The Permittee shall notify the Illinois EPA within 30 days of deviation(s) from applicable requirements that result from or accompany a major breakdown of the air pollution control equipment on the affected boiler, i.e., a failure of control equipment such that emissions of a pollutant from the affected boiler may be more than twice the required level. These notifications shall include the information specified by Condition 3.5.

2.1.13 Reporting

- a. The Permittee shall fulfill applicable reporting requirements of the NSPS for the affected boiler. For this purpose, quarterly reports shall be submitted to the Illinois EPA no later than 30 days after the end of each calendar quarter.
- b. Within nine months of the initial startup of the advanced combustion management system on the affected boiler, the Permittee shall submit a performance report to the Illinois EPA for the system that includes: (1) A description of the system; (2) A summary of the operational experience with the system; (3) A summary of representative CO emissions data collected over a period of at least 3 months of operation of the system, including data expressed in lb CO/million Btu; (4) A discussion of the system's effect on the CO emissions of the boiler; and (5) A discussion of any other significant effects on emissions or operation of the boiler, such as NO_x emissions, energy efficiency, or carbon carry over in ash, that were observed with the system.

- c. If continuous emissions monitoring is conducted for the affected boiler for CO pursuant to Condition 2.1.9(b), the Permittee shall report the following information to the Illinois EPA related to that monitoring and CO emissions of the boiler with its quarterly NSPS monitoring reports:
 - i. The following information, in accordance with relevant requirements of 40 CFR 60.7:
 - A. Summary information on the performance of the CO CEMS, including the information for a "Summary Report" specified by 40 CFR 60.7(d). When the CO CEMS was not inoperative, repaired or adjusted except for zero and span checks, this shall be stated in the report.
 - B. If specifically requested by the Illinois EPA or the CO CEMS downtime was more than 5 percent of the total operating time for the affected boiler: the date and time identifying each period during which the CEMS was inoperative except for zero and span checks, and the nature of CEMS repairs or adjustments and a summary of quality assurance data consistent with 40 CFR Part 75, i.e., the dates and results of the Linearity Test(s) and any Relative Accuracy Test Audit(s) during the quarter, a listing of any days when a required daily calibration was not performed, and the date and duration of any periods when the CEMS was out-of-control as addressed by 40 CFR 75.24.
 - ii. The information specified by Condition 3.5 for each period when CO emissions were in excess of the applicable emission standard (35 IAC 216.121, including the following. When there were no such exceedances, this shall be stated in the report.
 - A. The starting date and time and the duration of excess emissions.
 - B. The measured emission rate and the allowable emission rate, based on the applicable standard.
- c. i. Either as part of the periodic NSPS reports or accompanying such reports, the Permittee shall report to the Illinois EPA the information specified by Condition 3.5 for any and all emission and opacity measurements for the affected boiler that are in excess of an applicable emission standard or a limitation set by this permit. These reports shall also address any deviations from applicable compliance procedures for the boiler established by

this permit, including periods during which required continuous monitoring system was not conducted in accordance with applicable requirements.

- ii. For opacity, these reports shall include the following detailed information for each period when the opacity of the affected boiler was in excess of an applicable emission standard.
 - A. The starting dates and time and the duration of the exceedances.
 - B. The magnitude of excess opacity, based on six minute average opacity, including:
 - 1. The percent opacity for each six-minute period.
 - 2. The start and stop time of each six-minute period in excess of the limitation.
 - C. A detailed explanation of the cause of excess opacity, if known, including whether such excess opacity occurred during startup, malfunction or breakdown of the boiler.
 - D. A detailed explanation of corrective actions and actions taken to lessen the opacity.
 - E. Identification of any previous report for the incident submitted to the Illinois EPA. For this purpose, the Permittee need not resubmit copies of such report but may elect to supplement such material.
 - F. A summary of the required operating records for incidents when operation of the affected boiler continued during malfunction or breakdown with excess emissions.

iv. For PM, these reports shall also include the following information for each period when PM emissions were in excess of an applicable emission standard or limitation set by this permit. If there were no such exceedances during the reporting period, the quarterly report shall so state.

- A. A summary of information for each period of exceedance that includes:
 - 1. The starting date and time and the duration of the exceedance.
 - 2. The magnitude of the exceedance.

3. The means by which the exceedance was indicated or identified.
 4. The percent opacity measured for each six-minute period during the exceedance.
 5. A detailed explanation of the cause of the exceedance, including whether the exceedance occurred during startup, malfunction or breakdown.
 6. A detailed explanation of corrective actions and actions taken to lessen the emissions.
- B. Identification of any previous report for the incidents submitted to the Illinois EPA. For this purpose, the Permittee need not resubmit a copy of such report but may elect to supplement such material.
- v. The following summary information related to opacity and PM exceedances, if any opacity or PM exceedances occurred during the quarter:
- A. Further information for each type of recurring opacity exceedance that occurred during the quarter, including: a discussion of any circumstances or events during the quarter that generally affected the number or magnitude of such exceedances; a discussion of any additional understanding of the causes for such exceedances gained during the quarter, including the role of component failure or degradation, maintenance practices, and operating procedures; a general discussion of the effectiveness of the corrective actions that were taken in response to such exceedances; and a general discussion of further actions that are being considered to address such exceedances.
 - B. Further information for any new type(s) of opacity exceedances that occurred during the quarter including: a general narrative description for the type(s) of exceedance; a general explanation of the cause(s) for such exceedances, including the role of component failure or degradation, maintenance practices, and operating procedures; a detailed explanation of the corrective actions that have been taken for such exceedances, including the reasons that the selected actions were taken, the effectiveness of those actions, and the

likelihood of future occurrence of similar exceedances; and a general discussion of possible further actions that could be taken to address such exceedances. For this purpose, new type(s) of exceedance are ones that have not been addressed in the preceding four quarterly opacity reports.

- C. Other information relevant to generally explaining the number and magnitude of opacity and PM exceedances during the quarter, e.g., a further discussion of specific events or circumstances that occurred that affected the number and magnitude of exceedances during the quarter.
- D. Information describing actions taken during the quarter that should generally act to significantly reduce the number or magnitude of future opacity or PM exceedances, e.g., a summary of relevant upgrades or replacements of components that were completed, with a description of such actions, an explanation of their relationship to exceedances, and a discussion of their anticipated effect on future exceedances.
- E. A glossary of common technical terms used by the Permittee in its reports pursuant to this condition, including the definitions for the categories used by the Permittee to classify exceedance events for opacity and PM.

CONDITION 2.2: UNIT-SPECIFIC CONDITIONS FOR FUEL AND OTHER BULK MATERIAL HANDLING, STORAGE, PROCESSING AND LOAD OUT OPERATIONS

2.2.1 Description of Emission Units

The affected units for the purpose of these unit-specific conditions are the emission units at the source that handle coal and other bulk materials that are involved with the operation of the affected boiler and that have the potential for particulate matter (PM) emissions. In addition to coal fuel for the boiler, which is received by rail and truck, limestone is received, handled and stored as a raw material for the scrubber on the boiler. Bottom ash, fly ash and gypsum, which are by-products of the boiler, ESP and scrubber, are also handled, stored and transported by truck.

PM emissions from the units that handle dry materials will be controlled by various measures including enclosure and covers, application of water and dust suppressants, and dust collection devices. PM emissions associated with certain affected units that handle wet material, such as gypsum, will be minimized because the material is wet.

2.2.2 Control Technology Determination

Not applicable.

2.2.3 Applicable Emission Standards

The affected units shall comply with applicable emission standards for PM and opacity, as identified in the existing permits for the units. (See also Attachment 4.)

2.2.4 Nonapplicability of Emission Standards of Potential Concern

None

2.2.5 Applicability of Other Requirements

This permit does not alter or affect the requirements for the affected units established in other permits.

2.2.6 Operating Requirements

- a. The Permittee shall implement and maintain control measures for the affected units, such as enclosure, natural surface moisture, application of dust suppressant, and use of dust collection devices, that minimize visible emissions of PM and provide assurance of compliance with the applicable emission standards.
- b. The Permittee shall operate and maintain each affected unit that is not controlled with a baghouse or other filter-type control device with the control measures identified in the records required by Condition 2.2.11(a)(ii).

2.2.7 Emission Limitations

None

2.2.8-1 Opacity Observations

- a. Unless otherwise specified by applicable provisions of the source's CAAPP permit for the affected units, the Permittee shall have the opacity of the emissions of the affected units during representative weather and operating conditions determined by a qualified observer in accordance with USEPA Test Method 9, as further specified below.
 - i. If emissions are normally visible from a unit when it is in operation, as determined by USEPA Reference Method 22, opacity testing shall be conducted at least annually.
 - ii. Upon written request by the Illinois EPA, such testing shall be conducted for specific affected units within 45 calendar days of the request or on the date agreed upon by the Illinois EPA, whichever is later.
- b. The duration of opacity observations for each test shall be at least 30 minutes (five 6-minute averages) unless the average opacities for the first 12 minutes of observations (two six-minute averages) are both less than 5.0 percent.
- c.
 - i. The Permittee shall notify the Illinois EPA at least 7 days in advance of the date and time of these tests, in order to allow the Illinois EPA to witness testing. This notification shall include the name and employer of the qualified observer(s).
 - ii. The Permittee shall promptly notify the Illinois EPA of any changes in the time or date for testing.
- d. The Permittee shall provide a copy of its observer's readings to the Illinois EPA at the time of testing, if Illinois EPA personnel are present.
- e. The Permittee shall submit a written report for this testing within 15 days of the date of testing. This report shall include:
 - i. Date and time of testing.
 - ii. Name and employer of the qualified observer(s).
 - iii. Copy of the current certification of the observer(s).
 - iv. Description of observation conditions, including recent weather.

- v. Description of the operating conditions of the affected processes.
- vi. Raw data.
- vii. Opacity determinations.
- viii. Conclusions.

2.2.8-2 Emissions Testing

- a. Unless otherwise specified by applicable provisions of the source's CAAPP permit for the affected units, within 90 days of a written request from the Illinois EPA, the Permittee shall have the PM emissions at the stacks or vents of affected units, as specified in such request, measured during representative operating conditions, as set forth below.
- b.
 - i. Testing shall be conducted using appropriate USEPA Test Methods, including Method 5 or 17 for PM emissions.
 - ii. Compliance may be determined from the average of three valid test runs, subject to the limitations and conditions contained in 35 IAC Part 283.
- c. The Permittee shall submit a test plan to the Illinois EPA at least 60 days prior to testing, which plan shall include the information for test plans specified by Condition 8.6.2 of the source's CAAPP permit.
- d. The Illinois EPA shall be notified prior to these tests to enable the Illinois EPA to observe these tests. Notification of 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, at its discretion, accept notification with shorter advance notice provided that the Illinois EPA will not accept such notification if it interferes with the Illinois EPA's ability to observe the testing.
- e. The Permittee shall expeditiously submit Final Report(s) for required emission testing to the Illinois EPA, no later than 90 days after the date of testing. These reports shall include the information specified in Condition 8.6.3 of the source's CAAPP permit and the following information:
 - i. A summary of results.
 - ii. Detailed description of test method(s), including description of sampling points, sampling train, analysis equipment, and test schedule.

- iii. Detailed description of the operating conditions of the affected unit during testing, including operating rate (tons/hour) and the control measures being used.
- iv. Detailed data and calculations, including copies of all raw data sheets and records of laboratory analyses, sample calculations, and data on equipment calibration.
- v. Representative opacity data (6-minute average) measured during testing.

2.2.9 Operational Instrumentation

None

2.2.10 Inspections

- a. For affected units for which requirements for periodic inspections are not set by applicable provisions of another permit, the Permittee shall conduct inspections of the units on at least a monthly basis with personnel who are not directly responsible for the day-to-day operation of these units, for the specific purpose of verifying that the measures identified in the operating program and other measures required to control emissions from the units are being properly implemented.

2.2.11 Recordkeeping

- a. The Permittee shall maintain file(s), which shall be kept current, that contain:
 - i. A. For the baghouses and other filter devices associated with affected units, design specifications for each device (type of unit, maximum design exhaust flow (acfm and scfm), filter area, type of filter cleaning, performance guarantee for particulate exhaust loading in gr/scf, etc.), the manufacturer's recommended operating and maintenance procedures for the device, and design specification for the filter material in each device (type of material, surface treatment(s) applied to material, weight, performance guarantee, warranty provisions, etc.).
 - B. For each baghouse equipped with a manometer, the normal range of pressure drop across the device and the minimum and maximum recommended pressure drop for the device, with supporting documentation.

- ii. For affected units that are not controlled with baghouses or other filter-type devices, a detailed description of the work practices used to control emissions of PM pursuant to Condition 2.2.6(b). These control measures are referred to as the "established control measures" in this subsection of this permit.
 - iii. A demonstration that confirms that the baghouses or above established control measures for affected units are sufficient to assure compliance with applicable emissions standards and requirements at the maximum rate(s) at which each affected unit or group of related units can be operated (tons/hour), with supporting emission calculations and documentation for the emission factors and the efficiency of the control measures being relied upon by the Permittee. Except as addressed by Condition 2.2.11(a)(i)(A) or testing of PM emissions from an affected unit is conducted in accordance with Condition 2.2.8-2, this demonstration shall be developed using emission factors for uncontrolled PM emissions, efficiency of control measures, and controlled PM emissions published by USEPA.
- b. The Permittee shall keep records for the amount of bulk materials associated with the operation of the affected boiler received by or loaded out from the source by category or type of material (tons/month).
- c. i. The Permittee shall keep inspection and maintenance log(s) for the control measures associated with the affected units, including buildings and enclosures, dust suppression systems and control devices.
- ii. These records shall include the following information for any inspections required by Condition 2.2.10(a):
- A. Date and time the inspection was performed and name(s) of inspection personnel.
 - B. The observed condition of the control measures for each affected unit, including the presence of any visible emissions.
 - C. A description of any maintenance or repair associated with established control measures that is recommended as a result of the inspection and a review of outstanding recommendations for maintenance or repair from previous inspection(s), i.e., whether recommended action has been taken, is yet to be performed or no longer appears to be required.

- D. A summary of the observed implementation or status of actual control measures, as compared to the established control measures.
- d. The Permittee shall maintain records of the following for each incident when any affected unit operated when either the associated filter control system did not properly control emissions or without the control measures required by Condition 2.2.6(b), as appropriate for the control measures applied to the unit:
- i. The date of the incident and identification of the unit(s) that were involved.
 - ii. A description of the incident, including: the established control measures that were not present or implemented; the established control measures that were present, if any; and other control measures or mitigation measures that were implemented, if any.
 - iii. The time at and means by which the incident was identified, e.g., scheduled inspection or observation by operating personnel.
 - iv. The corrective action(s) taken and the length of time after the incident was identified that the unit(s) continued to operate before established control measures were in place or the operations were shutdown (to resume operation only after established control measures were in place) and, if this time was more than one hour, an explanation why this time was not shorter, including a detailed description of any mitigation measures that were implemented during the incident.
 - v. The estimated total duration of the incident, i.e., the total length of time that the unit(s) ran without established control measures and the estimated amount of material processed during the incident.
 - vi. A discussion of the probable cause of the incident and any preventative measures taken.
 - vii. An estimate of any additional emissions of PM (pounds) above the PM emissions associated with normal operation that resulted from the incident, if any, with supporting calculations.
 - viii. A discussion whether any applicable emission standard may have been violated during the incident, with an estimate of the amount of any excess PM emissions (lbs) and supporting explanation.
- f. The Permittee shall maintain the following records for the emissions of the affected units:

- i. A file containing the standard emission factors used by the Permittee to determine PM emissions from the units, with supporting documentation.
 - ii. Records of PM emissions based on operating data for the unit(s) and appropriate emission factors, with supporting documentation and calculations.
- g. The Permittee shall keep records for all opacity measurements made in accordance with USEPA Method 9 for affected units that it conducts or that are conducted at its behest by individuals who are qualified to make such observations. For each occasion on which such measurements are made, these records shall include the formal report for the measurements if conducted pursuant to Condition 2.2.8-1, or otherwise the identity of the observer, a description of the measurements that were made, the operating condition of the affected unit, the observed opacity, and copies of the raw data sheets for the measurements.

2.2.12 Notification and Reporting Requirements

- a. The Permittee shall submit quarterly reports to the Illinois EPA for all deviations from emission standards and emission control requirements by the affected units. These reports shall also address any deviations from applicable compliance procedures established by this permit for affected units. These reports shall include the information specified by Condition 3.5.

CONDITION 2.3: UNIT-SPECIFIC CONDITIONS FOR ROADWAYS

2.3.1 Description of Emission Units

The affected units for the purpose of these unit-specific conditions are roadways that experience truck traffic associated with the operation of the affected boiler, which are sources of fugitive particulate due to truck traffic or wind blown dust. These emissions are controlled implementation of work practices to prevent the generation of PM emissions.

2.3.2 Control Technology Determination

Not applicable.

2.3.3 Applicable Emission Standards

The affected units shall comply with applicable emission standards for PM and opacity, as identified in the existing permits for the units. (See also Attachment 4.)

2.3.4 Nonapplicability of Emission Standards of Potential Concern

- a. The affected units are not subject to 35 IAC 212.321 or 212.322 because of the disperse nature of the units, as generally addressed by 35 IAC 212.323.

2.3.5 Applicability of Other Requirements

This permit does not alter or affect the requirements for the affected units established in other permits.

2.3.6 Operational and Production Limits and Work Practices

- a. The Permittee shall follow good air pollution control practices to minimize fugitive dust from plant roads. These practices shall provide for treatment (sweeping, application of water, use of dust suppressant, etc., when necessary) of roadways and areas that are routinely subject to truck traffic as necessary to prevent nuisance emissions of dust.
- b. The handling of material collected from any affected unit by sweeping or vacuuming trucks shall be enclosed or shall utilize spraying, pelletizing, screw conveying or other equivalent methods to control PM emissions.
- c. The Permittee shall carry out control of emissions of fugitive dust from all affected units in accordance with a written operating program describing the measures being implemented to control emissions at each unit with the potential to generate significant quantities of such emissions, which program shall be kept current.
 - i. The written operating program shall include:

- A. Maps or diagrams indicating the location of affected units with the potential to generate significant quantities of fugitive dust, with description of the unit (length, width, surface material, etc.) and volume and nature of expected vehicle traffic, or other activity on such unit, and an identification of any roadways that are not considered routinely traveled, with justification.
 - B. A detailed description of the emissions control technique(s) (e.g., vacuum truck, water spray, surfactant spray, water flushing, dust suppressant application, or sweeping) for the affected unit, including: typical application rate; type and concentration of additives; normal frequency with which measures would be implemented; circumstances, in which the measure would not be implemented, e.g., recent precipitation; triggers for additional control, e.g., extended dry weather; and calculated control efficiency for emissions of fugitive dust.
- ii. The Permittee shall submit copies of the written operating program to the Illinois EPA for review as follows:
- A. A program addressing affected units with the operation of the affected boiler and associated facilities shall be submitted no later than 90 days after the initial startup of the affected boiler.
 - B. Significant amendments to the program by the Permittee shall be submitted within 30 days of the date that the amendment is made.
- iii. A revised operating program shall be submitted to the Illinois EPA for review within 90 days of a request from the Illinois EPA for revision to address observed deficiencies in control of fugitive particulate emissions.

2.3.7 Emission Limitations

None

2.3.8 Emission Testing

None

2.3.9 Operational Measurements

- a. If more than 25 percent of the coal for the boiler is received by truck, the Permittee shall conduct measurements of the silt loading on representative affected roadway segments, as follows:
 - i. Sampling and analysis of the silt loading shall be conducted using the "Procedures for Sampling Surface/Bulk Dust Loading," Appendix C.1 in *Compilation of Air Pollutant Emission Factors*, USEPA, AP-42. A series of samples shall be taken to determine the average silt loading and address the change in silt loadings as related to the amount and nature of vehicle traffic and implementation of the operating program.
 - ii. Measurements shall be performed by the following dates:
 - A. Measurements shall first be completed no later than 30 days after the date that initial emission testing of the affected boiler is performed, as required by Condition 2.1.8, or otherwise within 6 months after a 12-month period in which 25 percent or more of the coal for the boiler was received by truck.
 - B. Upon written request by the Illinois EPA, the Permittee shall conduct measurements, as specified in the request, which shall be completed within 75 days of the Illinois EPA's request.
 - iii. The Permittee shall submit test plans, test notifications and test reports for these measurements as specified by General Condition 3.2.

2.3.10 Inspections

- a. The Permittee shall conduct inspections of affected units on at least a quarterly basis with personnel not directly responsible for the day-to-day implementation of the fugitive dust control program, for the specific purpose of verifying that the measures identified in the operating program and other measures required to control emissions from affected units are being properly implemented.

2.3.11 Records

- a. The Permittee shall keep a file that contains the operating factors, if any, used to determine the type and amount of truck traffic activity associated with the affected units and the PM emissions from the affected units, with supporting documentation.

- b. The Permittee shall maintain records documenting implementation of the operating program required by Condition 2.3.6, including:
 - i. Records for each treatment of an affected unit or units:
 - A. The identity of the affected unit(s), the date and time, and the identification of the treatment equipment used;
 - B. For application of dust suppressant by truck: target application rate or truck speed during application, total quantity of water or chemical used and, for application of a chemical or chemical solution, the identity of the chemical and concentration, if applicable;
 - C. For sweeping or cleaning: Identity of equipment used and identification of any deficiencies in the condition of equipment; and
 - D. For other type of treatment: A description of the action that was taken.
 - ii. Records for performance of the inspections required by Condition 2.3.10, including description of inspection, date and time, and findings.
 - iii. Records for each incident when control measures were not implemented and each incident when additional control measures were implemented due to particular circumstances, including description, date, the means by which the incident was identified, a statement of explanation, and expected duration of such circumstances.
- c. The Permittee shall record any period during which an affected unit was not properly controlled as required by this permit, which records shall include at least the information specified by General Condition 3.3 and an estimate of the additional PM emissions that resulted, if any, with supporting calculations.
- d. The Permittee shall keep records for the measurements conducted for affected units pursuant to Condition 2.3.9, including records for the sampling and analysis activities and results.
- e. The Permittee shall maintain records for the PM emissions of the affected units, based on operating data for the affected boiler and other activities at the plant, the above records for the affected units including data for implementation of the operating program, and appropriate USEPA emission

estimation methodology and emission factors, with supporting calculations.

2.3.12 Notification and Reporting

- a. The Permittee shall submit quarterly reports to the Illinois EPA for all deviations from emission standards and emission control requirements by the affected units. These reports shall also address any deviations from applicable compliance procedures established by this permit for affected units. These reports shall include the information specified by Condition 3.5. These reports shall also include information describing incidents, with explanation, when controls were not implemented based on a belief that implementation of such control measures would have been unreasonable given prevailing weather conditions or other circumstances and incidents when additional control measures were implemented due to particular circumstances.

SECTION 3: GENERAL PERMIT CONDITIONS

CONDITION 3.1: STANDARD CONDITIONS

Standard conditions for issuance of construction permits, attached hereto and incorporated herein by reference, shall apply to this boiler addition project, unless superseded by other conditions in the permit. (See also Attachment 3)

CONDITION 3.2: GENERAL REQUIREMENTS FOR EMISSION TESTING

- a. i. If submittal of a test plan is required for emission testing required by this permit, the test plan shall be submitted to the Illinois EPA for review at least 60 days prior to the actual date of testing. This plan shall describe the specific procedures for testing and shall, at a minimum, include the following information:
 - A. The person(s) who will be performing sampling and analysis and their experience with similar tests.
 - B. The specific conditions, e.g., operating rate and control device operating conditions, under which testing shall be performed including a discussion of why these conditions will be representative and the means by which the operating parameters will be determined.
 - C. The specific determinations of emissions that are intended to be made, including sampling or 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 boiler.
 - D. The test method(s) that will be used, with the specific analysis method if the method can be used with different analysis methods.
- ii. As provided by 35 IAC 283.220(d), the Permittee need not submit a test plan for subsequent emissions testing that will be conducted in accordance with the procedures used for previous tests accepted by the Illinois EPA or the previous test plan submitted to and approved by the Illinois EPA, provided that the Permittee's notification for testing, as required below, contains the information specified by 35 IAC 283.220(d)(1)(A), (B) and (C).
- b. i. The Permittee shall notify the Illinois EPA prior to performing emissions testing required by this permit to enable the Illinois EPA to observe the tests. Notification for the expected date of testing shall be submitted a minimum of 30 days* prior to the expected date, and identify the testing that 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 testing.

* For a particular test, the Illinois EPA may at its discretion accept shorter advance notification provided that it does not interfere 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 under which testing will be performed.

c. The Permittee shall submit three copies of the Final Reports for emission testing required by this permit to the Illinois EPA within 30 days after the test results are compiled and finalized but not later than 90 days after the date of testing. At a minimum, the Final Report for testing shall contain:

i. General information, i.e., testing personnel and test dates;

ii. A summary of results;

iii. Description of test method(s), including a description of sampling points, sampling train, analysis equipment, and test schedule;

iv. The operating conditions of the emission unit and associated control devices during testing; and

v. Data and calculations, including copies of all raw data sheets and records of laboratory analysis, sample calculations, and data on equipment calibration.

CONDITION 3.3: REQUIREMENTS FOR RECORDS FOR DEVIATIONS

Except as specified in a particular provision of this permit or in a subsequent CAAPP Permit for the source, records for deviations from applicable permit requirements shall include at least the following information: the date, time and estimated duration of the event; a description of the event; the manner in which the event was identified, if not readily apparent; the probable cause for deviation, if known, including a description of any equipment malfunction/breakdown associated with the event; information on the magnitude of the deviation, including actual emissions or performance in terms of the applicable standard if measured or readily estimated; confirmation that standard procedures were followed or a description of any event-specific corrective actions taken; and a description of any preventative measures taken to prevent future occurrences, if appropriate.

CONDITION 3.4: RETENTION AND AVAILABILITY OF RECORDS

Except as specified in a particular provision of this permit or in a subsequent CAAPP Permit for the source, all records, including written procedures and logs, required by this permit shall be kept at a readily accessible location at the affected facility and be available for inspection

and copying by the Illinois EPA and shall be retained for at least five years.

CONDITION 3.5: NOTIFICATION AND REPORTING OF DEVIATIONS

Except as specified in a particular provision of this permit or in a subsequent CAAPP Permit for the source, notifications and reports for deviations from applicable permit requirements shall include at least the following information: the date and time of the event, a description of the event, information on the magnitude of the deviation, a description of the corrective measures taken, and a description of any preventative measures taken to prevent future occurrences.

CONDITION 3.6: GENERAL REQUIREMENTS FOR NOTIFICATION AND REPORTS

- a.
 - i. Unless otherwise specified in the particular provision of this permit, in a subsequent CAAPP Permit for the source, or in the written instructions distributed by the Illinois EPA for particular reports, reports and notifications shall be sent to the Illinois EPA - Air Compliance Section with a copy sent to the Illinois EPA - Air Regional Field Office.
 - ii. As of the date of issuance of this permit, the addresses of the office that should generally be utilized for the submittal of reports and notifications are as follows:
 - A. Illinois EPA - Air Compliance Section

Illinois Environmental Protection Agency
Bureau of Air
Compliance and Enforcement Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276
 - B. Illinois EPA - Air Regional Field Office

Illinois Environmental Protection Agency
Division of Air Pollution Control
5415 North University
Peoria, Illinois 61614

ATTACHMENT 1: EMISSION LIMITATIONS

Table 1-A: Emission Limitations for the Affected Boiler

Pollutant	Pounds/Million Btu ^a	Pounds/Hour ^b
PM Filterable ^c	0.10	367, 3-Hour Average*
SO ₂	1.20	5,400, 3-Hour Average
NO _x	0.70	2,200, 3-Hour Average

* As related to periods of emissions testing, the average of the test runs.

Notes:

- a. Emission limitations expressed in pounds/million Btu heat input are provided for informational purposes. They reflect the requirements of the NSPS, 40 CFR 60 Subpart D, for PM, SO₂ and NO_x, all of which do not apply during startup, shutdown or malfunction of the boiler, as addressed in 40 CFR 60.8.
- b. Emission limitations expressed in pounds/hour reflect the emission rate at which it is expected that the boiler would become subject to the requirements of the NSPS, 40 CFR 60 Subpart Da, for PM, SO₂ or NO_x.
- c. PM emissions as would be measured by USEPA Method 5 or 5B.

ATTACHMENT 2: SUMMARY OF EMISSIONS CHANGES

Table 2-A: Changes in the Annual Emissions of the Boiler (Tons/Year)

Pollutant	Projected Future Emissions	Historic Actual Emissions	Change	Significant Emission Rate
NO _x	4,122.0	4,476.6	- 354.6	40
SO ₂	4,858.1	11,175.9	- 6,317.8	40
CO	2010.1	2,066.4	- 56.3	100
VOM	71.5	47.6	23.9	40
PM - Filterable	735.3	1,090.7	- 355.4	25
PM ₁₀ - Total	593.2	898.2	- 305.0	15
Sulfuric Acid Mist	179.5	242.5	- 62.9	7

Discussion:

The projected actual emissions are the emissions from the operation of the altered boiler, with the new ESP and FGD system and advanced combustion management system, as described by Ameren in the application.

The historic emissions are the actual emissions from the existing boiler (Duck Creek Unit 1).

The change in emissions is the difference between the past emissions and the future emissions. As shown, Ameren's application indicates that there will not be a significant increase for any PSD pollutant.

Table 2-B: Change in the Maximum Hourly Emissions of the Affected Boiler (Pounds/Hour)

Pollutant	Historic Maximum Emissions	Expected Future Maximum Emissions	Change
PM (Filterable)	367.1	356.0	- 11.2
SO ₂	5,401.8	3,082.4	- 2,319.4
NO _x	2,213.9	2,160.0	- 53.9

ATTACHMENT 3: STANDARD PERMIT CONDITIONS

STANDARD CONDITIONS FOR CONSTRUCTION/DEVELOPMENT PERMITS
ISSUED BY THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

The Illinois Environmental Protection Act (Illinois Revised Statutes, Chapter 111-1/2, Section 1039) authorizes the Environmental Protection Agency to impose conditions on permits, which it issues.

The following conditions are applicable unless superseded by special condition(s).

1. Unless this permit has been extended or it has been voided by a newly issued permit, this permit will expire one year from the date of issuance, unless a continuous program of construction or development on this project has started by such time.
2. The construction or development covered by this permit shall be done in compliance with applicable provisions of the Illinois Environmental Protection Act and Regulations adopted by the Illinois Pollution Control Board.
3. There shall be no deviations from the approved plans and specifications unless a written request for modification, along with plans and specifications as required, shall have been submitted to the Illinois EPA and a supplemental written permit issued.
4. The Permittee shall allow any duly authorized agent of the Illinois EPA upon the presentation of credentials, at reasonable times:
 - a. To enter the Permittee's property where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit,
 - b. To have access to and to copy any records required to be kept under the terms and conditions of this permit,
 - c. To inspect, including during any hours of operation of equipment constructed or operated under this permit, such equipment and any equipment required to be kept, used, operated, calibrated and maintained under this permit,
 - d. To obtain and remove samples of any discharge or emissions of pollutants, and
 - e. To enter and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring, or recording any activity, discharge, or emission authorized by this permit.
5. The issuance of this permit:
 - a. Shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are to be located;

- b. Does not release the Permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the proposed facilities;
 - c. Does not release the Permittee from compliance with other applicable statutes and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations;
 - d. Does not take into consideration or attest to the structural stability of any units or parts of the project; and
 - e. In no manner implies or suggests that the Illinois EPA (or its officers, agents or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.
- 6a. Unless a joint construction/operation permit has been issued, a permit for operation shall be obtained from the Illinois EPA before the equipment covered by this permit is placed into operation.
- b. For purposes of shakedown and testing, unless otherwise specified by a special permit condition, the equipment covered under this permit may be operated for a period not to exceed thirty (30) days.
7. The Illinois EPA may file a complaint with the Board for modification, suspension or revocation of a permit.
- a. Upon discovery that the permit application contained misrepresentations, misinformation or false statement or that all relevant facts were not disclosed, or
 - b. Upon finding that any standard or special conditions have been violated, or
 - c. Upon any violations of the Environmental Protection Act or any regulation effective thereunder as a result of the construction or development authorized by this permit.

ATTACHMENT 4: SUMMARY OF APPLICABLE EMISSION STANDARDS

Applicable Emission Standards for the Affected Boiler

Federal New Source Performance Standards (NSPS)

- a. The affected boiler is subject to the New Source Performance Standards (NSPS) for Fossil Fuel Fired Steam Generators, 40 CFR 60, Subpart D.
- b. Pursuant to the NSPS, the emissions from the affected boiler are subject to the following standards:

Pollutant	Standard (lbs/million Btu)	Rule
PM	0.10	40 CFR 60.42(a)(1)
SO ₂	1.20	40 CFR 60.43(a)(2)
NO _x	0.70	40 CFR 60.44(a)(3)

- c. Pursuant to the NSPS, 40 CFR 60.42(a)(2), opacity from the affected boiler shall not exceed 20 percent, as measured on a six minute average, except for one 6 minute period per hour of not more than 27 percent.
- d. Pursuant to the NSPS, 40 CFR 60.8(c) and 60.11(c), the above emission standards do not apply during startup, malfunction, and shutdown, as defined by 40 CFR 60.2. Notwithstanding these provisions, pursuant to 40 CFR 60.7(b) and (c), exceedances of these standards during startup, malfunction, and shutdown are still subject to recordkeeping and reporting requirements under the NSPS.
- e. Pursuant to the NSPS, 40 CFR 60.11(d), the Permittee shall at all times maintain and operate the affected boiler, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions.

State Emission Standards

- a. Pursuant to 35 IAC 212.204, the emissions of PM from the affected boiler shall not exceed 0.10 lb/million Btu of actual heat input in any one hour period.
- b. Pursuant to 35 IAC 214.121(a), the emissions of SO₂ from the affected boiler shall not exceed 1.2 lb/million Btu of actual heat input in any one hour period.
- c. Pursuant to 35 IAC 216.121, the emissions of CO from the affected boiler shall not exceed 200 ppm, corrected to 50 percent excess air.
- d. Pursuant to 35 IAC 217.121(d), the emissions of NO_x from the affected boiler shall not exceed 0.7 lb/million Btu of actual heat input in any one hour period.

- e. Pursuant to 35 IAC Part 217 Subpart V, the affected boiler is subject to the following requirements related to NO_x emissions:
- i. During each ozone control period (May 1 through September 30):
 - A. The emissions of NO_x from the affected boiler shall not exceed 0.25 lb/mmBtu of actual heat input based on a ozone control period average for that unit, pursuant to 35 IAC 217.706(a), or
 - B. If the Permittee elects to participate in a NO_x averaging plan, the emissions of NO_x from the affected boiler and other eligible EGU that are participating in such NO_x averaging demonstration shall not exceed 0.25 lbs/mmBtu of actual heat input, as averaged for the ozone control period for the EGU participating in the demonstration, pursuant to 35 IAC 217.708(a) and (b).
 - ii. If the affected boiler is authorized to participate in an averaging demonstration and the Permittee elects to comply by participation in such demonstration:
 - A. The affected boiler shall be included in only one NO_x averaging demonstration during an ozone control period, pursuant to 35 IAC 217.708(d).
 - B. The NO_x averaging demonstration shall only include other EGU that are authorized through a federally enforceable permit to participate in a NO_x averaging demonstration and for which the owner or operator of the EGU maintains the required records, data and reports and submits copies of such records, data, and reports to the Illinois EPA upon request, pursuant to 35 IAC 217.708(c) and (g).
 - C. The effect of failure of the NO_x averaging demonstration to show compliance shall be that the compliance status of the affected boiler shall be determined as if the NO_x emission rates of the affected boiler were not averaged with other EGU, pursuant to 35 IAC 217.708(g).
- Note: The Permittee is currently authorized to participate in NO_x averaging demonstrations by CAAPP Permit 95090008 for its generating station at Grand Tower (ID No. 077806AAA). The above requirements also apply as a matter of rule to EGUs other than the affected boiler if the owner or operator of such other EGUs elects to participate in a NO_x averaging demonstration.
- f. Pursuant to 35 IAC 212.122, the opacity of the emissions of smoke or other particulate matter from the affected boiler shall not exceed 20 percent, except as provided by 35 IAC 212.122(b).
- g. Pursuant to 35 IAC Part 225, Subpart B, the mercury emissions of the affected boiler shall comply with the applicable emission standard in

these rules, when it becomes effective, consistent with the particular option selected by the Permittee for compliance with these rules.

Applicable Emission Standards for Affected Handling, Storage, Processing
And Load Out Operations for Fuel And Other Bulk Materials

Applicable State Emission Standards

- a. Pursuant to 35 IAC 212.109 and 212.123(a), the emission of smoke or other PM from affected units shall not have an opacity greater than 30 percent, except as allowed by 35 IAC 212.124. Compliance with this limit shall be determined by 6-minute averages of opacity measurements in accordance with USEPA Reference Method 9.
- b. Pursuant to 35 IAC 212.301, emissions of fugitive PM shall not be visible from any process, including any material handling or storage activity, when looking generally toward the zenith at a point beyond the property line of the source, except when the wind speed exceeds 25 miles per hour, as provided by 35 IAC 212.314.
- c. Pursuant to 35 IAC 212.321, the emissions of PM from affected units other than units excluded by 35 IAC 212.323 shall comply with the applicable limit pursuant to 35 IAC 212.321, which rule limits emissions based on the process weight rate of emission units and allows a minimum emission rate of 0.55 lb/hour for any individual unit.

Applicable Emission Standards for Fugitive Dust from
Vehicle Traffic on Roadways and Windblown Dust

Applicable State Emission Standards

- a. Pursuant to 35 IAC 212.109 and 212.123(a), the emission of smoke or other PM from affected units shall not have an opacity greater than 30 percent, except as allowed by 35 IAC 212.124. Compliance with this limit shall be determined by 6-minute averages of opacity measurements in accordance with USEPA Reference Method 9.
- b. Pursuant to 35 IAC 212.301, emissions of fugitive PM shall not be visible from any process, including any material handling or storage activity, when looking generally toward the zenith at a point beyond the property line of the source, except when the wind speed exceeds 25 miles per hour, as provided by 35 IAC 212.314.