



K A N S A S

RODERICK L. BREMBY, SECRETARY

KATHLEEN SEBELIUS, GOVERNOR

DEPARTMENT OF HEALTH AND ENVIRONMENT

AIR EMISSION SOURCE CONSTRUCTION PERMIT

Source ID No.: 0210002

Effective Date: October 18, 2005

Source Name: The Empire District Electric Co. – Riverton Generating Station

NAICS: 221112, Fossil fuel power generation

Site Location: 7240 Southeast Highway 66
Riverton, Kansas 66770

Site Owner/Operator Name: The Empire District Electric Company

**Site Owner's/Operator's
Mailing Address:** P.O. Box 127, Joplin, Missouri 64802

**Contact Person for Site Owner/
Operator:** Mr. Shaen Rooney, Environmental Coordinator
Telephone Number (417) 625-6152

This permit is issued pursuant to K.S.A. 65-3008 as amended.

Description of Activity Subject to Air Pollution Control Regulations

The Empire District Electric Company is proposing to install and operate one (1) combustion turbine generator at the existing Riverton Generating Station.

The proposed addition will be subject to the requirements of 40 CFR 52.21, Prevention of Significant Deterioration (PSD) as adopted under K.A.R. 28-19-350 as a result of being a major modification of a major stationary source for at least one regulated pollutant emitted in excess of the PSD significant emission levels. The turbine will be subject to the requirements of 40 CFR Part 60, Subpart GG, Standards of Performance for Stationary Gas Turbines for which construction, modification, or reconstruction commenced after October 3, 1977.

The combustion turbine unit is an affected source subject to Title IV of the Federal Clean Air Act, Acid Deposition Control. The monitoring system required by Title IV and other applicable regulations may be used to satisfy the monitoring requirements of 40 CFR Part 60 Subpart GG.

Emissions of oxides of nitrogen (NO_x), carbon monoxide (CO), sulfur dioxide (SO₂), volatile organic compounds (VOC), particulate matter less than 10 microns in diameter (PM₁₀), and sulfuric acid mist (H₂SO₄), were evaluated for this permit review. This project is subject to the provision of K.A.R. 28-19-300 (Construction permits and approvals; applicability) because the potential-to-emit of NO_x and PM₁₀ exceeds 40 and 15 tons per year, respectively.

An air dispersion modeling impact analysis, an additional impact analysis, and a Best Available Control Technology (BACT) determination were conducted as a part of the construction permit application process.

Significant Applicable Air Pollution Control Regulations

The combustion turbine as proposed is subject to Kansas Administrative Regulations relating to air pollution control. The following significant Kansas air quality regulations were determined to be applicable to this source:

K.A.R. 28-19-650 Opacity Requirements

K.A.R. 28-19-275 Special Provisions; Acid Rain Deposition

K.A.R. 28-19-300 Construction permits and approvals; applicability

K.A.R. 28-19-720 New Source Performance Standards, which adopts 40 CFR Part 60 Subpart GG

K.A.R. 28-19-350 Prevention of significant deterioration of air quality

40 CFR Part 63 Subpart YYY, the National Emission Standard for Hazardous Air Pollutants from Stationary Combustion Turbines.

Air Emission Unit Technical Specifications

The following equipment or equivalent is approved.

- One (1) Siemens Westinghouse Model V84.3A(2) simple cycle combustion turbine/generator, known as emission Unit 12, equipped with dry low NO_x burners for control of NO_x emissions burning pipeline quality natural gas. The manufacturer's estimated performance at -5° F is 1,685 mmBtu/hr input.

Air Emissions Estimates from the Proposed Activity

Pollutant Type	Estimated Operating Emissions (Tons per Year)
Nitrogen Oxides (NO _x)	178 ¹
Carbon Monoxide (CO)	72 ¹
Sulfur Dioxide (SO ₂)	16 ²
Volatile Organic Compounds (VOC)	16.5 ¹
Particulate Matter (PM/PM ₁₀)	40 ¹
Sulfuric Acid Mist (H ₂ SO ₄)	1.3

¹. Estimated controlled emissions are based on the maximum emission rates at 59° F. associated with the technologies installed on the actual emission unit operating in accordance with the conditions authorized in the permit.

². Based on maximum sulfur content for pipeline quality natural gas of 2 grains per 100 dry standard cubic feet.

Air Emission Limitations

- The limitations of this section do not apply to periods of startup, shutdown, or malfunction. Startup and shutdown are defined in **Permit Conditions** below.
- K.A.R. 28-19-650 (a)(3): Opacity of visible emissions shall not exceed 20 percent.
- The NO_x emissions from the combustion turbine shall not exceed the following:

15 parts per million by dry volume (ppmdv), corrected to 15 percent oxygen (O₂), 24 hour rolling average³.

4. PM₁₀ emissions from the combustion turbine shall not exceed 20 lb per hour, including both filterable and condensable PM₁₀.
5. The NO_x emissions from the combustion turbine shall not exceed 200 tons per year⁴.

Permit Conditions

1. Startup and shutdown are defined as follows:
 - (a) Startup: The period from when the combustion turbine is started until it reaches 60% load. The startup periods will be readily identifiable by the monitoring system. Such periods shall not exceed 2 hours without approval by KDHE.
 - (b) Shutdown: The period when the combustion turbines are shutting down from 60% load to 0% load. The shutdown periods shall be readily identifiable by the monitoring system. Such periods shall not exceed 2 hours without approval by KDHE.
2. The combustion turbine shall operate at load conditions between 60% and 100% of capacity except during startup and shutdown.
3. This permit and the PSD review shall be reopened if this simple cycle combustion turbine is retrofitted as a combined cycle unit within seven years of the effective date of this permit.
4. The combustion turbine is limited to operating a maximum of 4,000 hours during each consecutive 12 month period. An increase in operating hours over the 4000 hours during any consecutive 12 month period may result in reopening of the permit and an additional BACT analysis.

Performance Testing and Compliance

³ 24 hour rolling average is defined as 24 hours of cumulative operation. Partial hours of operation are rounded up to whole numbers.

⁴ Based on 100% load at -5 degrees Fahrenheit

1. Within 60 days after achieving a maximum production rate at which the turbine will be operated, but not later than 180 days after initial start-up of the turbine, the owner or operator shall conduct performance test(s) to demonstrate compliance with the applicable conditions and limitations set forth in this permit and furnish KDHE a written report of the results of such performance test(s).
2. In accordance with 40 CFR Part 60, Subpart GG, all continuous monitoring systems and monitoring devices required shall be installed and operational prior to conducting performance tests under 40 CFR 60.8. Verification of operational status, at a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation, and calibration of the device as required by 40 CFR 60.13.
3. In conducting the performance tests required by this permit, the reference test methods and procedures outlined in K.A.R. 28-19-212 and 40 CFR 60.335 shall be used to demonstrate compliance with the limitation and conditions set forth in this permit.
4. Compliance with PM₁₀ emission limits shall be demonstrated at steady state operation and base load. PM₁₀ emission limit shall be verified by reference method 201 or 201A for filterable PM₁₀ and method 202 for condensable PM₁₀.

Monitoring Requirements

1. Compliance with NO_x emission limits shall be demonstrated with a NO_x continuous emission monitor (CEM) that follows the requirements listed in 40 CFR Subpart GG §60.334.
2. The NO_x CEM shall be installed, certified, operated, maintained, and quality assured in accordance with 40 CFR Subpart GG §60.334.
3. Compliance with SO₂ emission limits shall be demonstrated in accordance with the requirements in 40 CFR Subpart GG §60.334, with the addition that the total sulfur content of the pipeline quality natural gas not exceed 2 grains per 100 dry standard cubic feet.

In lieu of these requirements, alternatives to monitoring procedures or requirements may be approved, on a case-specific basis, by the Administrator of the U.S. EPA pursuant to 40 CFR 60.13(i).

Recordkeeping

1. The owner or operator of the combustion turbine shall maintain records of the occurrence and duration of any start-up, shut-down, or malfunction in the operation of the turbine; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative. These requirements are described in 40 CFR 60.7(b).
2. As required under 40 CFR 60.7(f), the owner or operator shall maintain a file of all measurements, including continuous monitoring system, monitoring device, and

performance testing measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required by this part recorded in a permanent form suitable for inspection. The file shall be retained for at least two years following the date of such measurements, maintenance, reports, and records, with certain exceptions specified under 40 CFR 60.7(f).

3. In compliance with Permit Conditions Item 4, the owner or operator shall record the number of hours that the combustion turbine operates during any consecutive 12 month period. These records shall be updated on an hourly basis. Partial operating hours shall be rounded up to whole hours.

Reporting

Reports demonstrating compliance shall be submitted to the KDHE in the same units as stated in the applicable requirements.

1. Items required to be reported semi-annually shall be submitted to KDHE and postmarked by the 30th day following the end of each calendar half.
2. Items required to be reported annually shall be submitted to KDHE and postmarked by the 30th day following the end of each calendar year.
3. The combustion turbine excess emissions and monitoring systems performance report and/or a summary report shall be submitted to the KDHE as required by 40 CFR 60.7(c) on a semi-annual basis. The summary report form shall contain the information and be in the format as specified in 40 CFR 60.7(d). One summary report form for NO_x and one summary report form for the sulfur content of the fuel shall be submitted. Written reports of excess emissions shall include the following information:
 - (a) The magnitude of excess emissions computed in accordance with 40 CFR 60.13(h), any conversion factor(s) used, the date and time of commencement and completion of each time period of excess emissions, and the process operating time during the reporting period.
 - (b) Specific identification of each period of excess emissions that occurs during start-ups, shut-downs, and malfunctions, the nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted.
 - (c) The date and time identifying each period during which the continuous monitoring system was inoperative except for zero span checks and the nature of the system repairs and adjustments.
 - (d) When no excess emissions have occurred or the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be stated in the report.

4. Reports required under Reporting Item 3, periods of excess emissions as defined in 40 CFR 60.334(j) shall be reported accordingly.
5. The compliance demonstration for Permit Conditions Items 4 and the Air Emission Limitations Item 3 and 5 shall be reported on an annual basis. During the initial 12 months of operation, the Permit Condition Item 4 and the Air Emission Limitations Item 5 shall be tracked on a monthly basis and should an exceedance occur, the owner or operator shall contact the Department immediately.

Notification

1. The Air Quality Representative in the Southeast District Office shall be notified when installation of the equipment is complete so an evaluation may be conducted to verify compliance with applicable regulations.
2. K.A.R. 28-19-720 (40 CFR 60.7(a) and 60.8(d)) requires that written notifications of the following be submitted to KDHE:
 - (a) The date construction of each combustion turbine generators is commenced. The notification is to be postmarked no less than 30 days after such date.
 - (b) The actual date of initial startup of each combustion turbine generator. The notification is to be postmarked within 15 days after such date.
 - (c) The date when the initial performance testing is to commence. The notification is to be postmarked no less than 30 days prior to such date.
 - (d) The date upon which demonstration of the continuous monitoring system performance commences in accordance with 60.13(c). Notification shall be postmarked no less than 30 days prior to such date.
3. Notification of the performance test shall include a performance test protocol which includes a description of the test and applicable test methods.
4. 40 CFR Part 63 Subpart YYYY, §63.6145 requires initial notification. In accordance with §63.6095(d) there are no other applicable requirements of the subpart until EPA takes final action to require compliance and publishes a document in the Federal Register.

Acid Rain Requirements

The combustion turbine is subject to certain Acid Rain Requirements. A complete Acid Rain permit application shall be submitted in accordance with the deadlines specified in 40 CFR Part 72. Notification regarding applicable monitoring equipment will be made as required.

Title V Requirements

The combustion turbine is subject to Title V Requirements. A complete application for a Title V (Class I) permit modification shall be submitted in accordance with the deadlines specified in K.A.R. 28-19-510. Notification regarding applicable monitoring equipment shall be made as required.

General Provisions

1. This document shall become void if construction, installation or modification of the simple cycle combustion turbine has not commenced within 18 months of the effective date of this permit, or if the construction, installation or modification of the simple cycle combustion turbine is interrupted for a period of 18 months or longer.
2. A construction permit or approval must be issued by KDHE prior to commencing any construction or modification of equipment or processes which result in an increase in potential-to-emit equal to or greater than the thresholds specified at K.A.R. 28-19-300.
3. Upon presentation of credentials and other documents as may be required by law, the permittee shall allow a representative of the KDHE (including authorized contractors of the KDHE) to:
 - (a) enter upon the permittee's premises where a regulated facility or activity is located or conducted or where records must be kept under conditions of this document;
 - (b) have access to and copy, at reasonable times, any records that must be kept under conditions of this document;
 - (c) inspect at reasonable times, any facilities, equipment (including monitoring and control equipment), practices or operations regulated or required under this document; and
 - (d) sample or monitor, at reasonable times, for the purposes of assuring compliance with this document or as otherwise authorized by the Secretary of the KDHE, any substances or parameters at any location.
4. The emission unit or stationary source which is the subject of this document shall be operated in compliance with all applicable requirements of the Kansas Air Quality Act and the Federal Clean Air Act.
5. This document is subject to periodic review and amendment as deemed necessary to fulfill

the intent and purpose of the Kansas Air Quality Statutes and Regulations and rules promulgated in accordance therewith.

6. This document does not relieve the permittee of the obligation to obtain other approvals, permits, licenses or documents of sanction which may be required by other federal, state or local government agencies.
7. Issuance of this document does not relieve the owner or operator of any requirement to obtain an air quality operating permit under any applicable provision of K.A.R. 28-19-500.

Permit Engineer

Rick Bolfing, P. E.
Environmental Engineer
Air Construction/Operating Permits & Compliance Section

Date Signed

RJB:saw
c: SEDO
C-6070