

Division of Environment
Curtis State Office Building
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Topeka, KS 66612-1367



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Lee A. Norman, M.D., Secretary

Laura Kelly, Governor

DRAFT

Source ID No. 0910174

Ms. Stephanie Hirner
Manager, Air Permitting
Evergy, Inc.
818 S. Kansas Ave.
Topeka, KS 66601

Re: Administrative Amendment of Prevention of Significant Deterioration (PSD) Construction Permit for
Evergy – West Gardner Generating Station

Dear Ms. Hirner:

Enclosed is the revised Prevention of Significant Deterioration (PSD) construction permit for Evergy – West Gardner Generating Station (Evergy) located in Edgerton, Kansas. Evergy was issued a PSD construction permit on May 28, 2002. The PSD construction permit was amended (administrative) on July 29, 2016.

Please review the enclosed permit carefully since it obligates Evergy to certain requirements. Include source ID number 0910174 in all communications with the KDHE regarding this facility. **This PSD Construction Permit supersedes the PSD permit issued on May 28, 2002 and July 29, 2016.**

As provided for in K.S.A. 65-3008b(e), an owner or operator may request a hearing within 15 days after affirmations, modification or reversal of a permit decision pursuant to subsection (b) of K.S.A. 65-3008a. In the Request for Hearing, the owner or operator shall specify the provision of this act or rule and regulation allegedly violated, the facts constituting the alleged violation and secretary's intended action. Such request must be submitted to: Director, Office of Administrative Hearings, 1020 S. Kansas Avenue, Topeka, Kansas 66612-1327. Failure to submit a timely request shall result in a waiver of the right to hearing.

Bureau of Air
Permitting Section
Curtis State Office Building, Suite 310
Topeka, KS 66612-1366

Phone 785-296-1581
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jason.heitman@ks.gov

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Ms. Stephanie Hirner
DRAFT

If you have any questions about this amendment, please contact me at (785) 296-1581 or email me at jason.heitman@ks.gov.

Sincerely,

Jason Heitman
Engineering Associate
Air Permitting Section

JH:
Enclosure
c: JCDHE, Keith Johnson, USEPA Region 7
CSD00049 v1.1 (Revised C-3856/CSD00049 v1.0 and C-13498/CSP00948 v1.0)

EMISSION SOURCE CONSTRUCTION PERMIT

Source ID No.: 0910174

Effective Date: May 28, 2002

Revision Date(s): DRAFT DATE (July 29, 2016)

Source Name: Evergy Inc. – West Gardner Generating Station

SIC Code: 4911, Electric Services

NAICS: 221112, Fossil Fuel Power Generation

Source Location: 18827 Dillie Road
S32, T14S, R22E
Edgerton, Johnson County, Kansas 66021

Mailing Address: 818 S. Kansas Ave.
Topeka, KS 66601

Contact Person: Stephanie Hirner
Manager, Air Permitting
Phone: (785) 575-8447
stephanie.hirner@evergy.com

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

I. Description of Activity Subject to Air Pollution Control Regulations

Evergy, Inc. (Evergy) – West Gardner Generating Station is proposing to install and operate four (4) simple cycle-combustion turbine generators, four (4) fuel gas preheaters, four (4) evaporative coolers, one (1) 675,000 gallon fuel oil storage tank, one (1) 675,000 gallon water storage tank, and a carbon dioxide (CO₂) fire protection system at the new West Gardner Generating Station.

The proposed installation will be subject to the requirements of 40 CFR 52.21, Prevention of Significant Deterioration (PSD) as adopted under K.A.R. 28-19-17 as a result of constructing a major stationary source for at

least one regulated pollutant emitted in excess of the PSD significant emission levels. Each combustion 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 fuel storage tank will be subject to the requirements of 40 CFR Part 60, Subpart Kb, *Standards of Performance for Volatile Organic Liquid Storage Vessels for which construction, reconstruction, or modification commenced after July 23, 1984*.

EPA approval of alternative monitoring to the requirements of 40 CFR Part 60, Subpart GG is contained in the appendix to this permit.

Each combustion turbine unit is an affected source subject to Title IV of the Federal Clean Air Act, Acid Deposition Control.

Emissions of oxides of nitrogen (NO_x), carbon monoxide (CO), sulfur dioxide (SO₂), volatile organic compounds (VOC), particulate matter (PM), particulate matter less than 10 microns in diameter (PM₁₀), lead, and sulfuric acid mist 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, CO, SO₂, PM and PM₁₀ exceeds 40, 100, 40, 25, 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.

The PSD air construction permit was issued to Great Plains Power – West Gardner Generating Station on May 28, 2002. On June 27, 2016, a request was submitted to change the reporting requirements from quarterly to semiannual basis. This permit revision includes only the reporting requirement changes from quarterly to semiannually. KDHE concurs with the proposed Administrative Amendment pursuant to the USEPA Memorandum on “Revised Draft Policy on Permit Modifications and Extensions” dated July 5, 1985.

On April 15, 2020 a request was submitted to remove the fuel oil firing requirements from the permit (as fuel oil firing capabilities were not installed during the construction process) to clarify the current combustion turbines SO₂ and NO_x monitoring requirements and to add additional NO_x monitoring options. This **DRAFT DATE** permit revision addresses the requested updates. In addition, the fuel gas preheaters and the 675,000-gallon fuel oil storage tank were never installed. Therefore, the requirements associated with those units have been removed from the permit as well. Based on the information provided by Evergy, the KDHE determined that the proposed changes were an administrative amendment. Administrative amendments do not require repeat of the already conducted review of a PSD permit.

II. Significant Applicable Air Pollution Control Regulations

Each combustion turbine, each gas preheater, and the fuel oil storage tank, as proposed, are 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:

- A. K.A.R. 28-19-17 Prevention of significant deterioration of air quality.
- B. K.A.R. 28-19-275 Special Provisions; Acid Rain Deposition.
- C. K.A.R. 28-19-300 Construction permits and approvals; applicability.
- D. K.A.R. 28-19-650 Opacity Requirements.
- E. K.A.R. 28-19-720 New Source Performance Standards, which adopts 40 CFR Part 60 Subpart GG -- Standards of Performance for Stationary Gas Turbines.

III. Air Emission Unit Technical Specifications

The following equipment or equivalent is approved.

- A. Four (4) natural gas-fired General Electric Model PG 7121 (EA) simple cycle combustion turbine generators, known as emission units 1, 2, 3, and 4, respectively, equipped with dry low NO_x burners for control of NO_x emissions during natural gas firing. The manufacturer's estimated performance at -10 °F (worst case) is 1,016 million British Thermal Units per hour (mmBtu/hr) for natural gas.

IV. Air Emissions Estimates from the Proposed Activity

Pollutant Type	Pre-Permit Worst Case Emissions (Tons per Year)^{1,2}	Post-Permit Worst Case Potential-To-Emit (Tons per Year)³
Nitrogen Oxides (NO _x)	1800.7	296.0
Sulfur Dioxide (SO ₂)	100.4	45.8
Carbon Monoxide (CO)	1068.7	488.0
Volatile Organic Compounds (VOC)	35.0	11.2
Particulate Matter (PM/PM ₁₀)	175.2	80.0
Sulfuric Acid Mist	6.6	3.0

V. Air Emission Limitations

- A. The limitations of this section do not apply to periods of startup, shutdown, or malfunction. Startup and shutdown are defined in section **VI. Permit Conditions** below.
- B. K.A.R. 28-19-650(a)(3): Opacity of visible emissions shall not exceed 20 percent for each emission unit.
- C. The NO_x emissions from each combustion turbine generator shall not exceed the following:
1. 9 parts per million by dry volume (ppmdv), corrected to 15 percent oxygen (O₂), 30 day rolling average⁴ while burning natural gas.
 2. 37 lbs/hr while burning natural gas.

¹ Potential-to-emit means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on a capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable.

² Emission estimates are based on manufacturer's emission factors at -10°F, except for SO₂ which are from the Compilation of Air Pollutant Emission Factors (AP-42), Section 3.1 dated 4/2000, and Particulate Matter which is based on emissions tests from two existing turbines.

³ Estimated controlled emissions are based on the maximum emission rates at -10°F associated with the technologies installed on the actual emission units operating in accordance with the conditions authorized in the permit.

⁴ 30 days is defined as 720 hours of cumulative operation. Partial hours of operation are rounded up to whole hours.

- D. The CO emissions from each combustion turbine generator shall not exceed the following:
 - 1. 25 ppmdv, corrected to 15 percent O₂ when firing natural gas at full load (baseload).
 - 2. 61 lbs/hr when firing natural gas at full load (baseload).
- E. PM₁₀ emissions from each combustion turbine generator shall not exceed the following:
 - 1. 10 lbs/hr when firing natural gas at full load (baseload).

VI. Permit Conditions

- A. Startup and shutdown are defined as follows:
 - 1. Startup: The period from when the combustion turbine is started until it reaches 60% load. The startup periods shall be readily identifiable on the load chart recording. Such periods shall not exceed 8 hours without approval by KDHE.
 - 2. Shutdown: The period when the combustion turbines are shutting down from 60% load to 0% load. The shutdown periods shall be readily identifiable on the load chart recording. Such periods shall not exceed 8 hours without approval by KDHE.
- B. Each combustion turbine shall operate at load conditions between 60% and 100% of capacity except during startup and shutdown.
- C. Each combustion turbine is limited to firing natural gas for a total of 4,000 hours or less during each consecutive 12-month period.
- D. The permittee shall not use any fuel other than pipeline-grade natural gas in the turbines.
- E. This permit and the PSD review shall be reopened if any of the combustion turbines are retrofitted as a combined cycle unit within seven years of the effective date of this permit.

VII. Performance Testing and Compliance

- A. Within 60 days after achieving a maximum production rate at which the turbines will be operated, but not later than 180 days after initial startup of each 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).
- B. 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.
- C. 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.

- D. Compliance with CO and PM₁₀ emission limits shall be demonstrated at steady state operation and full load (baseload).
- E. Compliance with emission limits shall be demonstrated using the following EPA test methods:
 - 1. Method 10 - Carbon Monoxide
 - 2. Methods 5 and 202 - Particulate Matter

VIII. Monitoring Requirements

The following applies only to the combustion turbines:

- A. The owner or operator may, but is not required to, for purposes of determining excess emissions, use a continuous emission monitor system (CEMS) that meets the requirements of paragraph (b) of 40 CFR 60.334. Also, if the owner or operator has previously submitted and received EPA, State, or local permitting authority approval of a procedure for monitoring compliance with the applicable NO_x emission limit under 40 CFR 60.332, that approved procedure may continue to be used. [40 CFR 60.334(c)]
- B. If the owner or operator claims an allowance for fuel bound nitrogen, the nitrogen content of the fuel shall be determined using methods described in 40 CFR 60.335(b)(9) or an approved alternative. [40 CFR 60.334(h)(2)]
- C. The owner or operator of combustion turbine generators are exempt from the requirement to monitor total sulfur content by burning natural gas with fuel quality characteristics in a current, valid purchase contract, tariff sheet, or transportation contract specifying that the maximum total sulfur content of the fuel is 20.0 grains/100 scf or less. Additionally, representative fuel sampling as outlined in 40 CFR 60.344(h)(3)(ii) may also be used to demonstrate compliance. [40 CFR 60.334(h)(3)]
- D. If the owner/operator claims an allowance for fuel bound nitrogen, any applicable nitrogen content value of the gaseous fuel shall be determined and recorded once per unit operating day. For owners and operators that elect not to demonstrate sulfur content using options in 40 CFR 60.332(h)(3), and for which the fuel is supplied without intermediate bulk storage, the sulfur content value of the gaseous fuel shall be determined and recorded once per unit operating day. [40 CFR 60.334(i)]
- E. For any turbine for which a custom fuel monitoring schedule has previously been approved, the owner or operator may, without submitting a special petition to the Administrator, continue monitoring on this schedule. [40 CFR 60.334(h)(4)]
- F. Compliance with NO_x emission limits shall be demonstrated with CEMS or the alternative provided herein. If using a CEMS, the CEMS shall be installed, operated and maintained in accordance with 40 CFR Part 75, Continuous Emission Monitoring. Alternatively, any affected unit which meets the definition of a gas-fired peaking unit in 40 CFR 72.2 may elect to utilize the procedures for estimating the NO_x emission rate in Appendix E to 40 CFR Part 75 in accordance with 40 CFR 75.12(d), or any affected unit which meets the Low Mass Emissions (LME) criteria provided in 40 CFR 75.19 may elect to utilize the LME excepted methodology for estimating the NO_x emission rate as provided in 40 CFR 75.19.

IX. Recordkeeping

- A. The owner or operator of the turbines shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of each 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).

- B. Records shall be maintained of the number and length (in hours) of periods of operation at less than 60% loads during any consecutive 12-month period.
- C. Records shall be maintained demonstrating that only natural gas is fired in each turbine.
- D. Records shall be maintained on the number of hours of each turbine firing natural gas during any consecutive 12-month period.
- E. All of the above records shall be maintained on site for a period of 5 years.

X. Reporting

All reports required to be submitted shall be submitted to the KDHE in the same units as stated in the applicable requirements.

- A. Items required to be reported semiannually shall be submitted to KDHE and postmarked by the 30th day following the end of each six-month period.
- B. Items required to be reported annually shall be submitted to KDHE and postmarked by the 30th day following the end of each calendar year.
- C. For each 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 semiannual basis (or quarterly). 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 shall be submitted. Written reports of excess emissions shall include the following information:
 - 1. 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.
 - 2. Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions, the nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted.
 - 3. 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.
 - 4. 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.
- D. For purposes of the reports required under section **X. Reporting** Item C, periods of excess emissions as defined in 40 CFR 60.334(c) shall be as follows:
 - 1. Any 30-day rolling average⁵ which exceeds 9 ppm_{dv}, corrected to 15% O₂, excluding periods of startup, shutdown, or malfunction.

⁵ 30 days is defined as 720 hours of cumulative operation. Partial hours of operation are rounded up to whole hours.

2. If claiming a fuel bound nitrogen credit, any period during which the fuel bound nitrogen of the fuel is greater than the value measured during the performance test required in 40 CFR 60.8 and used to determine the allowance as provided in 40 CFR 60.334(j)(1)(ii). [40 CFR 60.334(j)]

XI. Notification

- A. Notify the Air Program Field Staff in the Johnson County Environmental Department in Olathe, Kansas at (913) 715-6939, when installation of each turbine is complete, so an evaluation may be conducted to verify compliance with applicable regulations.
- B. K.A.R. 28-19-720 (40 CFR 60.7(a)) requires that written notifications of the following be submitted to KDHE:
 1. The date construction of each combustion turbine generator is commenced. The notification is to be postmarked no less than 30 days after such date.
 2. The actual date of initial startup of each combustion turbine generator. The notification is to be postmarked within 15 days after such date.
 3. The date when performance testing is to commence. The notification is to be postmarked no less than 30 days prior to such date.

XII. Acid Rain Requirements

The combustion turbine generators are 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 shall be made as required.

XIII. Title V Requirements

The combustion turbine generators are subject to Title V Requirements of the Federal Clean Air Act. A complete Title V (Class I) permit application 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.

XIV. General Provisions

- A. This document shall become void if construction, installation, or modification of the source has not commenced within 18 months of the effective date of this permit, or if the construction, installation or modification of the source is interrupted for a period of 18 months or longer, or if a continuous program of actual on site construction of the source is not completed within a reasonable time.
- B. 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.
- C. 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:
 1. 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;

2. have access to and copy, at reasonable times, any records that must be kept under conditions of this document;
 3. inspect at reasonable times, any facilities, equipment (including monitoring and control equipment), practices or operations regulated or required under this document; and
 4. 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.
- D. 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.
- E. 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.
- F. This document does not relieve the permittee of the obligation to obtain any approvals, permits, licenses or documents of sanction which may be required by other federal, state or local government agencies.
- G. As applicable, EPA regulations codified in 40 CFR Part 60, 62, and 63 require affected sources to electronically submit performance test reports, notification reports, and periodic reports to EPA through the Compliance and Emissions Data Reporting Interface (CEDRI). CEDRI is accessed through the EPA's Central Data Exchange (CDX) (<https://cdx.epa.gov/>). If the reporting form is not available in CEDRI at the time that the report is due, the source must submit the report to the Administrator [address listed in 40 CFR 63.13]:

Kansas Compliance Officer
Air Branch
Enforcement and Compliance Assurance Division
U.S. EPA, Region 7
11201 Renner Blvd.
Lenexa, Kansas 66219

All reports, deviations, malfunctions, and other notifications required to be submitted by this permit shall be submitted through the Kansas Environmental Information Management System ("KEIMS") at:

<http://www.kdheks.gov/bar/keims-BOA.html>

Permit Writer

Jason Heitman
Engineering Associate
Air Permitting Section

JH:
c: JCDHE; Keith Johnson, USEPA Region 7
CSD00049 v1.1 (Revised C-3856/CSD00049 v1.0 and C-13498/CSP00948 v1.0)