

Division of Environment  
Curtis State Office Building  
1000 SW Jackson St., Suite 400  
Topeka, KS 66612-1367



Phone: 785-296-1535  
Fax: 785-559-4264  
www.kdheks.gov

Janet Stanek, Secretary

Laura Kelly, Governor

November 13, 2024

Source ID No. 0210002

Mr. Justin Moll  
Empire District Electric Co-Riverton Power Station  
7240 SE Highway 66  
Riverton, Kansas 66770

Re: Air Emission Source Construction Permit

Dear Mr. Moll:

The Kansas Department of Health and Environment (KDHE) reviewed Empire District Electric Co-Riverton Power Station's proposal to install two (2) new black-start Combustion Turbines (Replacement of Units 10 and 11), one (1) new 500 kW Emergency Engine, and one (1) new SF6 Circuit Breaker at their facility located in Riverton, Cherokee County, Kansas. Enclosed is the Air Emission Source Construction Permit for the proposed units. KDHE received the application to renew the facility's Class I Operating Permit on September 26, 2022. The requirements from this Construction Permit will be incorporated into the facility's Class I Operating Permit Renewal.

**Please review the Permit carefully since it obligates Empire District Electric Co-Riverton Power Station to certain requirements.**

Notify through the Kansas Environmental Information Management System (KEIMS) using the **BOA Notification – General form** within 30 days of commencing operation of the emission units so that an evaluation can be conducted.

Currently, Empire District Electric Co – Riverton Power Station operates under a Class I Air Operating Permit renewed on March 30, 2018. The installation and operation of the equipment is considered an off-permit modification to the operating permit as specified under K.A.R. 28-19-513, Class I operating permits; permit amendment, modification or reopening and changes not requiring a permit action. In accordance with K.A.R. 28-19-513(g)(4), the owner or operator shall keep a record describing the changes made at the facility that result in emissions of a regulated pollutant subject to an applicable requirement that are not otherwise regulated under the permit, and the emissions resulting from those changes.

As provided for in K.S.A. 65-3008b(e), an owner or operator may request a hearing within 15 days after affirmation, 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 the 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 785-368-7030  
Fax: 785-559-4256  
arwa.alrefaai@ks.gov

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Mr. Moll  
November 13, 2024

Include the above source ID number in all communications with the KDHE regarding this facility. If you have any questions regarding this document, please contact me at (785) 368-7030.

Sincerely,



Arwa Alrefaai  
Engineering Trainee  
Air Permitting Section

AMA:jh  
Enclosure  
c: SEDO  
CSP03200 v1.0

## **AIR EMISSION SOURCE CONSTRUCTION PERMIT**

**Source ID No.:** 0210002

**Effective Date:** November 13, 2024

**Source Name:** The Empire District Electric Company- Riverton Power Station

**SIC Code:** 4911; Electric Services

**NAICS Code:** 221112; Fossil Fuel Electric Power Generation

**Source Location:** 7240 SE Highway 66  
Riverton, KS 66770

**Mailing Address:** 7240 SE Highway 66

**Contact Person:** Justin Moll  
Plant Director  
(417) 625-5100  
[justin.moll@libertyutilities.com](mailto:justin.moll@libertyutilities.com)

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

### **I. Description of Activity Subject to Air Pollution Control Regulations**

The Empire District Electric Company/Liberty-Riverton Power Station (Empire) is proposing to replace their existing simple cycle combustion turbines, Unit EU-010 and Unit EU-011, with two (2) new 14.4 MW each Siemens SGT-400 simple cycle stationary combustion turbines (CTs). The project will also include installing one (1) new 500 kW emergency diesel engine, and one (1) new SF6 circuit breaker associated with the two new combustion turbines at their facility in Cherokee County, Kansas. The new installation involves producing more flexibility to allow "tuning" each of the new CTs on all available operational fuels at the expected temperature extremes, and also have the ability to operationally "test" both units on multiple fuel types as needed to maintain operational effectiveness as required by the various regulatory authorities.

Empire plans to permanently retire (unit EU-010 and EU-011) when the proposed two (2) new CTs (designated as unit EU-013 and EU-014) are fully commissioned and commercially available to produce power for customers. The new combustion turbines, Units EU-013 and EU-014 will be primarily natural gas-fired with Jet-A distillate oil as a backup fuel. The Siemens SGT-400 CTs are not designed to simultaneously combust both pipeline natural gas and fuel oil.

To allow them to have the maximum operational flexibility while limiting the project emissions to below the Prevention of Significant Deterioration (PSD) Significant Emission Rates (SERs), Empire has proposed a federally enforceable operational restriction which would limit the operational hours by which each unit may operate using natural gas and/or distillate oil to an equivalent number (3.873) of hours combusting solely natural gas.

This project **is not** subject to 40 CFR Part 63 Subpart YYYY because Empire operates or owns a stationary combustion turbine (unit EU-013 and Unit EU-014) located at an area source of HAP emissions (OP100032v5.2/O-12086 dated August 25,2020) [40 CFR 63.6085].

The project **is not** subject to 40 CFR part 64 *Compliance Assurance Monitoring* because the proposed units are not subject to an emission limitation or standard for the applicable regulated air pollutant and these units do not use a control device to achieve compliance with any such emission limitation or standard.

This project **is not** subject to provision of 40 CFR Part 76, *Acid Rain Nitrogen Oxides Emission Reduction Program* because the proposed CTs are generators with a nameplate capacity less than 25 Mwe (15 MW each unit) and are natural gas and Jet-A/ distillate fired combustion turbines and do not consume coal.

This project **is** subject to 40 CFR Part 60 Subpart KKKK because Empire owns and operates stationary combustion turbines (unit EU-013 and unit EU-014) with heat input at peak load greater than 10 MMBtu per hour (144.4 MMBtu/hr) and pollutants regulated by 40 CFR Part 60 Subpart KKKK are nitrogen oxide (NO<sub>x</sub>) and sulfur dioxide (SO<sub>2</sub>) [40 CFR 60.4315]. Thus, the project **is exempt** from the requirements of 40 CFR Part 60 Subpart GG, Standards of Performance for Stationary Gas Turbines. [40 CFR 60.4305(b)]

The potential emissions of volatile organic compounds (VOC), particulate matter (PM), particulate matter with less than or equal to 10 microns in aerodynamic diameter (PM<sub>10</sub>), particulate matter with less than or equal to 2.5 microns in aerodynamic diameter (PM<sub>2.5</sub>), carbon monoxide (CO), oxides of nitrogen (NO<sub>x</sub>), oxides of sulfur (SO<sub>x</sub>), and hazardous air pollutants (HAPs) were evaluated as part of the review process. This project is subject to the provisions of K.A.R. 28-19-300 (Construction permits and approvals; applicability) because the emissions from the proposed project exceed the permit thresholds in K.A.R. 28-19-300(a).

Empire is currently a PSD major stationary source as per 40 CFR 52.21(b)(1)(i) for NO<sub>x</sub>. The facility has taken a federally enforceable operational restriction on operating hours for the proposed combustion turbines such that the project will not cause a significant emission increase under 40 CFR 51.21(b)(23)(i) and will not be considered a major modification under 40 CFR 52.21.

Currently, Empire operates under Class I Operating Permit (OP100032 v5.0/O-12086) last renewed on March 30, 2018. Empire will continue to comply with applicable permit limitations and conditions from OP100032 v5.0. KDHE received Empire's application to renew their Class I Operating Permit on September 26, 2022 and will incorporate the proposed changes and requirements into their current Class I Operating Permit.

## **II. Significant Applicable Air Regulations**

The following air quality regulations were determined to be applicable to this source:

- A. K.A.R. 28-19-650, Emissions opacity limits.
- B. K.A.R. 28-19-300 Construction permits and approvals; applicability.
- C. K.A.R. 28-19-720 New Source Performance Standards, which adopts by reference 40 CFR Part 60 Subpart KKKK.
- D. K.A.R. 28-19-720, New Source Performance Standards, which adopts by reference 40 CFR Part 60, Subpart A, *General Provisions*.

- E. 40 CFR Part 60, Subpart IIII, *Standards of performance for New Stationary Source for Compression Ignition Internal Combustion Engines.*
- F. 40 CFR Part 63, Subpart ZZZZ, *National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines (RICE).*

### III. Air Emission Unit Technical Specifications

The following equipment or equivalent will be installed:

- A. Two (2) Siemens SGT-400 simple cycle stationary combustion turbines (CTs) that are rated at approximately 14.4 Mega Watts (**144.4 MMBtu/hr**) each. Turbines will combust natural gas as primary fuel and Jet-A/distillate fuel oil as backup fuel, and will be designated as EU-013 and EU-014.
- B. One (1) Cummins diesel-fired 500 kW emergency engine EU-ENG 07 Model No. 500 DFEK, with **671 hp** and maximum heat input rate to be **4.4 MMBtu/hr**, used for turbines auxiliaries and startup for unit EU-013 and unit EU-014.
- C. One (1) SF6 circuit breaker EU-SF6-2 associated with the emission units EU-013 and EU-014.

The following equipment or equivalent will be deactivated and eventually removed:

- A. Existing Unit EU-010 and Unit EU-011 will be permanently retired when the proposed Unit EU-013 and Unit EU-014 are commercially available to produce power.
- B. One (1) 260 HP emergency diesel-fired engine used as black start generator for turbine auxiliaries on Unit EU-010 designated as EU-ENG03
- C. One (1) 435 HP diesel-fired engine used as startup for turbine combustion (Unit EU-010) designated as EU-ENG04
- D. One (1) 435 HP diesel-fired engine used as startup for turbine combustion (Unit EU-011) designated as EU-ENG05

### IV. Emissions Estimates from Proposed Activity

Pollutant	Project Potential-to-emit (PTE) <sup>1</sup> (tons per year)			Facility-Wide PTE (tons per year)	
	Baseline Actual Emissions	Potential to Emit	Projected Emissions Increase	Uncontrolled	Controlled
CO	7.11	18.34	11.23	79.06	29.32
NO <sub>x</sub>	3.28	42.99	39.71	212.38	119.33
VOC	0.06	8.14	8.08	23.26	11.65
PM	0.06	2.97	2.92	7.12	4.35
PM <sub>10</sub>	0.19	5.53	5.33	7.10	6.89
PM <sub>2.5</sub>	0.19	5.53	5.33	12.36	6.89
SO <sub>x</sub>	0.11	3.61	3.51	5.67	3.62
Lead (Pb)	5.26E-06	9.21E-04	9.16E-04	-	-
Sulfuric Acid Mist (H <sub>2</sub> SO <sub>4</sub> )	-	2.77	2.77	-	-

<sup>1</sup> 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.

Pollutant	Project Potential-to-emit (PTE) <sup>1</sup> (tons per year)			Facility-Wide PTE (tons per year)	
	Baseline Actual Emissions	Potential to Emit	Projected Emissions Increase	Uncontrolled	Controlled
Fluorides	-	-	-	-	-
Hydrogen Sulfide (H <sub>2</sub> S)	-	-	-	-	-
Reduced Sulfur Compounds	-	-	-	-	-
Total Reduced Sulfur	-	-	-	-	-
Greenhouse Gas (Mass Basis)	3,209	65,776	62,754	-	-
Greenhouse Gas (CO <sub>2</sub> e Basis)	3,213	65,866	63,144	-	-
HAPs (combined)	-	0.53	0.53	0.65	0.74
HAPs (individual)-Formaldehyde	-	0.35	0.35	--	--

V. Air Emission Limitations and Conditions

A. The following emission units are subject to the applicable requirements listed below:

Emission Source ID	Emission Source Description	Stack/Vent ID	Control Equipment ID	Control Equipment Description
EU-013	Siemens SGT-400 simple cycle stationary combustion turbines	NA	NA	NA
EU-014	Siemens SGT-400 simple cycle stationary combustion turbines	NA	NA	NA

- The opacity of visible emissions shall not exceed 20% from the proposed turbines. [K.A.R. 28-19-650(a)(3)]
- The owner or operator shall **not** operate Units EU-013 and EU-014 while operating Units EU-010 and EU-011, except during the shakedown period for Units EU-013 and EU-014. Shakedown is defined as an increase that results from a physical change at a source occurs when the emissions unit on which construction occurred becomes operational and begins to emit a particular pollutant. Any replacement unit that requires *shakedown* becomes operational only after a *reasonable shakedown period, not to exceed 180 days*. [40 CFR 52.21(b)(3)(viii)]
- The owner or operator shall limit the operational hours of Unit EU-013 and Unit EU-014 while firing natural gas and/or Jet-A/distillate oil such that the equivalent number of hours firing solely natural gas is no more than 5,187 hours per year per unit, based on a rolling 365-day period. Compliance with this requirement will be determined using Inequality 1 below. Equation 1 below shall be used to determine the equivalent number of hours firing solely natural gas.

Inequality 1:

$$OH_{NGe} \leq 5,187 \text{ hours per year per unit}$$

Where:  $OH_{NGe}$  = the units' equivalent number of operational hours firing solely natural gas, hours/year

Equation 1:

$$OH_{NGe} = OH_{NG} + \left( \frac{3.87 \text{ hours firing natural gas}}{\text{hour firing distillate oil}} \right) * OH_{DO}$$

Where:  $OH_{NG}$  = a unit's number of hours operating while firing natural gas, hours/year  
 $OH_{DO}$  = a unit's number of hours operating while firing distillate oil, hours/year

a. Monitoring

- i. The owner or operator shall monitor daily for each unit the type(s) and quantities of fuel combusted, and the number of hours operated while combusting each fuel.

b. Recordkeeping and Reporting

- i. The owner or operator shall maintain records of the following for each unit:

- Unit No.;
- Date of Operation;
- Type(s) and quantity of fuel combusted;
- Daily number of hours operated while combusting each type of fuel;
- Rolling 365-day total number of hours operated while combusting each type of fuel; and
- Rolling 365-day total number of equivalent hours operating solely natural gas.

- ii. The owner or operator shall update the records in Section V.A.3.b.i. no later than seven (7) days following the date to which the record relates.

- iii. Records shall be kept for five (5) years and shall be kept on-site for at least two (2) years from the date to which the record relates. Records shall be made available to KDHE upon request.

- iv. The owner or operator shall submit a copy of these records semi-annually.

4. The owner or operator is subject to the applicable requirements of 40 CFR Part 60 Subpart KKKK, *Standards of Performance for Stationary Combustion Turbines*. These requirements are summarized below:

a. Limitations or Standards

- i. The owner or operator must meet the emission limits for NO<sub>x</sub> for modified or reconstructed turbines with heat input at peak load greater than 50 MMBtu/hr and less than or equal to 850 MMBtu/hr, as specified in Table 1 to 40 CFR Part 60 Subpart KKKK. [40 CFR 60.4320(a)]

- a) **During times of natural gas operation:** 25 ppm at 15 percent O<sub>2</sub> or 150 ng/J of useful output (1.2 lb/MWh) during period of firing natural gas operation. [Table 1 to Subpart KKKK of Part 60, Title 40]

- b) **During times of distillate oil operation:** 74 ppm at 15 percent O<sub>2</sub> or 460 ng/J of useful output (3.6 lb/MWh). [Table 1 to Subpart KKKK of Part 60, Title 40]

- c) The owner or operator must meet the corresponding standard (42 ppm at 15 percent O<sub>2</sub>) for a natural gas-fired turbine when total heat input is greater than or equal to 50 percent natural gas. Similarly, the owner or operator must meet the corresponding standard (96 ppm at 15 percent O<sub>2</sub>) for distillate oils when the total heat input is greater than or equal to 50 percent distillate oil. [40 CFR 60.4325]

- ii. The owner or operator of a turbine located in a continental area must not burn in the subject stationary combustion turbine any fuel which contains total potential sulfur emissions in excess of 26 ng SO<sub>2</sub>/J (0.060 lb SO<sub>2</sub>/MMBtu) heat input. If the turbine simultaneously fires multiple fuels, each fuel must meet this requirement. [40 CFR 60.4330(a)(2)]

b. General Compliance

- i. The owner or operator operates and maintains stationary combustion turbine, air pollution control equipment, and monitoring equipment in a manner consistent with good air pollution control practices for minimizing emissions at all times including during startup, shutdown, and malfunction. [40 CFR 60.4333(a)]
- ii. When an affected unit with heat recovery utilizes a common steam header with one or more combustion turbines, the owner or operator shall either:
  - a) Determine compliance with the applicable NO<sub>x</sub> emissions limits by measuring the emissions combined with the emissions from the other unit(s) utilizing the common heat recovery unit; or
  - b) Develop, demonstrate, and provide information satisfactory to the Administrator on methods for apportioning the combined gross energy output from the heat recovery unit for each of the affected combustion turbines. The Administrator may approve such demonstrated substitute methods for apportioning the combined gross energy output measured at the steam turbine whenever the demonstration ensures accurate estimation of emissions related under 40 CFR Part 60.

c. Performance Tests

The owner or operator controls NO<sub>x</sub> emission **without** using water or steam injection must perform annual performance test accordance with 40 CFR 60.4400 to demonstrate continuous compliance for NO<sub>x</sub> **or** install, certify, maintain, and operate a continuous emission monitoring system (CEMS). [40 CFR 60.4340]

- i. **If the option to conduct a performance testing is chosen**, the owner or operator must perform annual performance test accordance with 40 CFR 60.4400 to demonstrate continuous compliance with NO<sub>x</sub> excess emission monitoring **without 30-day averaging period**. [40 CFR 60.4340(a)]
  - a) The owner or operator must perform **annual** performance tests in accordance with 40 CFR 60.4400 to demonstrate continuous compliance on NO<sub>x</sub> emissions. If the NO<sub>x</sub> emission result from the performance test is less than or equal to 75 percent of the NO<sub>x</sub> emission limit for the turbine, the owner or operator may reduce the frequency of subsequent performance tests to once every 2 years (no more than 26 calendar months following the previous performance test). If the results of any subsequent performance test exceed 75 percent of the NO<sub>x</sub> emission limit for the turbine, the owner or operator must resume annual performance tests. [40 CFR 60.4340(a)]



- b) The performance test must be done at any load condition within plus or minus 25 percent of 100 percent of peak load. The owner or operator may perform testing at the highest achievable load point, if at least 75 percent of peak load cannot be achieved in practice. The owner or operator must conduct three separate test runs for each performance test. The minimum time per run is 20 minutes. [40 CFR 60.4400(b)]
- c) The stationary combustion turbine combusts both oil and gas as primary or backup fuels, separate performance testing is required for each fuel. [40 CFR 60.4400(b)(1)]
- d) Compliance with the applicable emission limit in 40 CFR 60.4320 must be demonstrated at each tested load level. Compliance is achieved if the three-run arithmetic average NO<sub>x</sub> emission rate at each tested level meets the applicable emission limit in 40 CFR 60.4320. [40 CFR 60.4400(b)(4)]
- e) If Continuous Emission Monitoring System (CEMS) is chosen as described in 40 CFR 60.4335(b)(1) through (4) and 40 CFR 60.4345, the performance evaluation of the CEMS may either be conducted separately or (as described in 40 CFR 60.4405) as part of the initial performance test of the affected unit. [40 CFR 60.4400(b)(5)]
- f) The ambient temperature must be greater than 0 °F during the performance test. [40 CFR 60.4400(b)(6)]
- g) The owner or operator must conduct an initial performance test, as required in 40 CFR 60.8. Subsequent SO<sub>2</sub> performance tests shall be conducted on an annual basis (no more than 14 calendar months following the previous performance test). There are four methodologies that you may use to conduct the performance tests. [40 CFR 60.4415]

ii. **For turbines using CEMS:** [40 CFR 60.4380(b)]

- a) An excess emission is any unit operating period in which the **4-hour or 30-day rolling average** NO<sub>x</sub> emission rate exceeds the applicable emission limit in 40 CFR 60.4320. For the purposes of 40 CFR Part 60 Subpart KKKK, a “4-hour rolling average NO<sub>x</sub> emission rate” is the arithmetic average of the average NO<sub>x</sub> emission rate in ppm or ng/J (lb/MWh) measured by the continuous emission monitoring equipment for a given hour and the three unit operating hour average NO<sub>x</sub> emission rates immediately preceding that unit operating hour. Calculate the rolling average if a valid NO<sub>x</sub> emission rate is obtained for at least 3 of the 4 hours. For the purposes of 40 CFR Part 60 Subpart KKKK, a “30-day rolling average NO<sub>x</sub> emission rate” is the arithmetic average of all hourly NO<sub>x</sub> emission data in ppm or ng/J (lb/MWh) measured by the continuous emission monitoring equipment for a given day and the twenty-nine unit operating days immediately preceding that unit operating day. A new 30-day average is calculated each unit operating day as the average of all hourly NO<sub>x</sub> emissions rates for the preceding 30 unit operating days if a valid NO<sub>x</sub> emission rate is obtained for at least 75 percent of all operating hours. [40 CFR 60.4380(b)(1)]

- b) A period of monitor downtime is any unit operating hour in which the data for any of the following parameters are either missing or invalid: NO<sub>x</sub> concentration, CO<sub>2</sub> or O<sub>2</sub> concentration, fuel flow rate, steam flow rate, steam temperature, steam pressure, or megawatts. The steam flow rate, steam temperature, and steam pressure are only required if the owner or operator will use this information for compliance purposes. [40 CFR 60.4380(b)(2)]
    - c) For operating periods during which multiple emissions standards apply, the applicable standard is the average of the applicable standards during each hour. For hours with multiple emissions standards, the applicable limit for that hour is determined based on the condition that corresponded to the highest emissions standard.
  - iii. For turbines required to monitor combustion parameters or parameters that document proper operation of the NO<sub>x</sub> emission controls: [40 CFR 60.4380(c)]
    - a) An excess emission is a 4-hour rolling unit operating hour average in which any monitored parameter does not achieve the target value or is outside the acceptable range defined in the parameter monitoring plan for the unit. [40 CFR 60.4380(c)(1)]
    - b) A period of monitor downtime is a unit operating hour in which any of the required parametric data are either not recorded or are invalid. [40 CFR 60.4380(c)(2)]
- d. Monitoring
  - i. The owner or operator must monitor the total sulfur content of the fuel being fired in the turbine, except as provided in 40 CFR 60.4365. The sulfur content of the fuel must be determined using total sulfur methods described in 40 CFR 60.4415. Alternatively, if the total sulfur content of the gaseous fuel during the most recent performance test was less than half the applicable limit, ASTM D4084, D4810, D5504, or D6228, or Gas Processors Association Standard 2377 (all of which are incorporated by reference (40 CFR 60.17)), which measure the major sulfur compounds, may be used. [40 CFR 60.4360]
  - ii. The owner or operator may elect not to monitor the total sulfur content of the fuel combusted in the turbine, if the fuel is demonstrated not to exceed potential sulfur emissions of 26 ng SO<sub>2</sub>/J (0.060 lb SO<sub>2</sub>/MMBtu) heat input for units located in continental areas and 180 ng SO<sub>2</sub>/J (0.42 lb SO<sub>2</sub>/MMBtu) heat input for units located in non-continental areas or a continental area that the Administrator determines does not have access to natural gas and that the removal of sulfur compounds would cause more environmental harm than benefit. The owner or operator must use one of 40 CFR 60.4365(a) or 40 CFR 60.4365(b) sources of information to make the required demonstration [40 CFR 60.4365]
  - iii. The owner or operator must follow the frequency of determining the sulfur content of the fuel as follows 40 CFR 60.4370(a), (b), (c). [40 CFR 60.4370]

e. Reporting and Recordkeeping

- i. The owner or operator must submit reports of excess emissions and monitor downtime, in accordance with 40 CFR 60.7(c). For each affected unit required to continuously monitor parameters or emissions, or to periodically determine the fuel sulfur content. Excess emissions must be reported for all periods of unit operation, including start-up, shutdown, and malfunction. [40 CFR 60.4375(a)]
- ii. The owner or operator must submit a written report of the results of each performance test before the close of business on the 60th day following the completion of the performance test. [40 CFR 60.4375(b)]
- iii. All reports required under 40 CFR 60.7(c) must be postmarked by the 30th day following the end of each 6-month period. [40 CFR 60.4395]

**B. The following emission units are subject to the applicable requirements listed below:**

Emission Source ID	Emission Source Description	Stack/Vent ID	Control Equipment ID	Control Equipment Description
EU-ENG 07	Cummins 4SLB reciprocating diesel-fired 500 kW emergency engine with <b>671 hp</b> and maximum heat input rate to be <b>4.4 MMBtu/hr</b>	NA	NA	NA

- 1. The opacity of visible emissions shall not exceed 20% from the proposed engines. [K.A.R. 28-19-650(a)(3)]
- 2. The owner or operator shall comply with MACT ZZZZ by meeting the applicable requirements of NSPS IIII described above and **no** further requirements apply to the proposed engine under MACT Subpart ZZZZ. [40 CFR 63.6590(c)]
- 3. Limitation and Standards
  - a. The owner or operator of a 2007 model year and later emergency stationary CI ICE with a displacement of **less than 30** liters per cylinder that are not fire pump engines, must comply with emission standards for new nonroad emergency stationary CI in 40 CFR 60.4202, for all pollutants, for the same model year and maximum engine power for their 2007 model year and later emergency stationary CI ICE. [40 CFR 60.4205(b)]
  - b. The owner or operator of emergency stationary CI engines with a displacement of **greater than 30** liters per cylinder installed on or after January 1, 2012, must limit emissions of NO<sub>x</sub> in the stationary CI ICE exhaust to the following: [40 CFR 60.4205(d)]
    - i. 14.4 g/KW-hr (10.7 g/HP-hr) when maximum engine speed is less than 130 rpm; [40 CFR 60.4205(d)(2)(i)]
    - ii.  $44 \cdot n^{-0.23}$  g/KW-hr ( $33 \cdot n^{-0.23}$  g/HP-hr) when maximum engine speed is 130 or more but less than 2,000 rpm, where n is maximum engine speed; and [40 CFR 60.4205(d)(2)(ii)]
    - iii. 7.7 g/kW-hr (5.7 g/HP-hr) when maximum engine speed is 2,000 rpm or more. [40 CFR 60.4205(d)(2)(iii)]

- c. The owner and operator of emergency stationary CI ICE with a displacement of **less than 30** liters per cylinder who conduct **performance tests** in-use must meet the NTE standards as indicated in 40 CFR 60.4212. [40 CFR 60.4205(e)]
- d. The owner or operator stationary CI ICE with a displacement of **less than 30** liters per cylinder must use diesel fuel that meets the requirements of 40 CFR 1090.305, except that any existing diesel fuel purchased (or otherwise obtained) prior to October 1, 2010, may be used until depleted. [40 CFR 60.4207(b)]
- e. The owner or operator stationary CI ICE with a displacement of **greater than 30** liters per cylinder must use diesel fuel that meets a maximum per-gallon sulfur content of 1,000 parts per million (ppm).
- f. The owner or operator must operate and maintain stationary CI ICE that achieve the emission standards as required in 40 CFR 60.4204 and 60.4205 over the entire life of the engine. [40 CFR 60.4206]
- g. The owner or operator of a stationary CI internal combustion engine equipped with a diesel particulate filter to comply with the emission standards in 40 CFR 60.4204, the diesel particulate filter must be installed with a backpressure monitor that notifies the owner or operator when the high backpressure limit of the engine is approached. [40 CFR 60.4209(b)]

4. Performance Testing and Compliance demonstration

- a. The owner or operator must comply with the emission standards specified in 40 CFR Part 60 Subpart IIII and do all the following except as permitted under 40 CFR 60.4211(g). [40 CFR 60.4211(a)(1), (2), and (3)]
  - i. Operate and maintain the stationary CI internal combustion engine and control device according to the manufacturer's emission-related written instructions;
  - ii. Change only those emission-related settings that are permitted by the manufacturer; and
  - iii. Meet the requirements of 40 CFR Part 1068, as they apply.
- b. The owner or operator of a 2007 model year and later stationary CI internal combustion engine and must comply with the emission standards specified in 40 CFR 60.4204(b) or 40 CFR 60.4205(b). [40 CFR 60.4211(c)]
- c. If the owner or operator and must comply with the emission standards specified in 40 CFR 60.4204(c) or 40 CFR 60.4205(d) then must demonstrate compliance according to the requirements specified in 40 CFR 60.4211(d)(1) through (3). [40 CFR 60.4211(d)]
- d. The owner or operator of an emergency stationary ICE must operate the emergency stationary ICE according to the requirements in 40 CFR 60.4211(f)(1) through 40 CFR 60.4211(f)(3). [40 CFR 60.4211(f)]
- e. The owner or operator must conduct the performance test according to the requirements in 40 CFR 60.4 and under the specific conditions that 40 CFR Part 60 Subpart IIII specifies in table 7. The test must be conducted within 10 percent of 100 percent peak (or the highest achievable) load. [40 CFR 60.4213(a)]

- f. The owner or operator may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in 40 CFR 60.8. [40 CFR 60.4213(b)]
- g. The owner or operator must conduct three separate test runs for each performance test required in 40 CFR 60.4212(c), as specified in 40 CFR 60.8. Each test run must last at least 1 hour. [40 CFR 60.4213(c)]

5. Monitoring

- a. The owner or operator of an emergency stationary CI internal combustion engine that does not meet the standards applicable to non-emergency engines, you must install a non-resettable hour meter prior to startup of the engine. [40 CFR 60.4209(a)]
- b. The owner or operator of a stationary CI internal combustion engine equipped with a diesel particulate filter to comply with the emission standards in 40 CFR 60.4204, the diesel particulate filter must be installed with a backpressure monitor that notifies the owner or operator when the high backpressure limit of the engine is approached. [40 CFR 60.4209(b)]

6. Notification, Reporting, and Recordkeeping

- a. The Owners and operators of non-emergency stationary CI ICE that are greater than 2,237 KW (3,000 HP), or have a displacement of greater than or equal to 10 liters per cylinder, or are pre-2007 model year engines that are greater than 130 KW (175 HP) and not certified, must meet the requirements of 40 CFR 60.4214(a)(1) and (2). [40 CFR 60.4214(a)]
- b. The owner or operator is not required to submit an initial notification if the stationary CI internal combustion engine is an emergency stationary internal combustion engine [40 CFR 60.4214(b)]
- c. The owner or operator must keep records of any corrective action taken after the backpressure monitor has notified the owner or operator that the high backpressure limit of the engine is approached if the stationary CI internal combustion engine is equipped with a diesel particulate filter. [40 CFR 60.4214(c)]
- d. If an emergency stationary CI ICE with a maximum engine power more than 100 HP that operates for the purpose specified in 40 CFR 60.4211(f)(3)(i), the owner or operator must submit an annual report according to the requirements in 40 CFR 60.4214(d)(1) through (3). [40 CFR 60.4214(d)]
- e. The owners or operators of stationary CI ICE equipped with AECDs pursuant to the requirements of 40 CFR 1039.665 must report the use of AECDs as required by 40 CFR 1039.665e. [40 CFR 60.4214(e)]
- f. Beginning on February 26, 2025, within 60 days after the date of completing each performance test required by 40 CFR 60 subpart IIII, the owner or operator must submit the results of the performance test required following the procedures specified in 40 CFR 60.4214(f)(1) and (2). [40 CFR 60.4214(f)]
- g. The owner or operator must submit notifications or reports to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI), which can be accessed through the EPA's Central Data Exchange (CDX) (<https://cdx.epa.gov/>) following the procedure specified in 40 CFR 60.4214(g) and (2)[40 CFR 60.4214(g)]

- h. If the owner or operator is required to electronically submit a report through CEDRI in the EPA's CDX, then may assert a claim of EPA system outage for failure to timely comply with that reporting requirement. To assert a claim of EPA system outage and must meet the requirements outlined in 40 CFR 60.4214(h) through (7). [40 CFR 60.4214(h)]
- i. If the owner or operator required to electronically submit a report through CEDRI in the EPA's CDX, you may assert a claim of force majeure for failure to timely comply with that reporting requirement. To assert a claim of force majeure, you must meet the requirements outlined in 40 CFR 60.4214(i)(1) through (5). [40 CFR 60.4214(i)]
- j. Any records required to be maintained by 40 CFR Part 60 Subpart IIII that are submitted electronically via the EPA's CEDRI may be maintained in electronic format. This ability to maintain electronic copies does not affect the requirement for facilities to make records, data, and reports available upon request to a delegated air agency or the EPA as part of an on-site compliance evaluation. [40 CFR 60.4214(j)]

## VI. Notification

- A. Notify through the Kansas Environmental Information Management System (KEIMS) using the **BOA Notification – General form** within 30 days of commencing operation of the emission units **EU-013, EU-014** and **EU-ENG 07** so that an evaluation can be conducted.<sup>2</sup>
- B. If, at any time, the facility's operations exceed the specified limitations (throughput and emission limits) in Section V. of this Permit, the owner or operator shall:
  - 1. Notify KDHE via the Kansas Environmental Information Management System (KEIMS) of any exceedance of the permit limitations within the first working day following discovery of the exceedance.
  - 2. Submit to KDHE via KEIMS a compliance plan stating those actions being taken by the owner or operator to assure future compliance with the permit limitations. This plan shall be signed by a responsible official and submitted within 60 days of discovering the exceedance. This plan will clearly state if an application for a construction permit modification will be submitted. Any such application will be filed within 180 days of discovering the exceedance.

Submitting any or all of these reports does not shield the owner or operator from enforcement action for exceeding the permit limitations or for other violations of the Kansas Air Quality Act or Regulations.

## VII. General Provisions

- A. This document shall become void if the construction or modification has not commenced within 18 months of the effective date, or if the construction or modification is interrupted for a period of 18 months or longer.
- B. A construction permit or approval must be issued by KDHE prior to commencing any construction or modification of equipment or processes which results in potential-to-emit increases equal to or greater than the thresholds specified at K.A.R. 28-19-300.

<sup>2</sup> Air Program Field Staff, Southeast District Office, Chanute, Kansas (620) 860-7235

<sup>3</sup> These Baseline Actual Emissions were calculated from units 10 and 11 using the period from December 2018 through December 2022.

- C. Upon presentation of credentials and other documents as may be required by law, representatives of the KDHE (including authorized contractors of the KDHE) shall be allowed to:
1. enter upon the 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.
- 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 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 KEIMS at: <https://keims.kdhe.ks.gov/nsuite/ncore/external/home>

**Permit Writer**



Arwa M. Alrefaai  
Engineering Trainee  
Air Permitting Section

AMA:jh  
c: SEDO  
CSP03200 v1.0

## RESPONSE TO COMMENTS

**Regarding the  
Air Construction Permit  
For  
Empire District Electric Co-Riverton Power Station  
Source ID #0210002  
Tracking Number: CSP03200v1.0**

**October 28, 2024**

The proposed Air Construction Permit for Empire District Co-Riverton Power Station was placed on public notice by the Secretary of the Kansas Department of Health and Environment (KDHE) on October 3<sup>rd</sup>, 2024. The public comment period ended November 4<sup>th</sup>, 2024.

Following is a summary of the concerns based on the written comments received during the public comment period.

**I. Comment #1:**

**40 CFR, Part 60, Subpart KKKK NO<sub>x</sub> emission limits:** Table 1 of Subpart KKKK does not specify an averaging period, along with the emissions limits, to determine whether or not excess emissions have been emitted from the two new Siemens combustion turbines.

Empire District requests that an averaging period defined (at least) as a 4-hour rolling average be included with the NO<sub>x</sub> emissions limits for natural gas and fuel oil combustion. (i.e., NO<sub>x</sub> limit when combusting natural gas: 25 ppm at 15 percent O<sub>2</sub> on a 4- hour rolling average basis, and while combusting fuel oil: 74 ppm at 15 percent O<sub>2</sub> on a 4-hour rolling hour basis).

The Riverton Power Station's Unit 12 CC is also subject to Subpart KKKK and the KDHE permit allows a 30-day rolling average in determining whether or not excess emissions occur.

Other examples of combustion turbines, subject to Subpart KKKK, that have averaging periods in their permits to determine whether or not excess emissions occur are as follows: (and their permits are attached)

-Associated Electric Cooperative, Inc.: Dell Power Plant. The permit issued by the Arkansas Department of Environmental Quality determines excess emissions using a 4-hour rolling average or 30-day rolling average. Please reference the highlighted sections in the attached permit.

-Oklahoma Municipal Power Authority: Charles D. Lamb Energy Center. The permit issued by the Oklahoma Department of Environmental Quality determines excess emissions using a rolling 4-hour average. Please reference the highlighted sections in the attached permit.

To further support Empire District's request to have an averaging period included in the permit for the NO<sub>x</sub> emissions limits, Subpart KKKK specifies that combustion turbines using a continuous emissions monitoring system (CEMS) emission may use a 4-hour averaging period to determine if excess NO<sub>x</sub> emissions have occurred. Although Empire District may select a method other than CEMS to monitor NO<sub>x</sub> emissions from these two units, it is prudent for any emissions monitoring methodology to determine whether excess emissions occur by using a rolling averaging period.

**A. Response and Rationale**



Excess emissions reporting is required when facilities choose to install continuous monitoring systems, such as continuous emissions monitoring systems (CEMS) or continuous parameter monitoring systems (CPMS), in order to comply with an applicable emission limit.

40 CFR Part 60 Subpart KKKK defines excess emissions for an affected source who has installed a Continuous Emission Monitoring System (CEMS) to comply with the NO<sub>x</sub> emission limits, as any unit operating period during which the 4-hour or 30-day rolling average NO<sub>x</sub> emission rate exceeds the applicable emission limit. [40 CFR 60.4380(b)]

No averaging period is set for affected sources who choose to comply with the NSPS KKKK NO<sub>x</sub> emission limits by performance testing, although compliance with the applicable emission limit is determined by the arithmetic average of three 1-hour test runs. [40 CFR 60.4400(b)(4)]

In all three examples provided by the commenter, including the existing combined cycle combustion turbine Unit 12, the facilities have chosen to install CEMS in order to comply with the NO<sub>x</sub> emission limit and are therefore required to submit excess emissions reports using a 4-hour or 30-day rolling average period.

At the time of permit issuance, the facility had not indicated to KDHE whether the new combustion units would comply with the applicable NO<sub>x</sub> emission limit by performance testing or by installing CEMS.

**B. Action Taken**

KDHE has included in the construction permit the 40 CFR Part 60 Subpart KKKK compliance provisions for the NO<sub>x</sub> emission limit for both performance testing and the use of CEMS. The 4-hour or 30-day rolling averaging period for excess emissions will only be applicable if the facility chooses to install CEMS on the new combustion turbines. Section V.A.4.c. will now read as follows:

a. Performance Tests

The owner or operator controls NO<sub>x</sub> emission without using water or steam injection must perform annual performance test accordance with 40 CFR 60.4400 to demonstrate continuous compliance for NO<sub>x</sub> or install, certify, maintain, and operate a continuous emission monitoring system (CEMS). [40 CFR 60.4340]

- i. If the option to conduct a performance testing is chosen, the owner or operator must perform annual performance test accordance with 40 CFR 60.4400 to demonstrate continuous compliance with NO<sub>x</sub> excess emission monitoring without 30-day averaging period. [40 CFR 60.4340(a)]
  - a. The owner or operator may reduce the frequency of subsequent performance tests to once every 2 years (no more than 26 calendar months following the previous performance test) if the NO<sub>x</sub> emission result from the performance test is less than or equal to 75 percent of the NO<sub>x</sub> emission limit for the turbine. However, the owner or operator must resume annual performance tests if the results of any subsequent performance test exceed 75 percent of the NO<sub>x</sub> emission limit for the turbine [40 CFR 60.4340(a)]
  - b. The performance test must be done at any load condition within plus or minus 25 percent of 100 percent of peak load. The owner or operator may perform testing at the highest achievable load point, if at least 75 percent of peak load cannot be achieved in practice. The owner or operator must conduct three separate test runs for each performance test. The minimum time per run is 20 minutes. [40 CFR 60.4400(b)]

- c. The stationary combustion turbine combusts both oil and gas as primary or backup fuels, separate performance testing is required for each fuel. [40 CFR 60.4400(b)(1)]
  - d. Compliance with the applicable emission limit in 40 CFR 60.4320 must be demonstrated at each tested load level. Compliance is achieved if the three-run arithmetic average NOX emission rate at each tested level meets the applicable emission limit in 40 CFR 60.4320. [40 CFR 60.4400(b)(4)]
  - e. If Continuous Emission Monitoring System (CEMS) is chosen as described in 40 CFR 60.4335(b)(1) through (4) and 40 CFR 60.4345, the performance evaluation of the CEMS may either be conducted separately or (as described in 40 CFR 60.4405) as part of the initial performance test of the affected unit. [40 CFR 60.4400(b)(5)]
  - f. The ambient temperature must be greater than 0 °F during the performance test. [40 CFR 60.4400(b)(6)]
  - g. The owner or operator must conduct an initial performance test, as required in 40 CFR 60.8. Subsequent SO2 performance tests shall be conducted on an annual basis (no more than 14 calendar months following the previous performance test). There are four methodologies that you may use to conduct the performance tests. [40 CFR 60.4415]
  - h. The owner or operator must perform annual performance tests in accordance with 40 CFR 60.4400 to demonstrate continuous compliance on NOx emissions. If the NOX emission result from the performance test is less than or equal to 75 percent of the NOX emission limit for the turbine, the owner or operator may reduce the frequency of subsequent performance tests to once every 2 years (no more than 26 calendar months following the previous performance test). If the results of any subsequent performance test exceed 75 percent of the NOX emission limit for the turbine, the owner or operator must resume annual performance tests. [40 CFR 60.4340(a)]
- ii. For turbines using CEMS: [40 CFR 60.4380(b)]
- a. An excess emission is any unit operating period in which the 4-hour or 30-day rolling average NOx emission rate exceeds the applicable emission limit in 40 CFR 60.4320. For the purposes of 40 CFR Part60 Subpart KKKK, a “4-hour rolling average NOX emission rate” is the arithmetic average of the average NOX emission rate in ppm or ng/J (lb/MWh) measured by the continuous emission monitoring equipment for a given hour and the three unit operating hour average NOX emission rates immediately preceding that unit operating hour. Calculate the rolling average if a valid NOX emission rate is obtained for at least 3 of the 4 hours. For the purposes of 40 CFR Part 60 Subpart KKKK, a “30-day rolling average NOX emission rate” is the arithmetic average of all hourly NOX emission data in ppm or ng/J (lb/MWh) measured by the continuous emission monitoring equipment for a given day and the twenty-nine unit operating days immediately preceding that unit operating day. A new 30-day average is calculated each unit operating day as the average of all hourly NOX emissions rates for the preceding 30 unit operating days if a valid NOX emission rate is obtained for at least 75 percent of all operating hours. [40 CFR 60.4380(b)(1)]
  - b. A period of monitor downtime is any unit operating hour in which the data for any of the following parameters are either missing or invalid: NOX

concentration, CO<sub>2</sub> or O<sub>2</sub> concentration, fuel flow rate, steam flow rate, steam temperature, steam pressure, or megawatts. The steam flow rate, steam temperature, and steam pressure are only required if the owner or operator will use this information for compliance purposes. [40 CFR 60.4380(b)(2)]

- c. For operating periods during which multiple emissions standards apply, the applicable standard is the average of the applicable standards during each hour. For hours with multiple emissions standards, the applicable limit for that hour is determined based on the condition that corresponded to the highest emissions standard.

**C. Applicable regulation:**

40 CFR Part 60 Subpart KKKK  
40 CFR 60.4335