

AIR EMISSIONS SOURCE CONSTRUCTION PERMIT

Source ID No.: 2090048

Effective Date: Draft

Source Name: Kansas City, Kansas Board of Public Utilities
Quindaro Power Station

SIC Code: 4911; Electric Services

NAICS Code: 221112; Fossil Fuel Electric Power Generation

Source Location: 3601 North 12th Street
Kansas City, Kansas 66104

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

Description of Activity Subject to Air Pollution Control Regulations

The Kansas City, Kansas Board of Public Utilities (BPU) is proposing to install emission control technologies at its existing Quindaro Power Station (Quindaro) electric generating facility located in Wyandotte County, Kansas City, Kansas. BPU will reduce NO_x emissions on Unit 2 through the use of a new Low NO_x Combustion system (LNC) comprised of low NO_x burners (LNB) and overfire air (OFA) combustion control methods. In addition to the LNC system, the project includes certain requisite activities planned concurrently for Unit 2.

The project will not result in any increase in fuel consumption, heat input, or steam generation. However, due to the inverse relationship between NO_x and CO emissions, the new LNC equipment will result in an increase in CO emissions, and thus subject the proposed modification 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. Unit 2 is an affected source subject to Title IV of the Federal Clean Air Act, Acid Deposition Control. The proposed project does not constitute a modification or reconstruction for the purpose of determining applicability of New Source Performance Standard (NSPS) requirements. 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 CO exceeds 100 tons per year.

None of the following emissions will change as a result of this project: particulate matter (PM), PM with a diameter less than 10 microns (PM₁₀), PM with a diameter less than 2.5 microns (PM_{2.5}), sulfur dioxide (SO₂), volatile organic compounds (VOC), lead, sulfuric acid mist (H₂SO₄), fluorides, hydrogen sulfide (H₂S), total reduced sulfur, and carbon dioxide equivalent (CO_{2e}).

An ambient impact analysis and a Best Available Control Technology (BACT) determination were conducted as a part of the construction permit application process.

Significant Applicable Air Regulations

The Quindaro Power Station is subject to the Kansas City Ozone Maintenance Plan, under which the facility is required to lower its NO_x emissions using reasonably available control technology (RACT).

The proposed activity is subject to Kansas Administrative Regulations (K.A.R.) relating to air pollution control. The following air quality regulations were determined to be applicable to this source:

K.A.R. 28-19-713 through 28-19-713d Kansas City Maintenance Area (KCMA) Reduction of Nitrogen Oxides

K.A.R. 28-19-19 Continuous Emission Monitoring

K.A.R. 28-19-30 Indirect Heating Equipment Emission General Provisions

K.A.R. 28-19-31 Indirect Heating Equipment Emission Limitations

K.A.R. 28-19-32 Indirect Heating Equipment Emission Exemptions

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

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

K.A.R. 28-19-650 Emissions Opacity Limits

Air Emission Unit Technical Specifications

The following equipment or equivalent is approved:

1. Installation of a Low NO_x Combustion System (LNC) comprised of low NO_x burners (LNB) and overfire air (OVA) combustion control methods.

2. Installation of new Igniters, Scanners, and Cooling Skids. The new igniters will be sized to provide the same heat input as the existing equipment.
3. Installation of Combustion Optimization Equipment. An electronic combustion optimization system will be installed to improve control and unit operation through more automated control resulting in reduced NO_x and CO emissions.
4. Replacement of Mill Motors. The existing mill motors will be replaced to ensure the motors are able to provide the power required to operate the ball mills in a way that improves coal fineness, which will result in lower CO emissions. The new mill motors will not increase the throughput of the coal into the boiler.
5. Replacement of Coal Classifiers. To ensure the required coal fineness is provided as required by the new coal burners, the existing classifiers will be replaced. The existing classifiers have experienced wear and are in need of replacement. The new classifiers will be replacement in kind and will be almost identical to the existing classifiers.

Air Emissions Estimates from the Proposed Activity

Pollutant Type	Baseline Actual (tons per year)	Excludable Emissions	Projected Actual (tons per year)	Change in Emissions (tons per year)
CO	102	104	1,762	1,658
Nitrogen Oxides (NO _x)	1254	1,283	843	-440
PM	92.9	95.1	95.1	0
PM ₁₀	28.5	29.2	29.2	0
PM _{2.5}	14.3	14.6	14.6	0
Sulfur Dioxide (SO ₂)	3044	3,114	3,114	0
VOCs	12.1	12.4	12.4	0
Lead	0.08	.09	0.09	0
H ₂ SO ₄	46.2	47.3	47.3	0
Fluorides	7.6	7.7	7.7	0

Pollutant Type	Baseline Actual (tons per year)	Excludable Emissions	Projected Actual (tons per year)	Change in Emissions (tons per year)
H ₂ S	Negligible	Negligible	Negligible	0
Total Reduced Sulfur	Negligible	Negligible	Negligible	0
CO ₂ e	844,043	863,478	863,478	0

Air Emission Limitations

Each emission limitation established or referenced in this permit applies to the respective emission source subject to that limitation at all times, including startup, shutdown and malfunction, unless the applicability of that limitation is expressly excluded under certain conditions as to which a different limitation is applicable under a specific provision of this permit. The exceedance of any emission limitation established by or referenced in this permit may constitute a violation of the permit and may be subject to enforcement action.

1. Quindaro Unit 2

- a. The thirty (30) day rolling average emission rate of carbon monoxide (CO) emissions shall not exceed 0.42 lb/MMBtu.

Monitoring, Recordkeeping and Reporting

1. Compliance with the CO BACT limit on Unit 2 shall be demonstrated with a continuous emission monitoring system (CEMS). The CO CEMS shall be installed, certified, operated, maintained, and quality assured according to 40 CFR 60, Appendix B, Performance Specification 4 (PS4) and 40 CFR 60, Appendix F (Quality Assurance/Quality Control) within 180 days after startup.
2. Provide a report of the CEMS certification within 30 days after certification is completed.
3. Reports of excess emissions shall be submitted semi-annually in accordance with the requirements in 60.7(c). The summary report referenced in 60.7(c) and defined in 60.7(d) applies to the CO CEMS downtime only and is not applicable to an exceedance of the CO limit established in this document.
4. The owner or operator shall maintain records of the occurrence and duration of any startup, shut-down, or malfunction in the operation of each unit subject to 40 CFR Part 60; any malfunction of any air pollution control equipment; and all periods during which a continuous monitoring system or monitoring device is inoperative. These requirements are described in 40 CFR 60.7(b).
5. Records shall be kept on site for 2 years in accordance with 60.7(f).

Notification

The following written notifications are to be submitted in accordance with 40 CFR 60.7(a).

1. The date construction starts, postmarked no later than 30 days after such date.
2. 40 CFR 60.7(a)(4) requires that written notification be provided for any physical or operational change which may increase the emission rate of any air pollutant to which a standard applies. Such notice is to be postmarked 60 days, or as soon as practicable, before the change is commenced and is to include the following information:
 - a. the precise nature of the change;
 - b. present and proposed emission control systems;
 - c. the throughput capacity of the elevator before and after the change;
 - d. the expected completion date.

General Provisions

1. 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.
2. A construction permit or approval must be issued by KDHE prior to commencing any construction or modification of equipment or processes which results in an increase of potential-to-emit equal to or greater than the thresholds specified by K.A.R. 28-19-300.
3. Upon presentation of credentials and other documents as may be required by law, representatives of KDHE (including authorized contractors of KDHE) shall be allowed to:
 - a. 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;
 - 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 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.
6. This document does not relieve the facility 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.

Permit Engineer

Larry D. Lowry, P.E.
Environmental Engineer
Air Permitting Section

LDL:saw
c: WYCO-KCK
C-9266

Date Signed