

## **AIR EMISSIONS SOURCE CONSTRUCTION PERMIT**

**Source ID No.:** 1490001

**Effective Date:** Draft

**Source Name:** Westar Energy, Inc., Jeffrey Energy Center

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

**SIC Code:** 4911, Electric Services

**Source Location:** 25905 Jeffrey Road  
St. Mary's, Kansas 66536

**Mailing Address:** 818 South Kansas Avenue, P.O. Box 889  
Topeka, Kansas 66601

**Contact Person:** Mr. Daniel R. Wilkus, P.E.  
Director, Air Programs  
Telephone: (785) 575-1614  
Dan.Wilkus@westarenergy.com

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

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

Westar Energy, Inc. is proposing to make modifications to the existing low nitrogen oxide (NO<sub>x</sub>) combustion system on the Unit 3 boiler at Jeffrey Energy Center (JEC), located near St. Mary's, Kansas. The low NO<sub>x</sub> system modifications include upgrades to the existing low NO<sub>x</sub> burners (LNB), adjustments to existing separated overfire air (SOFA), additional SOFA for deeper staging, boiler tuning and installation of associated equipment. This project will result in an overall decrease in NO<sub>x</sub> emissions. As a result of lowering NO<sub>x</sub> emissions there may be an increase in carbon monoxide (CO) emissions; with the increase in CO emissions a decrease in carbon dioxide (CO<sub>2</sub>) emissions is anticipated.

Emissions of NO<sub>x</sub>, CO, and CO<sub>2</sub> were evaluated for this permit review. Due to the increase in CO emissions in excess of the major modification thresholds, the proposed modification 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. JEC3 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 K.A.R. 28-19-300 (Construction permits and approvals; applicability) because the potential-to-emit of CO exceeds 100 tons per year.

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

**II. Significant Applicable Air Regulations**

The proposed activity is subject to certain Kansas regulations relating to air pollution control. The following air quality regulations were determined to be applicable to this project:

- A. K.A.R. 28-19-300, Construction permits and approvals; applicability;
- B. K.A.R. 28-19-350, Prevention of significant deterioration or air quality.

**III. Air Emission Unit Technical Specifications**

The following equipment or equivalent is approved:

Low NO<sub>x</sub> system modifications to JEC Unit 3 including upgrades to the existing low NO<sub>x</sub> burners (LNB), adjustments to existing separated overfire air (SOFA), additional SOFA for deeper staging, boiler tuning and installation of associated equipment.

**IV. Air Emissions Estimates from the Proposed Activity**

Pollutant Type	Baseline Actual (tons per year)	Projected Actual (tons per year)	Change in Emissions (tons per year)
CO	4,213	10,634	6,421
NO <sub>x</sub>	4,521	3,722	-799
CO <sub>2</sub>	5,502,851	5,492,763	-10,088

**V. Air Emission Limitations**

The emission limitation established in this permit applies to JEC Unit 3 at all times, including startup, shutdown and malfunction, except as provided in section “VI. Monitoring, Recordkeeping and Reporting, D. Malfunction” of this permit.

Coal Fired Boiler (JEC Unit 3):

- A. The thirty (30) day rolling average emission rate of CO shall not exceed 0.40 lb/MMBtu.

- B. The purpose of the project is to reduce the NO<sub>x</sub> emissions from Unit 3. In the event difficulties are encountered demonstrating compliance with the CO limit while optimizing NO<sub>x</sub> emissions, the owner or operator may request a revision to the CO limit. The revision will be subject to KDHE approval and may require a public notice and comment period.

## **VI. Monitoring, Recordkeeping and Reporting**

- A. Compliance with the CO BACT limit shall be demonstrated with the continuous emission monitoring system (CEMS) currently installed on the unit. The CO CEMS shall be operated, maintained, and quality assured according to 40 CFR 60, Appendix B, Performance Specification 4A (PS4A) and 40 CFR 60, Appendix F (Quality Assurance/Quality Control).
- B. 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 the document.
- C. Records shall be kept on site for 2 years in accordance with 60.7(f).

### **D. Malfunction:**

The Owner or Operator must notify KDHE by telephone, facsimile, or electronic mail transmission within two (2) working days following the discovery of any failure of air pollution control equipment, process equipment, or of the failure of any process to operate in a normal manner which results in an increase in emissions above the allowable emission limit stated in section "V. Air Emission Limitations" of this permit, a written notification shall be submitted within ten (10) days of the event.

The written notification shall include a description of the malfunctioning equipment or abnormal operation, the date of the initial malfunction, the period of time over which emissions were increased due to the failure, the cause of the failure, the estimated resultant emissions in excess of those allowed in "Air Emission Limitations," and the methods utilized to mitigate emissions and restore normal operations. Compliance with this malfunction notification shall not automatically absolve the owner or operator of liability for the excess emissions resulting from such event.

The following criteria will be used by KDHE to evaluate whether emissions from a malfunction are excluded in determining compliance with the emission rate contained herein:

1. The excess emissions were caused by a sudden, unavoidable breakdown of technology, beyond the control of the owner or operator;
2. The excess emissions did not stem from any activity or event that could have been foreseen and avoided, or planned for, and could not have been avoided by better operation and maintenance practices;

3. To the maximum extent practicable, the air pollution control equipment or processes were maintained and operated in a manner consistent with good practices for minimizing emissions;
4. Repairs were made in an expeditious fashion when the operator knew or should have known that applicable emission limitations were being exceeded. Off-shift labor and overtime must have been utilized, to the extent practicable, to ensure that such repairs were made as expeditiously as practicable.
5. The amount and duration of the excess emissions (including any bypass) were minimized to the maximum extent practicable during periods of such emissions;
6. All possible steps were taken to minimize the impact of the excess emissions on ambient air quality;
7. All emission monitoring systems were kept in operation if at all possible;
8. The owner or operator's actions in response to the excess emissions were documented by properly signed, contemporaneous operating logs, or other relevant evidence;
9. The excess emissions were not part of a recurring pattern indicative of inadequate design, operation, or maintenance; and
10. The owner or operator properly and promptly notified the appropriate regulatory authority.

## **VII. Notification**

Notify the Northeast District Office within 30 days after construction is complete so that an evaluation may be conducted.

## **VIII. 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 an increase of potential-to-emit equal to or greater than the thresholds specified by K.A.R. 28-19-300.
- C. 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:
  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 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 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 Writer**

---

Jessica Webb  
Environmental Scientist  
Air Permitting Section

JJW  
c: NEDO  
C-9842

---

Date Signed