

KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT

AIR EMISSION SOURCE OPERATING PERMIT MODIFICATION  
SO<sub>2</sub> EMISSION LIMITS

Permit Number: 2090049

Effective Date: October 20, 1993

Source Name: Board of Public Utilities,  
Kaw Power Station

Source Location: 2015 Kansas Ave.  
Kansas City, Kansas 66105

Mailing Address: 700 Minnesota Ave.  
Kansas City, Kansas 66101

Contact Person: Marynell Hollenbeck

Title of Contact Person: Director, Environmental Services

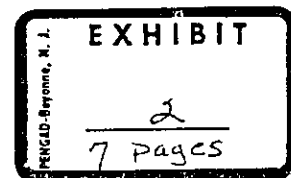
Address of Contact Person: 1211 North 8th Street  
Kansas City, Kansas

Telephone # of Contact Person: (913) 573-9828

LEGAL AUTHORITY:

K.A.R. 28-19-8 Reporting Required: "Any person who proposes to construct, alter, use or operate any processing machine, equipment, device or other article, or any combination thereof, that is capable of emitting any potential contaminant emissions equal to or in excess of levels specified in K.A.R. 28-19-8(b) of this regulation, shall report this proposed activity to the department."

K.A.R. 28-19-14 Permits Required: "Each person who proposes to construct, alter, use or operate any air contaminant emission source that is required to be reported under K.A.R. 28-19-8 and that has a potential contaminant emission rate in excess of the limitations in K.A.R. 28-19-14(a) shall obtain a permit from the department of health and environment before beginning this activity."



K.A.R. 28-19-14(i) "Each permit that is issued or renewed may be conditioned upon compliance by the owner or operator with any special restrictions that are deemed necessary to insure compliance with these regulations, or otherwise prevent air pollution. The restrictions may include, but need not be limited to, special requirements concerning methods of operation, emission limitations or control procedures to be implemented. The restrictions shall be stipulated in writing as part, or as an attachment to, the permit."

K.A.R. 28-19-14(k) "The Secretary may refuse to issue or renew any permit, or may suspend or revoke any previously issued or renewed permit, that is required by this regulation if it is determined that the air contaminant emissions from the source are in violation of any of the requirements of these regulations or any applicable provisions of state statute."

#### DESCRIPTION OF SOURCE:

Kaw power station, owned and operated by the Kansas City Board of Public Utilities (BPU), is a fossil fuel fired electric power generating plant. It has three boilers as described in the Air Emission Unit Technical Specifications section of this permit modification.

This facility is considered an "A1" source (potential and actual emissions of at least one criteria pollutant greater than 100 tons per year). The Standard Industrial Classification (SIC) Code for this facility is 4911 - Electric Services.

#### AIR EMISSION UNIT TECHNICAL SPECIFICATIONS:

1. K-1 Unit; Babcock and Wilcox Boiler (Model No. 59800), installed 1955, front fired pulverized coal boiler, maximum capacity = 40 MW. Control equipment; Ecolaire Environmental Modular Baghouse (Model No. 6065), installed 1979.
2. K-2 Unit; Babcock and Wilcox Boiler (Model No. 59909), installed 1957, front fired pulverized coal boiler, maximum capacity = 40 MW. Control equipment; Ecolaire Environmental Modular Baghouse (Model No. 9-12400), installed 1979.
3. K-3 Unit; Babcock and Wilcox Boiler (Model No. RB 395), installed 1962, front fired cyclone boiler, maximum capacity = 60 MW. Control equipment; Buel Emission Control Baghouse (Model No. 12-264-8), installed 1979.

EMISSION LIMITATIONS:

Each emission unit shall be operated such that emissions do not exceed the following limitations:

Table 1  
(Interim Compliance Limits) \*

Number of units burning coal	Facility-wide SO <sub>2</sub> limit
Only one unit	1.1 pounds of SO <sub>2</sub> /million Btu
Two or more	.91 pounds of SO <sub>2</sub> /million Btu

\* Prior to the use of continuous emission monitoring (CEM) to determine compliance with the limitations stated in Table 2, the pounds of SO<sub>2</sub>/million Btu shall be calculated using the following formula:

$$\text{Pounds of SO}_2/\text{million Btu} = (1.95S/HV)(10^6)$$

where,

S = sulfur content stated as the fractional pound of sulfur per pound of coal per unit train as determined from the as received analysis provided by the coal supplier, and

HV = heating value stated as the Btu content per pound of coal per unit train as determined from the as received analyses provided by the coal supplier.

Table 2  
(Final Compliance Limits)\*\*

Emission standard	Facility-wide emission limits
SO <sub>2</sub> limit (3-hour block)	2418.0 pounds of SO <sub>2</sub> /hour
SO <sub>2</sub> limit (24-hour block)	1371.0 pounds of SO <sub>2</sub> /hour and satisfy the following mathematical expression: $(.182K1e) + (.216K2e) + (.269K3e) \leq 307 \text{ ug}/\text{m}^3$ ***

\*\* Compliance with the emission limitations stated in Table 2 shall be demonstrated using CEMs to measure, record and report SO<sub>2</sub> emissions from each unit and combining those measurements for facility-wide calculations. The 24-hour limit shall be calculated on a 24-hour, mid-night to mid-night block average. The 3-hour limit shall be calculated on a 3 hour block average, beginning at 12:00, 3:00, 6:00 and 9:00 o'clock a.m. and p.m. The limitations stated in Table 2 shall become effective when the CEM systems for the facility have been certified as meeting the requirements of 40 CFR Part 75.

\*\*\* .182, .216 and .269 are in units of micrograms (ug)/m<sup>3</sup>/pound/hour.

K1e = the emission rate, in pounds of SO<sub>2</sub>/hour, of unit K-1 during the applicable 24-hour period.

K2e = the emission rate, in pounds of SO<sub>2</sub>/hour, of unit K-2 during the applicable 24-hour period.

K3e = the emission rate, in pounds of SO<sub>2</sub>/hour, of unit K-3 during the applicable 24-hour period.

PERMIT CONDITIONS:

1. "Interim compliance" (compliance demonstrations prior to CEM systems certification) shall be based upon sulfur content and heating value of coal by unit train derived from the "as received" coal analysis provided by the coal supplier.
2. During the "interim compliance" period, no coal shall be burned which, based upon the analysis of the coal, would result in emissions which exceed the limitations specified in Table 1.
3. During the "interim compliance" period, low sulfur western coal (Hannah Basin) shall be the only coal used to fire the boilers at the facility.
4. During the "interim compliance" period, no coal blending shall occur.
5. During the "interim compliance" period, any coal received that will not meet the .91 pounds of SO<sub>2</sub>/million Btu emission limitation based upon the as received coal analysis, shall be kept segregated from coal which does meet the .91 pounds of SO<sub>2</sub>/million Btu emission limitation.
6. CEM systems consistent with the time-line and design requirements of 40 CFR Part 75 shall be installed. Once a CEM system for a unit has been certified under 40 CFR Part 75, compliance with the SO<sub>2</sub> emission limitations set out in Table 2 of this permit modification shall be demonstrated with the data generated by the CEM system.
7. This permit modification addresses only the SO<sub>2</sub> emission limitations stated in Table 1 and Table 2. The limits specified in this permit modification are alternative sulfur dioxide limits for purposes of K.A.R. 28-19-31 and are in lieu of the limits specified at K.A.R. 28-19-31(c). The facility remains subject to all other non-conflicting limits and requirements specified in permits and approvals previously issued for the facility or specified in applicable statutes and regulations.

RECORDKEEPING:

1. During the "interim compliance" period, the following records shall be maintained:
  - a. all records of coal specifications supplied by the coal supplier for each shipment of coal received by the facility;

- b. records for each unit train stating: 1) the sulfur content expressed in the fractional pound of sulfur per pound of coal; 2) the heating value expressed in Btu content per pound of coal; and 3) the pounds of SO<sub>2</sub>/million Btu for that unit train calculated as required by this permit modification; and
  - c. records showing hours of operation and coal usage for any periods during which the facility burned coal which could not meet .91 pounds of SO<sub>2</sub>/million Btu as determined by the calculation set out at the footnote to Table 1.
2. Once a continuous emission monitoring system is installed and certified, the facility shall maintain the following records:
- a. The average pounds of SO<sub>2</sub>/hour for each unit, for any 24 hour, midnight-to-midnight period during which the unit operated.
  - b. The average pounds of SO<sub>2</sub>/hour for the facility, for any 24 hour, midnight-to-midnight period during which any unit operated.
  - c. The average pounds of SO<sub>2</sub>/hour for the facility, for any three hour block beginning at 12:00, 3:00, 6:00 or 9:00 a.m. or p.m., during which any unit operated.
  - d. Calculations to demonstrate the expression,  $(.182K1e) + (.216K2e) + (.269K3e) \leq 307 \text{ ug/m}^3$ , has been met for any 24-hour, mid-night to mid-night period during which one or more units operated.
  - e. For any periods during which a CEM is not accurately recording SO<sub>2</sub> emissions (malfunction) during a period the corresponding emission unit is operating on a sulfur containing fuel, the following shall be recorded: the day, hour and minute the malfunction occurred (or was discovered if the time of the malfunction is not determinable); the day, hour and minute the CEM was again capable of accurately recording SO<sub>2</sub> emissions; all periods the emissions unit was operating during the malfunction episode; the fuel being used during the periods the emissions unit was operating; the actions taken to return the CEM to service; an explanation of any delays in discovering that the CEM was not accurately recording SO<sub>2</sub> emissions; and an explanation for any delays in returning the CEM to service.
  - f. A quality assurance/quality control (QA/QC) procedural manual for the CEMs.

- g. Records demonstrating the QA/QC procedures were followed.
  - h. Records of the time, date and actions taken regarding calibrations, maintenance and repair of the CEMs.
  - i. Any record requirements of this permit modification which are also required by 40 CFR Part 75 shall be considered met if kept in a manner required by, or satisfactory to the requirements of, 40 CFR Part 75.
3. All records required to be maintained by this permit modification shall be kept on site for a minimum of two years after the date of the record in a form and manner easily accessible for compliance determination purposes.

REPORTING:

1. During the "interim compliance" period, the Wyandotte County Air Quality Division shall be notified (oral notification within 8 working hours and written notification within 5 working days), if a shipment of coal is received that would cause emissions in excess of those allowed by Table 1 of this permit modification.
2. Once CEM results are used to determine compliance with the limitations of this permit modification, quarterly reports shall be submitted to the Kansas Department of Health and Environment and the Wyandotte County Air Quality Division summarizing the CEM data. The data to be summarized shall be that which reflects the operational status of each CEM and that which reflects compliance with the limitations protecting the 24-hour standard, the 24-hour mathematical expression stated in Table 2 and the 3-hour standard as set out in this permit modification. The form and content of the report shall follow the requirements of the excess emissions and monitoring system quarterly reports found at 40 CFR 60.7, relating to new source performance standards.
3. Once CEM results are used to determine compliance with the limitations of this permit modification, the Wyandotte County Air Quality Division shall be notified (oral notification within 1 working hour and written notification within 3 working days of discovery of an exceedance) of any exceedance of the 24-hour standard, the 24-hour mathematical expression or the 3-hour standard specified in this permit modification.

INSPECTION AND ENTRY REQUIREMENTS:

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 perform the following:

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 the permit;
2. have access to and copy, at reasonable times, any records that must be kept under conditions of the permit;
3. inspect at reasonable times, any facilities, equipment (including monitoring and control equipment) practices or operations regulated or required under the permit; and
4. sample or monitor, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Secretary of the KDHE, any substances or parameters at any location.

PERMIT REVIEW ENGINEER:

*Dana A. Morris*

Environmental Engineer

11/10/93  
Date Signed

CL/BPU.PMT

