KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT

AIR EMISSION SOURCE OPERATING PERMIT MODIFICATION
SO_2 EMISSION LIMITS

Permit Number:	2090048
Effective Date:	October 20, 1993
Source Name:	Board of Public Utilities, Quindaro Power Station
Source Location:	3601 N. 12th Street Kansas City, Kansas 66104
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."

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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:

Quindaro 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 two 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. Q-1 Unit; Babcock and Wilcox Boiler, installed 1966, cyclone fired boiler, two burners, maximum capacity = 75 MW. Control equipment; Environmental Elements ESP, installed 1992.

2. Q-2 Unit; Riley-Stoker Boiler, installed 1971, pulverized coal boiler, nine burners, maximum capacity = 144 MW. Control equipment; Environmental Elements Corp. ESP, installed 1986.

EMISSION LIMITATIONS:

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

Table 1

Unit	SO_2 limit*
Q-1	3577.8 pounds of SO_2 per hour
Q-2	5514.6 pounds of SO_2 per hour

* Compliance with the emission limitations stated in Table 1 shall be demonstrated using continuous emission monitors (CEMs) to measure, record and report SO2 emissions from each unit and shall be calculated on a 24-hour, midnight-to-midnight block average. The limitations for each unit stated in Table 1 shall be effective after the transition from the current continuous emission monitoring system to a 40 CFR Part 75 certified continuous emission monitoring system.

During the "transition period" (the period of time prior to the 40 CFR Part 75 CEM certification), the facility shall not be operated in such a manner that emissions exceed the following limitations:

Table 2
(Transition Period Limits)

Number of units burning coal	SO2 limit
Only one unit	4.75 pounds of SO2/million Btu
Both units	Q1 - 4.75 pounds of SO2/million Btu Q2 - 3.57 pounds of SO2/million Btu

Compliance with the emission limitations stated in Table 2 shall be demonstrated using data generated from the CEM system in place on the date this permit modification is issued or using the following formula:

$$\text{Pounds of SO2/mmBtu} = (1.95S/HV)(10^6)$$

where,

S = sulfur content stated as the fractional pound of sulfur per pound of coal as determined from the analysis of coal samples gathered according to the protocol set out below.

HV = heating value stated as the Btu content per pound of coal as determined from the analyses of coal samples gathered according to the protocol set out below.

During this "transition period", no coal shall be burned which, based upon the analysis of the coal, would result in emissions which exceed the limitations stated in Table 2.

Sampling protocol:

Equipment: One gallon HDPE jars, five gallon buckets.

Procedure:

1. A separate composite sample shall be obtained for each unit (i.e., one composite for Q-1 and one composite for Q-2).
2. Sampling shall be performed each time coal is added to the bunkers.
3. All samples should be taken off the #10 belt at a location between the tripper and the #9 - #10 transfer point.
4. Once during each clock hour (e.g., 10:00am-11:00am) that coal is being put up, the fuel handler or operator shall collect a single sample increment using the one-gallon HDPE jar.
5. The HDPE jar shall be filled completely to the extent possible.
6. The sample increment shall be transferred to the appropriate five-gallon plastic bucket (i.e., either the Q-1 bucket or the Q-2 bucket).
7. This procedure shall be completed each clock hour.
8. All samples shall be referenced to a calendar date (e.g., 12/25/92). If coal is put up after midnight, a new composite bucket should be started.
9. Gross composite samples shall be reduced to one-half to one pound final samples using a riffle splitter.
10. Labels shall be attached to the final sample container and transportation to the laboratory arranged.

PERMIT CONDITIONS:

1. The following conditions shall apply while compliance is being demonstrated with data generated by the continuous emission monitoring systems (CEMs) in place at the time of the issuance of this permit modification.

   a. The CEM systems in place on the date this permit modification is issued shall be maintained to demonstrate compliance with the emission limitations specified in Table 2 until such systems can no longer be operated due to reconfiguration or modifications necessary to installing and certifying an approvable 40 CFR Part 75 CEM system.

   b. 40 CFR Part 75 gas calibrations, using 40 CFR Part 75, Appendix H, Revised Traceability Protocol Number 1 gas, to check zero and span drift, shall be conducted on working days and reference cell technology shall be used on week-ends and holidays.

2. CEM systems consistent with the time-lines 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_2 emission limitations set out in this permit shall be demonstrated with the data generated by the 40 CFR Part 75 CEM system.

3. This permit addresses only the SO_2 emission limitations stated in Table 1 and Table 2. The limits specified in this permit modification are alternative sulfur dioxide limits for the 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 any period compliance with the emission limitations specified in this permit modification are demonstrated with data generated by CEM systems, the facility shall maintain the following records:

   a. For periods during which compliance is demonstrated using data generated by a 40 CFR Part 75 certified CEM, the average pounds of SO_2/hour for each unit, for any 24 hour, midnight-to-midnight period during which the unit operated.

b. During the "transition period", the average pounds of SO_2/million BTU, for any 24 hour, midnight-to-midnight period during which the unit operated.

c. For any periods during which a CEM is not accurately recording SO_2 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_2 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_2 emissions; and an explanation for any delays in returning the CEM to service.

d. A quality assurance/quality control (QA/QC) procedural manual for the CEMs.

e. Records demonstrating the QA/QC procedures were followed.

f. Records of the time, date and actions taken regarding calibrations, maintenance and repair of the CEMs.

g. 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.

2. During the "transition period", the following records shall be maintained:

a. a log showing periods of operation, by unit, during which compliance with the limitations set out in this permit modification is demonstrated by the analysis of coal samples stating the reason coal sampling rather than CEM data was used to demonstrate compliance.

b. records for each coal sampling cycle (day) stating: 1) the sulfur content expressed in fractional pounds of sulfur per pound of coal; 2) the Btu content per pound of coal; 3) the date the coal sample was taken; and 4) the pounds of SO_2/million Btu for that day calculated in the manner required by this permit modification.

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. For any quarter during which CEM data are used to determine compliance with the limitations of this permit, 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 compliance with the limitations specified in the appropriate Table. 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.

2. Wyandotte County Air Quality Division shall be notified whenever compliance with the limitations specified in this permit are to be demonstrated by coal sampling as authorized during the "transition period."

3. Wyandotte County Air Quality Division shall be immediately notified whenever coal sampling analysis evidence that the emission limitations specified in this permit modification have been exceeded.

4. During times when 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 limits specified in Table 1 of 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

KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT

AIR EMISSION SOURCE OPERATING PERMIT MODIFICATION
SO_2 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."

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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_2 limit
Only one unit	1.1 pounds of SO_2/million Btu
Two or more	.91 pounds of SO_2/million Btu

* Prior to the use of continuous emission monitoring (CEM) to determine compliance with the limitations stated in Table 2, the pounds of SO2/million Btu shall be calculated using the following formula:

$$\text{Pounds of SO2/million Btu} = (1.95S/HV)(10^6)$$

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_2 limit (3-hour block)	2418.0 pounds of SO_2/hour
SO_2 limit (24-hour block)	1371.0 pounds of SO_2/hour and satisfy the following mathematical expression: $(.182K1e)+(.216K2e)+(.269K3e) \leq 307$ ug/m^3 ***

** Compliance with the emission limitations stated in Table 2 shall be demonstrated using CEMs to measure, record and report SO2 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^3/pound/hour.

K1e = the emission rate, in pounds of SO2/hour, of unit K-1 during the applicable 24-hour period.

K2e = the emission rate, in pounds of SO2/hour, of unit K-2 during the applicable 24-hour period.

K3e = the emission rate, in pounds of SO2/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_2/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_2/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_2 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_2 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 supplied 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_2/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_2/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_2/hour for each unit, for any 24 hour, midnight-to-midnight period during which the unit operated.

b. The average pounds of SO_2/hour for the facility, for any 24 hour, midnight-to-midnight period during which any unit operated.

c. The average pounds of SO_2/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 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_2 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_2 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_2 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

- Kansas Board of Public Utilities
  Quindaro Permit #20090048
- Kaw Permit #20090049

EPA Rulemakings

CFR: 40 C.F.R. 52.870(c)(29)(i)(B)

FRM: 59 FR 52425 (10/18/94)

PRM: 59 FR 52495 (10/18/94)

State Submission: 5/16/94

State Effective Date: 10/20/93

APDB File: KS-31

Description: This revision approves the Kansas Board of Public Utilities Quindaro Permit and the Kaw Permit. This action approves new emission limits.

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