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Robert Moser, MD, Secretary | Department of Health & Environment | Sam Brownback, Governor

April 14, 2011

Source ID No. 2090008

Ms. Tiffany Le, Environmental Scientist
Kansas City, Kansas Board of Public Utilities – Nearman Creek Power Station
P.O. Box 4185
Kansas City, KS 66104

Re: PSD Construction Permit Nearman Creek Power Station

Dear Ms. Le:

Enclosed is the air quality construction permit for the Nearman Creek Power Station.

Please review the enclosed permit carefully because it obligates your company to certain requirements. The source identification number listed above should be used in all communication with the Kansas Department of Health and Environment (KDHE) about this permitted facility.

Notify the Department of Air Quality Staff in the Unified Government Wyandotte County – Kansas City, Kansas Office at (913) 573-6700 when installation of the equipment is complete and operations commence so that an evaluation may be conducted.

As provided for in K.S.A. 65-3008b(e), an owner or operator may request a hearing within 15 days after affirmations, 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 a request must be submitted to: 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 a hearing.

Please direct any questions to (785) 296-6281.

Sincerely,

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

LDL: sdb
Enclosure
c: WYCO-KCK
C-9267

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Kansas
Robert Moser, MD, Secretary — Department of Health & Environment — Sam Brownback, Governor

AIR EMISSIONS SOURCE CONSTRUCTION PERMIT

Source ID No.: 2090008

Effective Date: April 14, 2011

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

SIC Code: 4911; Electric Services

NAICS Code: 221112; Fossil Fuel Electric Power Generation

Source Location: 4240 North 55th Street
Kansas City, Kansas 66104

Mailing Address: PO Box 4088
Kansas City, KS 64104

Contact Persons: Tiffany Le
Sr. Environmental Scientist
Telephone Number: (913)573-9789

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 Nearman Creek Power Station (Nearman) electric generating facility located in Wyandotte County, Kansas City, Kansas. BPU will reduce NO_x emissions on Unit 1 through the use of a new Low NO_x Combustion system (LNC) comprised of low NO_x burners, overfire air, underfire air, boundary air, and wing port air combustion control methods. In addition to the LNC system, this project includes certain requisite activities planned concurrently for Unit 1.

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 1 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 (PM_{10}), PM with a diameter less than 2.5 microns ($PM_{2.5}$), sulfur dioxide (SO_2), volatile organic compounds (VOC), lead, sulfuric acid mist (H_2SO_4), fluorides, hydrogen sulfide (H_2S), 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 Nearman Creek 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, overfire air, underfire air, boundary air, and wing port air combustion control methods.

2. Installation of new Igniters, Scanners, and Cooling Skids. The new igniters will be the sized to provide the same heat input as the existing equipment.

3. Installation of Coal Inlet Divider Heads to ensure alignment of the coal supply pipe with the new burners.

4. Installation of additional Combustion Optimization Equipment. An electronic combustion optimization system had previously been installed on Nearman. Additional instrumentation will be installed to improve the performance of this system. The new instrumentation is expected to provide more information for the Combustions Optimization system allowing for improved control resulting in reduced NO_x and CO emissions.

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	284	1,773	1,489
Nitrogen Oxides (NO_x)	4,512	2,711	-1,801
PM	267	267	0
PM_{10}	90.8	90.8	0
$PM_{2.5}$	52.1	52.1	0
Sulfur Dioxide (SO_2)	7,181	7,181	0
VOCs	33.9	33.9	0
Lead	0.33	0.33	0
H_2SO_4	111	111	0
Fluorides	33.0	33.0	0
H_2S	Negligible	Negligible	0
Total Reduced Sulfur	Negligible	Negligible	0
CO_2e	2,149,224	2,149,224	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. All requirements and conditions included in or referenced in this permit must be met. The exceedance of any emission limitation established by or referenced in this permit will constitute a violation of the permit and may be subject to enforcement action.

1. Nearman Unit 1

    a. The thirty (30) day rolling average emission rate of carbon monoxide (CO) emissions shall not exceed 0.17 lb/MMBtu.

Monitoring, Recordkeeping and Reporting

1. Compliance with the CO BACT limit on Unit 1 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 40 CFR 60.7(c). Additionally, a summary report, as referenced in 40 CFR 60.7(c) and defined in 40 CFR 60.7(d), should be submitted semi-annually to assure that the CO CEMS is properly functioning.

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 production capacity of Unit 1 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

4-14-11
Date Signed

LDL: sdb
c: WYCO-KCK
C-9267

PREVENTION OF SIGNIFICANT DETERIORATION (PSD)

PERMIT SUMMARY SHEET

Permit No.: 2090008

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

Source Location: 4240 N. 55th St, Kansas City, Kansas 66104

Area Designation

K.A.R. 28-19-350, Prevention of significant deterioration of air quality, affects new major sources and major modifications to major sources in areas designated as "attainment" or "unclassifiable" under section 107 of the Clean Air Act (CAA) for any criteria pollutant. The State of Kansas is classified as attainment for the National Ambient Air Quality Standards (NAAQS) for all the criteria pollutants.

The Kansas City, Kansas area in Wyandotte County, Kansas, where this modification is taking place, is currently in attainment or unclassifiable for all pollutants. As such, the PSD program, as administered by the State of Kansas under K.A.R. 28-19-350, will apply to the proposed project.

Project Description

The Kansas City, Kansas Board of Public Utilities (BPU) operates the Nearman Creek Power Station, located at 4240 North 55th St. in Kansas City, Kansas, within Wyandotte County, in northeastern Kansas. The existing facility is an electric generating station with two generating units. Nearman Unit 1 (N1) is a baseload 261 MW unit, powered by a wall-fired dry bottom boiler burning Powder River Basin coal. A second generating unit (CT4) is an 86 MW, natural gas/fuel oil-fired simple cycle combustion turbine that provides peaking power.

BPU plans to reduce NO_x emissions on N1 through the use of a new Low NO_x Combustion System comprised of low NO_x burners, overfire air, underfire air, boundary air, and wing port air combustion control methods.

Significant Applicable Air Emission Regulations

The Nearman Creek 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).

This source is subject to Kansas Administrative Regulations relating to air pollution control. The application for this permit was reviewed and evaluated for compliance with the following applicable regulations:

1) K.A.R. 28-19-300. Construction Permits and Approvals. Requires "Any person who proposes to construct or modify a stationary source or emissions unit shall obtain a construction permit before commencing such construction or modification."

2) K.A.R. 28-19-350 Prevention of significant deterioration of air quality. "The provisions of K.A.R. 28-19-350 shall apply to the construction of major stationary sources and major modifications of major stationary sources in the areas of the state designated as an attainment area or an unclassified area for any pollutant under the procedures prescribed by section 107(d) of the federal clean air act (42 U.S.C. 7407 (d))."

Air Emissions from the Project

The potential-to-emit of at least one of the PSD regulated pollutants from the existing Nearman Creek Power Station exceeds 100 tons per year. Hence, Nearman Creek Power Station is considered to be a major stationary source under provisions of K.A.R. 28-19-350.

The total projected emissions increases from the proposed modification are listed in Table 2-5 of Section 2 and detailed out in Appendix B of the application. Proposed projected emissions increases of carbon monoxide (CO), oxides of nitrogen (NO_x), particulate matter (PM), PM with a diameter less than 10 microns (PM_{10}), PM with a diameter less than 2.5 microns ($PM_{2.5}$), sulfur dioxide (SO_2), volatile organic compounds (VOC), lead, sulfuric acid mist (H_2SO_4), fluorides, hydrogen sulfide (H_2S), total reduced sulfur, and carbon dioxide equivalent (CO_2e) were compared with the Significant Emission Rates for PSD applicability for the criteria and non-criteria pollutants. The projected emissions increase is above the PSD significance level for CO and will be reviewed under the PSD regulations. NOx emissions will be greatly reduced under this modification.

Hence, this project will be a major modification of an existing major stationary source resulting in a net significant increase of CO. This project will be subject to the various aspects of K.A.R. 28-19-350 such as the use of best available control technology, ambient air quality analysis, and additional impacts upon soils, vegetation and visibility.

The proposed NO_x emissions reduction project is described in Section 2 of the application. The uncontrolled potential-to-emit used for BACT analysis of the project uses Riley Power's (manufacturer's) calculations for a total 200 ppm, which equates to approximately 0.17 lb/mmBtu for CO emissions increase after the modification. The manufacturer has guaranteed the project will reduce NO_x emissions to 0.26 lb/mmBtu or less. These values are shown in Table 2-1 of Section 2 of the application.

On June 3, 2010, the U.S. Environmental Protection Agency (EPA) issued the final Greenhouse Gas (GHG) Tailoring Rule (75 FR 31514). This rule established the thresholds for GHG emissions under the PSD permit program for new and existing industrial facilities. GHGs are a single air pollutant defined as the aggregate group of the following six gases:

- carbon dioxide (CO_2)
- nitrous oxide (N_2O)
- methane (CH_4)
- hydrofluorocarbons (HFCs)
- perfluorocarbons (PFCs)
- sulfur hexafluoride (SF_6)

Starting in January 2011, only sources currently subject to the PSD permitting program (i.e., those that are newly-constructed or modified in a way that significantly increases emissions of a pollutant other than GHGs) would be subject to permitting requirements for their GHG emissions under PSD. For those affected facilities, only GHG emissions increases of 75,000 tpy or more of total GHG, on a carbon dioxide equivalent (CO_2e) basis, would need to determine the Best Available Control Technology (BACT) for their GHG emissions.

PSD does not apply to the GHG emissions from this proposed project. Even though the proposed modification is considered a major modification under the PSD permit program and BPU is required to obtain a PSD permit (called an "anyway source"), the potential emissions increase of GHGs from the modification are zero ton/yr on a CO_2e basis.

Best Available Control Technology (BACT)

BACT requirement applies to each new or modified affected emissions unit and pollutant emitting activity. Also, individual BACT determinations are performed for each pollutant emitted from the same emission unit. Consequently, the BACT determination must separately address, for each regulated pollutant with a significant emissions increase at the source, air pollution controls for each emissions unit or pollutant emitting activity subject to review. BPU was required to prepare a BACT analysis for KDHE's review according to the process described in Attachment A. KDHE's evaluation of the BACT for the proposed Emission Reduction Project's analysis is presented in Attachment B.

KDHE has concurred with the BPU for the following:

BACT for Carbon Monoxide is 0.17 lb/mmBtu, thirty day rolling average, including periods of startup and shutdown. BACT for CO is good combustion practices.

Ambient Air Impact Analysis

The owner or operator must demonstrate that allowable emission increases from the proposed facility, in conjunction with all other applicable emissions increases or reductions, would not cause or contribute to air pollution in violation of:

1) any national ambient air quality standard (NAAQS) in any air quality control region; or
2) any applicable maximum allowable increase over the baseline concentration in any area (increment).

BPU used the EPA approved SCREEN3 model to evaluate the impacts of CO that will result from the project at Nearman Unit 1 for 1-hour CO and 8-hour CO. BPU's evaluation was reviewed by KDHE using Lakes Environmental's Screen View program, which incorporates SCREEN3 in its calculations.

The emission rate, point location, and stack parameters for the emission source used in the model were based on the data presented in the permit application. These input data are shown in the table below.

Stack Parameters and CO Emission Rate – BPU, Nearman Unit 1

Source	Stack height (ft)	Stack diameter (ft)	Exit velocity (ft/s)	Exit temp. (°F)	CO emission rate (lb/hr)
N1	400	23.3	44	305	1,216.5

Emissions from this unit are based on a 0.50 lb/MMBtu emission rate and Unit 1's heat input rate of 2,433 MMBtu/hr

After a review of the appropriate satellite imagery and land use data obtained from the U.S. Geological Survey (USGS), it was concluded that the area is "rural" for air modeling purposes.

External meteorological data is not required in the SCREEN3 (Screen View) model. Instead, for the Full Meteorology option selected, the model examines a range of stability classes and wind speeds to identify the worst-case meteorological conditions.

The Nearman Unit 1 generating unit stack height exceeds 65 meters; therefore, the model's Building Downwash option was selected and the building dimensions supplied by BPU were used for the model run.

The significant impact level (SIL) and pre-application monitoring thresholds for CO and Nearman 1 results from the preliminary analysis are shown in the following table.

Significance Determination Table - BPU, Nearman Unit 1							
Pollutant	**Averaging Period**	**Operating Scenario**	**Maximum Predicted Concentration ($\mu g/m^3$)**	**Modeling Significant Impact Level (SIL) ($\mu g/m^3$)**	**Exceeds SIL?**	**Pre-application Monitoring Threshold Concentration ($\mu g/m^3$)**	**Exceeds Monitoring Threshold?**
CO	8-hour	100% Load	136.6	500	No	575	No
	1-hour	100% Load	195.1	2,000	No	N/A	N/A

The modeled impacts for the proposed facility fall below the pre-application monitoring threshold, as well as the modeling significant impact level (SIL), for 8-hour CO and 1-hour CO.

Additional Impact Analysis

Commercial, Residential, and Industrial Growth

This project is located in Kansas City, Kansas in an area zoned as industrial. Because the project will not create additional generating capacity, it will not have an effect upon the industrial growth in the immediate area. There will be an increase in the local labor force during the construction phase of the project. It is anticipated that most of the labor force during the construction phase will commute from nearby communities. This labor force increase will be temporary and short-lived, and will not result in permanent commercial and/or residential growth occurring in the vicinity of the project.

Given the expected population of the commuting workforce, the fact that during the construction period most workers will be onsite for less than the total construction period, and an abundance of hotel and other short-term lodging options in Kansas City, it is unlikely that any substantial part of the construction workforce would choose to relocate during the construction period. Therefore, anticipated housing growth due to the project will be minimal or nonexistent, and is not expected to have a significant impact on air quality.

Finally, because the maximum model-predicted CO concentrations for the proposed project are well below the regulatory significant impact levels, air pollutant concentrations in the region resulting from this project are expected to comply with the ambient air quality standards when the proposed project becomes operational. Therefore, from an air quality impact standpoint, the proposed project is consistent with the balanced growth demonstrated by Wyandotte County to date.

Visibility Impairment

An additional visibility impact analysis may be used to determine if the air emission increases associated with a proposed PSD project will have an impact on Class II sensitive areas such as state parks, wilderness areas, or scenic sites and overlooks. Visibility impairment is a function of the emissions of primary particulate matter, NO_x (including NO_2), elemental carbon (soot), and primary sulfate (SO_4). This project will substantially decrease the emissions of NO_x, thereby improving visibility over current conditions. As CO, not a visibility impairing pollutant, is the only pollutant with an emission increase, the project is not predicted to negatively impact visibility.

Federally designated Class I areas are afforded special protection in the air permitting process. Generally, Class I area visibility analyses are only conducted for projects located within 100 km of a Class I area. The Nearman facility is located approximately 312 km from the closest Class I area, Hercules-Glades Wilderness Area in Missouri. Another Class I area in relatively close proximity to the Nearman facility is the Upper Buffalo Wilderness Are in Arkansas, approximately 378 km from the Nearman facility. As the proposed project results in a substantial decrease in NOx emissions and no increase in any other visibility-impairing pollutants, a visibility analysis was not required.

Impacts on Vegetation

EPA's *New Source Review Workshop Manual: Prevention of Significant Deterioration and Nonattainment Area Permitting* (http://www.epa.gov/ttn/nsr/gen/wkshpman.pdf) states that the analysis of air pollution impacts on vegetation should be based on an inventory of plant species found in the significant impact area (SIA). Since the emissions from the proposed project did not result in any exceedences of the significant impact levels (SILs), no SIA exists for it. Therefore, an area with a 3 km radius centered at the facility was chosen for this analysis. A review of information gathered from topographic maps and imagery concluded there are no state parks or designated sensitive areas within this 3 km area.

The U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) was queried to determine the inventory of plant species for Wyandotte County, Kansas and Platte County, Missouri. (See http://plants.usda.gov/adv_search.html). This query resulted in a list containing approximately 1,500 species.

Unlike fauna, CO does not poison vegetation, although very high concentrations can reduce the rate of photosynthesis. According to the EPA document *A Screening Procedure for the Impacts of Air Pollution Sources on Plants, Soils, and Animals* (1980, viewable at http://www.deq.state.va.us/air/assessments/dispersion/_documents/A_Screening_Procedure_for_the_Impacts_of_Air_Pollution_Sources.pdf), for the most sensitive vegetation a CO concentration of 1,800,000 µg/m3 (1-week averaging period) could potentially reduce the photosynthetic rate. The maximum model-predicted 1-hr CO impact of 195.1 µg/m3 produced by the proposed project is significantly lower than this screening level, even at a conservative 1 hr averaging period. Consequently, no adverse impacts to vegetation due to the proposed project are expected from CO emissions.

Impacts on Soils

A soil inventory was completed by BPU within the 3 km radius study area surrounding the facility. The soil survey was obtained from the NRCS. The different soil classification series that were found to be in excess of 1 percent of the total study area are listed in the table below.

Soil Inventory for BPU – Nearman Study Area	
Gosport-Sogn complex	Made land
Haynie silt loam	Nodaway silt loam
Haynie silt loam. Clayey substratum	Onawa silty clay loam
Kennebee silt loam	Onawa soils
Knox complex	Parkville silty clay loam
Knox silt loam	Sarpy-Hanie complex
Knox silty clay loam	Snead-Rock outcrop complex
Knox-Urban land complex	Waldron silty clay loam
Ladoga silt loam	Water
Leta silty clay	Wiota silt loam

Data taken from the Natural Resources Conservation Service's Web Soil Survey (http://websoilsurvey.nrcs.usda.gov/app/) for the 6x6 km domain centered at the Nearman facility.

Attachment A

KEY STEPS IN THE "TOP-DOWN" BACT ANALYSIS

STEP 1: IDENTIFY ALL POTENTIAL AVAILABLE CONTROL TECHNOLOGIES.

The first step in a "Top-Down" analysis is to identify, for the emission unit in question, "all available" control options. Available control options are those air pollution control technologies or techniques with a PRACTICAL POTENTIAL FOR APPLICATION to the emissions unit and the regulated pollutant under review. This includes technologies employed outside of the United States. Air pollution control technologies and techniques include the application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of the affected pollutant.

STEP 2: ELIMINATE TECHNICALLY INFEASIBLE OPTIONS.

The technical feasibility of the control options identified in Step 1 is evaluated with respect to the source-specific (or emissions unit specific) factors. In general, a demonstration of technical infeasibility should be clearly documented and should show, based on physical, chemical, and engineering principles, that difficulties would preclude the successful use of the control option on the emissions unit under review. Technically infeasible control options are then eliminated from further consideration in the BACT analysis.

STEP 3: RANK REMAINING CONTROL TECHNOLOGIES BY CONTROL EFFECTIVENESS.

All remaining control alternatives not eliminated in Step 2 are ranked and then listed in order of over-all control effectiveness for the pollutant under review, with the most effective control alternative at the top. A list should be prepared for each pollutant and for each emissions unit subject to a BACT analysis. The list should present the array of control technology alternatives and should include the following types of information:

1) control efficiencies;
2) expected emission rate;
3) expected emission reduction;
4) environmental impacts;
5) energy impacts; and
6) economic impacts.

STEP 4: EVALUATE MOST EFFECTIVE CONTROLS AND DOCUMENT RESULTS.

The applicant presents the analysis of the associated impacts of the control option in the listing. For each option, the applicant is responsible for presenting an objective evaluation of each impact. Both beneficial and adverse impacts should be discussed and, where possible, quantified. In general, the BACT analysis should focus on the direct impact of the control alternative. The applicant proceeds to consider whether impacts of unregulated air pollutants or impacts in other media would justify selection of an alternative control option. In the event the top candidate is shown to be inappropriate, due to energy, environmental, or economic impacts, the rationale for this finding should be fully documented for the public record. Then the next most stringent alternative in the listing becomes the new control candidate and is similarly evaluated. This process continues until the technology cannot be eliminated.

STEP 5: SELECT BACT.

The most effective control option not eliminated in Step 4 is proposed as BACT for the emission unit to control the pollutant under review.

Attachment B

KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT'S EVALUATION OF KANSAS CITY, KANSAS BOARD OF PUBLIC UTILITIES, NEARMAN CREEK POWER STATION UNIT 1 PROPOSED BEST AVAILABLE CONTROL TECHNOLOGY (BACT) OPTIONS

Kansas City, Kansas Board of Public Utilities (BPU) evaluated the BACT analysis to control emissions from the Emission Reduction Project. The only significant emission increase from this project is Carbon Monoxide (CO).

CO BACT for the Emission Reduction Project

CO controls consist of good combustion practices or oxidation catalyst. Overfire air can provide an element of CO control as it allows further burn-out of the pollutant. Otherwise, the best identified method to control CO emission from a coal-fired boiler is through the use of appropriate combustion control techniques.

The PSD regulations require BACT, which requires the source to evaluate the control options for technical feasibility. Installing an oxidation catalyst to control CO emission was deemed technically infeasible for two main reasons. First, in addition to oxidizing CO, an oxidation catalyst will also oxidize a significant portion of SO_2 to SO_3 in the gas stream. SO_3 in the presence of water forms sulfuric acid mist which is highly corrosive to equipment downstream of the catalyst. Second, catalyst vendors do not generally have catalyst material suitable for coal-fired boilers if the catalyst is to be located upstream of the particulate control device. Therefore, the acid gases, particulate, and trace metals in the flue gas from the combustion of solid fuel would quickly poison standard catalysts, making the control technology ineffective in its intended role.

Based on the technical constraints, the use of good combustion practices to meet CO emission levels of 0.17 lb/mmBTU is proposed by Kansas City, Kansas Board of Public Utilities as BACT. KDHE agrees with this analysis.