Public Health Department

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DEPARTMENT OF AIR QUALITY

AIR EMISSION SOURCE
REVISED CONSTRUCTION PERMIT

Source ID Number: 209-0008

Effective Date: October 12, 2004

Revised Date: October 18, 2005

Source Name: Kansas City Board of Public Utilities

NAICS Code: 221112 - Fossil fuel power generation

SIC Code: 4931 - Electric and Other Services Combined

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

Mailing Address: 300 North 65th Street
Kansas City, Kansas 66102

Contact Person: Site Contact – John Fuentez Director of Electric Production Operations / Phone No. (913)573-9786
Permit Contact – Curt Deitz, Sen. Environmental Scientist / Phone No. (913)573-9891

This approval is jointly issued by the Department of Air Quality (DAQ) of the Wyandotte County/Kansas City, Kansas Health Department pursuant to Sec. 3-13 and on behalf of the Bureau of Air and Radiation of the Kansas Department of Health and Environment (KDHE) pursuant to K.S.A. 65-3008 as amended.

Description of Activity Subject to Air Pollution Control Regulations:

Kansas City Board of Public Utilities (BPU) is proposing to install and operate a new power generation unit, also known as the CT4 Project, consisting of one (1) stationary simple cycle combustion turbine generator (CTG), one (1) black start generator and ancillary equipment at their existing BPU Nearman Creek Power Generating facility located at 4240 North 55th Street, Kansas City, Kansas. The combustion turbine will have a maximum heat input of 955

MMBtu/hr and 1,032 MMBtu/hr (rated at 55ºF ambient temperature) while operating on natural gas and No.2 fuel oil, respectively, which will support the power needs in the community. The Nearman Creek Power Station is an industry included in the 28 Major Facility Categories listed under 40 CFR 52.21 as adopted under K.A.R. 28-19-350. The facility is a "major facility" with respect to K.A.R. 28-19-350, *Prevention of Significant Deterioration (PSD) of air quality*. Therefore, each modification to this facility resulting in emissions increases greater than the Significant Emissions Rates listed under 40 CFR 52.21 as adopted under K.A.R. 28-19-350 also requires a PSD review and Best Available Control Technology (BACT) determination.

The simple cycle combustion turbine generator will also be subject to the requirements of 40 CFR Part 60, Subpart GG, Standards of Performance for Stationary Gas Turbines for which construction, modification, or reconstruction commenced after October 3, 1977. On July 8, 2004, the Federal Register promulgated the revisions to the New Source Performance Standard (NSPS) for stationary gas turbines. Thus, the changes to Subpart GG, have been incorporated.

The facility and project are subject to the applicable Acid Rain provisions of Title IV of the Clean Air Act.

Emissions of oxides of nitrogen (NO_x), carbon monoxide (CO), sulfur dioxide (SO_2), volatile organic compounds (VOC), hazardous air pollutants (HAPs), particulate matter (PM), particulate matter with an aerodynamic diameter less or equal to a nominal 10 micrometers (PM_{10}), and sulfuric acid mist were evaluated for this permit review. 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 NO_x, CO, and PM_{10} exceeds 40, 100, and 15 tons per year, respectively.

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

Significant Applicable Air Pollution Control Regulations

The CT4 Project is subject to Kansas Administrative Regulations relating to air pollution control. The following significant Kansas air quality regulations were determined to be applicable to this source:

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

2. K.A.R. 28-19-275. Special Provisions; Acid Rain Deposition.

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

4. K.A.R. 28-19-650(b). Emissions Opacity Requirements

5. 40 CFR Part 60 Subpart GG -- Standards of Performance for Stationary Gas Turbines.

6. 40 CFR Part 63 Subpart YYYY – National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines.

Air Emission Unit Technical Specifications

The following equipment or equivalent is approved:

1. One (1) General Electric Model PG 7121 (EA) simple cycle combustion turbine generator with a maximum heat input of 955 MMBtu/hr and 1,032 MMBtu/hr (rated at 55ºF ambient temperature) while operating on natural gas and No.2 fuel oil, respectively, which will support the power needs in the community. BPU will install new infrastructure including natural gas connections and auxiliary equipment. The new unit will use an existing oil storage tank. Dry low-NOx (DLN) combustion technology will be used to control nitrogen oxide emissions when firing the primary fuel of natural gas[1]. Water injection will be used to control NO_x emissions when firing No. 2 fuel oil with very low sulfur content[2] as a backup fuel. Combustion design and clean fuels will be used to minimize emissions of CO, PM/PM_{10}, Sulfuric Acid Mist, SO_2, and VOC. Exhaust gases from the combustion turbine will exit a 17.1 m high rectangular stack (4.5 m effective diameter) at approximately 786.5°K with an exit velocity of 39 m/s, based on firing natural gas at 100% of base load.

2. One (1) Cummins Power Generation diesel generator set (Model No: QSK78-G6, Standby 2.79 MW), known as the emergency black start generator. The maximum design heat input rate is 24.1 MMBtu/hr. The diesel generator shall only combust No. 2 fuel oil with very low sulfur content[2] as the primary fuel type. There will be no secondary fuel for backup.

BPU identifies the new combustion turbine and black start generator as CT4 project.

[1] Natural Gas as defined under 40 CFR 72.2, allows a total sulfur content of up to 20 grains per 100 scf.
[2] Less than or equal to 0.05% by weight

Air Emissions Estimates from the Proposed Activity

Pollutant	Pre-Permit Potential-to-Emit (Tons per Year)[3,4]	Post-Permit Potential-To-Emit (Tons per Year)[5]
Nitrogen Oxides (NO_x)	731.01	218.9
Sulfur Dioxide (SO_2)	228.41	33.1
Carbon Monoxide (CO)	233.14	233.2
Volatile Organic Compounds (VOC)	20.93	10.5
Hazardous Air Pollutants (HAPs)	6.88	2.84
Particulate Matter (PM/PM_{10})	87.87	49.1
Sulfuric Acid Mist	17.4	2.1

Air Emission Limitations

The limitations of this section do not apply to periods of startup, shutdown, or malfunction. Startup and shutdown are defined in Permit Condition #1 below.

1. K.A.R. 28-19-650 (b): Opacity of visible emissions shall not exceed 20 percent from the combustion turbine and black start generator.

2. Combustion Turbine Generator

    a. The twenty-four (24) hour rolling average concentration of NO_x emissions shall not exceed the following[6]:

[3] Potential-to-emit means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on a capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable.

[4] Pre-Permit Potential-to-Emit represents potential emissions from the combustion turbine and black start generator prior to enforceable conditions and limitations. The emission estimates are based on manufacturer's emission factors and AP-42 emission factors (Appendix A– Emission Calculation: PSD Permit Application).

[5] Post-Permit Potential-to-Emit represents potential emissions from the combustion turbine (annual average temperature of 55º F) and black start generator with the conditions authorized in the permit and the associated technologies installed on the actual emission units.

i. 9 parts per million by dry volume (ppmdv), corrected to 15 percent oxygen (O_2), while burning natural gas.

ii. 42 ppmdv, corrected to 15 percent oxygen (O_2), while burning No. 2 fuel oil.

b. The total NOx emissions shall not exceed 206.2 tons during any consecutive 12-month period. This limit assumes that the combustion turbine operates 7,760 hours on Natural Gas and 1,000 hours on No. 2 fuel oil.

c. The CO emissions shall not exceed the following:

i. 25 ppmdv, corrected to 15 percent oxygen (O_2) when firing natural gas at full load operations.

ii. 60 lbs/hr when firing natural gas at full load operations.

iii. 20 ppmdv, corrected to 15 percent oxygen (O_2) when firing No. 2 fuel oil at full load operations.

iv. 48 lbs/hr when firing No. 2 fuel oil at full load operations.

d. The PM/PM_{10} emissions shall not exceed the following:

i. 10 lbs/hr when firing natural gas at full load operations.

ii. 20 lbs/hr when firing No. 2 fuel oil at full load operations.

3. Black Start Generator

a. NO_x emissions shall not exceed 84.8 lb/hr during full load operations.

b. CO emissions shall not exceed 7.01 lb/hr during full load operations.

c. SO_2 emissions shall not exceed 1.20 lb/hr during full load operations.

[6] 24-hour rolling average is defined as 24 hours of cumulative operation excluding startup, shutdown, or malfunctions. Partial hours of operation are rounded up to whole numbers.

Permit Conditions

1. Startup and shutdown are defined as follows:

    a. Startup: The period from when the combustion turbine is started until it reaches 60% load. The startup periods will be readily identifiable on the load chart recording. Such periods shall not exceed 2 hour without approval by DAQ.

    b. Shutdown: The period when the combustion turbines are shutting down from 60% load to 0% load. The shutdown periods shall be readily identifiable on the load chart recording. Such periods shall not exceed 2 hour without approval by DAQ.

2. The combustion turbine shall operate at load conditions between 60% and 100% of capacity except during startup and shutdown.

3. The permittee shall be limited to Natural Gas or No. 2 fuel oil in the turbine.

4. The combustion turbine shall be limited to firing No. 2 fuel oil for 1,000 hours during each consecutive 12-month period. Compliance shall be demonstrated monthly.

5. The sulfur content of No. 2 fuel oil used for the combustion turbine and black start generator shall not exceed an annual average of 0.05 percent by weight.

6. The black start generator shall be limited to firing No. 2 fuel oil for a maximum period of 300 hours during any consecutive 12-month period. Compliance shall be demonstrated monthly.

7. The total sulfur content of the Natural Gas shall not exceed 0.66 grains/100 scf.

8. This permit and the PSD review shall be reopened if the combustion turbine is retrofitted as a combined cycle unit within seven years of the effective date of this permit.

9. The owner or operator shall install a Continuous Emissions Monitoring System (CEMS) to monitor emissions of nitrogen oxides (NOx).

Performance Testing and Compliance

1. As required in 40 CFR §60.8(a), within 60 days after achieving a maximum production rate at which the turbine will be operated, but not later than 180 days after initial start-up the combustion turbine, the owner or operator shall conduct performance test(s) for the combustion turbine and black start generator to demonstrate compliance with the

applicable conditions and limitations set forth in this permit and furnish DAQ and KDHE a written report of the results of such performance test(s).

2. Performance tests shall be conducted and data reduced in accordance with the test methods and procedures contained in 40 CFR Part 60, Subpart GG, unless KDHE and DAQ approves alternative methodologies as defined under 40 CFR §60.8(b).

3. As required in 40 CFR §60.8(c), performance tests shall be conducted under such conditions as KDHE and DAQ shall specify to the plant operator based on representative performance of the affected facility. The owner or operator shall make available to the KDHE and DAQ such records as may be necessary to determine the conditions of the performance tests. Operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test nor shall emissions in excess of the level of the applicable emission limit during periods of startup, shutdown, and malfunction be considered a violation of the applicable emission limit unless otherwise specified in the applicable standard.

4. In accordance with 40 CFR Part 60, Subpart GG, all continuous monitoring systems and monitoring devices required shall be installed and operational prior to conducting performance tests under 40 CFR 60.8. Verification of operational status, at a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation, and calibration of the device as required by 40 CFR 60.13.

5. In conducting the performance tests required by this permit, the reference test methods and procedures outlined in K.A.R. 28-19-212 and 40 CFR 60.335 shall be used to demonstrate compliance with the limitation and conditions set forth in this permit.

6. Compliance with CO and PM_{10} emission limits shall be demonstrated through an initial performance test at steady state operation and 90 to 100 percent of peak load, or the highest load physically achievable in practice.

7. Performance Test Methods: Compliance tests may be performed in accordance with the following reference methods as described in 40 CFR 60, Appendix A:

   (a) **EPA Method 5 or 201 in conjunction with EPA Method 202 -** Determination of total particulate matter emissions from Stationary Sources. Basis: BACT

   (b) **EPA Method 7E -** Determination of Nitrogen Oxide Emissions from Stationary Sources. This method may be used to determine initial compliance with the 24-hour NO_x limit. Basis: BACT

   or

EPA Method 20 - Determination of Oxides of Nitrogen Oxide, Sulfur Dioxide and Diluent Emissions from Stationary Gas Turbines. This method may be used to determine initial compliance with the 24-hour NO_x limit. Basis: BACT

(c) **EPA Method 9 -** Visual Determination of the Opacity of Emissions from Stationary Sources. Basis: BACT

(d) **EPA Method 10 -** Determination of Carbon Monoxide Emissions from Stationary Sources. All CO tests shall be conducted concurrently with NOx emissions tests. Basis: BACT

(e) **EPA Methods 18, 25 and/or 25A -** Determination of Volatile Organic concentrations.

No other test methods shall be used for compliance testing unless prior DAQ and KDHE approval is received.

8. As required in 40 CFR §60.8(e), the owner or operator shall provide, or cause to be provided, adequate performance testing facilities.

9. In accordance with 40 CFR §60.8(f) each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for the time and under the conditions specified in the applicable standard. For the purpose of determining compliance with an applicable standard, the arithmetic means of results of the three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs must be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances, beyond the owner or operator's control, compliance may, upon the KDHE and DAQ's approval, be determined using the arithmetic mean of the results of the two other runs.

Monitoring Requirements

1. As provided under 40 CFR Subpart GG §60.334(h), the owner or operator shall monitor the total sulfur and nitrogen content of fuel combusted in the combustion turbine as follows:

a) Fuel Oil - The frequency of determining the sulfur and nitrogen content of the fuel shall be according to the sampling options and the associated sampling frequency described in sections 2.2.3, 2.2.4.1, 2.2.4.2 and 2.2.4.3 of appendix D of 40 CFR Part 75 (i.e., flow proportional sampling, daily sampling, sampling from the unit's storage tank after each additional of fuel to the tank, or sampling each delivery prior to combining it with fuel oil already in the intended storage tank).

b) Natural Gas – As provided under 40 CFR Subpart GG §60.334, BPU shall monitor the total sulfur content of natural gas being fired in the turbine.

2. Compliance with NO_x emission limits shall be demonstrated with continuous emission monitor system (CEMS) as provided under 40 CFR Subpart GG §60.334(d). The NOx CEMS shall be installed, certified, operated, maintained and quality-assured as required in 40 CFR Subpart GG §60.334(b).

In lieu of these requirements, alternatives to monitoring procedures or requirements may be approved, on a case-specific basis, by the Administrator of the U.S. EPA pursuant to 40 CFR 60.13(i).

Recordkeeping

All records shall be kept on site and available for inspection for a minimum period of five (5) years.

1. As required under 40 CFR 60.7(b), the owner or operator of the combustion turbine shall maintain records of the occurrence and duration of any start-up, shut-down, or malfunction in the operation of the combustion turbine; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative.

2. As required under 40 CFR 60.7(f), the owner or operator shall maintain a file of all measurements, including continuous monitoring system, monitoring device, and performance testing measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required by this part recorded in a permanent form suitable for inspection. The file shall be retained for at least two years following the date of such measurements, maintenance, reports, and records, with certain exceptions specified under 40 CFR 60.7(f).

3. In compliance with Permit Conditions #1 and #2, the owner or operator shall maintain records of the number and length (in hours) of periods of operation at less than 60% loads during any consecutive 12-month period. Records shall include the current operating load, date and time.

4. In compliance with Permit Condition #3, the owner or operator shall maintain records which demonstrates that only Natural Gas or No.2 fuel oil is fired in the combustion turbine.

5. In compliance with Permit Conditions #4 and #6, the owner or operator shall record the number of hours that the combustion turbine and black start generator fire No. 2 fuel oil during any consecutive 12 month period. These records shall be updated on an hourly basis. Partial operating hours shall be rounded up to whole hours.

6. In compliance with Monitoring Condition #1 and Permit Conditions #5 and #7, the owner or operator shall keep records of the total sulfur and nitrogen content of the fuel combusted in the combustion turbine in accordance to the provisions listed under 40 CFR Subpart GG *Standards of Performance for Stationary Gas Turbines*.

Reporting

The numerical data in all required reports shall be submitted to DAQ and KDHE in the same measurement units as stated in the applicable requirements.

1. Items required to be reported on a semi-annual basis, shall be submitted to DAQ and KDHE, postmarked by the 30th day following the end of each calendar six-month period.

2. Items required to be reported annually shall be submitted to DAQ and KDHE, postmarked by the 30th day following the end of each calendar year.

3. As required under 40 CFR 60.7(c), for the combustion turbine, excess emissions and monitoring systems performance report and/or summary report (as defined in 40 CFR 60.7(d)) shall be submitted to the DAQ and KDHE on a semi-annual basis, except when: more frequent reporting is specifically required under 40 CFR Subpart GG; or KDHE or DAQ, on a case-by-case basis, determines that more frequent reporting is necessary to accurately assess the compliance status of the source. Written reports of excess emissions shall include the following information:

    a. The magnitude of excess emissions computed in accordance with 40 CFR 60.13(h), any conversion factor(s) used, the date and time of commencement and completion of each time period of excess emissions, and the process operating time during the reporting period.

    b. Specific identification of each period of excess emissions that occurs during start-ups, shut-downs, and malfunctions, the nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted.

    c. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs and QA adjustments.

    d. When no excess emissions have occurred or the continuous monitoring system(s)

have not been inoperative, repaired, or adjusted, such information shall be stated in the report.

4. Reports required under Reporting Item #3, periods of excess emissions as defined 40 CFR Subpart GG §60.334(j), shall be reported accordingly.

5. The compliance demonstration for Permit Condition Items 4, and 6 and the Air Emission Limitation Item 2b. shall be reported on an annual basis. During the initial 12 months of operation, the Permit Condition Items 4 and 6 and the Air Emission Limitation Item 2b shall be tracked on a monthly basis and should an exceedance occur, the owner or operator shall contact the Department within one working day.

Notification

1. BPU shall notify DAQ when installation of the combustion turbine and the black start generator is complete, so an evaluation may be conducted to verify compliance with applicable regulations.

2. K.A.R. 28-19-720 which adopts by reference 40 CFR 60.7(a)), requires that written notifications of the following be submitted to DAQ and KDHE:

   a. The date installation of the combustion turbine generator is commenced. The notification is to be postmarked no less than 30 days after such date.

   b. The actual date of initial startup of the combustion turbine generator. The notification is to be postmarked within 15 days after such date.

   c. Any physical or operational change to an existing unit which may increase the emission rate of any air pollutant to which a standard applies, unless that change is specifically exempted under an applicable subpart in 40 CFR or in 40 CFR § 60.14(e). This notice shall be postmarked 60 days or as soon as practicable before the change is commenced and shall include information describing the precise nature of change, present and proposed emission control systems, productive capacity of the facility before an after the change, and the expected completion date of the change. KDHE and DAQ may request additional relevant information subsequent to this notice.

   d. The date upon which demonstration of the continuous monitoring system performance commences in accordance with § 60.13(c). Notification shall be postmarked no less than 30 days prior to such date.

   e. Anticipated date for conducting the opacity observations required by 40 CFR §60.11(e)(1). The notification shall also include, if appropriate, a request for DAQ

and KDHE to provide a visible emissions reader during a performance test. The notification shall be postmarked not less than 30 days prior to such date.

3. As specified in 40 CFR §60.8(d), BPU shall provide to DAQ and KDHE a notification of the date when any performance testing is to commence. The notification shall be postmarked no less than 30 days prior to such date, except as specified under other subparts, to afford KDHE and DAQ the opportunity to have an observer present. If after 30 days notice for an initially scheduled performance test, there is a delay (due to operational problems, etc.) in conducting the scheduled performance test, the owner or operator of an affected facility shall notify DAQ and KDHE as soon as possible of any delay in the original test date, either by providing at least 7 days prior notice of the re-scheduled date of the performance test, or by arranging a rescheduled date with KDHE and DAQ by mutual agreement.

4. Prior notification of any performance test shall include a copy of all applicable performance test protocols.

5. If notification substantially similar to that in paragraph (a) of section 40 CFR §60.7 is required by any other State or local agency, sending KDHE and DAQ a copy of that notification will satisfy the requirements of paragraph (a) of this section.

Acid Rain Requirements

The combustion turbine generator is subject to certain Acid Rain Requirements as provided under 40 CFR Part 72. A complete Acid Rain permit application shall be submitted in accordance with the provisions specified under in 40 CFR Part 72. Notification regarding applicable monitoring equipment will be made as required.

Title V Requirements

The combustion turbine generator is subject to Title V Requirements of the Federal Clean Air Act. A complete application for a Title V (Class I) permit modification shall be submitted in accordance with the deadlines specified in K.A.R. 28-19-510. Notification regarding applicable monitoring equipment shall be made as required.

General Provisions

1. This document shall become void if the construction or alteration has not commenced within 18 months of the effective date, or if the activity required to complete the construction or alteration has been discontinued for 18 months, or more.

2. A construction permit or approval must be issued by DAQ prior to commencing any construction or modification of equipment or processes which result in an increase in the PTE equal to or greater than the thresholds specified in K.A.R. 28-19-300.

3. Upon presentation of credentials and other documents as may be required by law, representatives of the DAQ or KDHE (including authorized contractors of KDHE) shall be allowed by the permittee to:

    a. 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 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 the document; and

    d. 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.

4. The emissions 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 may be subject to periodic review and amending as deemed necessary to fulfill the intent and purpose of the Kansas Air Statutes and Regulations and rules promulgated in accordance therewith.

6. This document does not relieve the permittee 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.

7. Issuance of this document does not relieve the owner or operator of any requirements to obtain an air quality operating permit under any applicable provision of K.A.R. 28-19-500.

Permit Engineer:

_____ _____

William P. Stevenson Date Signed
Environmental/Project Engineer
Department of Air Quality
Wyandotte County/Kansas City, Kansas

Reviewed by:

_____ _____

Richard Bolfing, P.E. Date Signed
Air Operating, Construction, and Compliance Section
Bureau of Air and Radiation,
Kansas Department of Health and Environment

_____ _____

Dana Morris, P.E., Supervisor Date Signed
Air Operating, Construction, and Compliance Section
Bureau of Air and Radiation,
Kansas Department of Health and Environment

_____ _____

Vick L. Cooper, Chief Date Signed
Air Operating, Construction & Compliance Section
Bureau of Air and Radiation

C – 6387

c: Kansas Department of Health and Environment
Department of Air Quality, Bruce Andersen, Director

PREVENTION OF SIGNIFICANT DETERIORATION (PSD)

PERMIT SUMMARY SHEET

Tracking # : C # 6387

Source Name: Board of Public Utilities of Kansas City - Nearman Creek Generating Station

Source Address: 300 North 65th Street, Kansas City, Kansas 66102

Source Location:

City, County, State, Zip:	Kansas City, Wyandotte County, Kansas 66104
Section Township, Range:	Kansas North, 10 South, 24E
Latitude & Longitude Coordinates:	39.165 N; 94.698 W

Area Designation:

K.A.R. 28-19-750, Prevention of significant deterioration of air quality, affect 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 entire State of Kansas is classified as "in attainment" for the National Ambient Air Quality Standards (NAAQS) for all the criteria pollutants.

Project description:

On June 1, 2004, the Kansas City Board of Public Utilities (BPU) submitted an application to the Department of Air Quality (DAQ) proposing to install and operate a new power generation unit, also known as the CT4 Project. The CT4 Project consisted of one (1) stationary simple cycle combustion turbine generator (CTG), one (1) black start generator and ancillary equipment at their existing BPU Nearman Creek Power Generating facility located at 4240 North 55th Street, Kansas City, Kansas. The combustion turbine will have a maximum heat input rate of 955 MMBtu/hr and 1,032 MMBtu/hr (rated at 55ºF ambient temperature) while operating on natural gas and No.2 fuel oil, and will generate electricity to support the power needs in the community.

Although the permit application indicates that the CT4 Project will generate electricity to support the peaking power needs of the community, the applicant requested a construction permit for operation up to 8760 hours/year. Periods of extended operation of the CT4 Project may be needed as an important element of generation capacity reliability and availability within the BPU system in response to power demand growth and having constraints in receiving power transmission from areas outside of BPU's territory. The existing facility is a major source as defined as by state and federal permitting regulations and is operating under a Title V permit issued by the Department of Air Quality (DAQ) of the Unified Government of Wyandotte County and Kansas City, Kansas.

Upon completion, the CT4 Project will be comprised of a simple cycle combustion turbine generator (CTG) consisting of one General Electric 7EA combustion turbine, one black start generator and ancillary equipment. The CTG will be fired using pipeline-grade natural gas as the primary fuel and No. 2 fuel oil with very low sulfur content as the secondary (backup) fuel. Although the proposed CTG may operate 8,760 hours per year burning natural gas, it shall be limited to 1000 hours firing No.2 fuel oil.

Construction has commenced on the CT4 Project, and several minor design changes have occurred to the project since the permit was issued on October 12, 2004. The following is a summary of the changes: 1) size and location of the water storage tank, 2) location of combustion turbine stack, 3) Location of emergency black start generator and service building, and 4) size of emergency black start generator (from 900 kW to 2.8 MW). These changes have resulted in changes to the original emission estimates for this project. None of the changes in the emission estimates for this project result in significant increases under the PSD regulations. DAQ is revising the original PSD permit to reflect the changes in the project. These changes constitute a minor revision to the previous PSD permit under current EPA policy, and require an opportunity for public comment and review.

Both a mark-up copy of the original permit and the final revised permit are being made available for public review. Due to the length and complex nature of the original PSD permit, DAQ believes this is the appropriate method to make the changes to the original PSD permit clear to the public for review and comment. BPU has submitted a June 20, 2005, letter with several attachments which revise the original permit application to reflect these changes. Strikeout text is used for deleted items in the markup copy, and highlighted red text is used for inserted material.

Air Emissions from the Project

The net emission changes from the revisions to the original PSD permit are highlighted in red text on the markup copy of the original PSD permit. The applicant conducted dispersion modeling using the revised emission estimates. As an attachment, BPU included revised Tables F-1 through F-4 of Appendix F of the application to show that the proposed project will not cause ambient impacts of CO, NO_x or PM_{10} above the Modeling Significance Level (MSL) for any applicable averaging period. Because the emissions increases from the proposed project result in ambient impacts less than the applicable MSL for all averaging periods, neither PSD increment nor NAAQS analyses were conducted.