



Matt Blunt, Governor • Doyle Childers, Director

## DEPARTMENT OF NATURAL RESOURCES

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August 3, 2007

Mr. Paul Ling  
Environmental Manager  
Kansas City Power & Light Company  
1201 Walnut Street  
Kansas City, MO 64106

RE: Amendment to Permit Number: 012006-019B, Project Number: 2007-08-015

Dear Mr. Ling:

Enclosed with this letter is your amendment to Permit Number 012006-019B. The original permit 012006-019 was for the installation of a new pulverized coal boiler and associated pollution control equipment at Kansas City Power and Light's Iatan Generating Station. The original permit also covered modification to the pollution control system and an increase in the heat input rate for Iatan Unit 1. Amendments 012006-019A and 012006-019B included changes that added more details regarding the modification of Iatan 1 and to add changes called for in Exhibit 1 of the Stipulation of Dismissal, Sierra Club vs. MDNR, ACC Appeal No. 06-025.

This permit amendment modifies Special Conditions 2.E.12 and 3.E.12 of Permit Number 012006-019B to clarify the intention of this special condition. No other changes occurred to the permit. Please replace pages 2 through 19 of your existing permit with the enclosed pages. Please note that the signature (cover) page of the original permit or pages 20-36 did not change and should be retained with the amended permit. Kansas City Power and Light submitted a Best Available Control Technology (BACT) analysis on June 28, 2007. The Air Pollution Control Program is currently reviewing the analysis.

If you have any questions regarding this amended permit, please contact me at the Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or telephone (573) 751-4817. Thank you for your time and cooperation.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kyra L. Moore  
Permit Section Chief

KLM: khk

Enclosure

c: Kansas City Regional Office  
PAMS File: 2007-08-015

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## SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

*The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."*

Kansas City Power & Light Company – Iatan Generating Station  
S31, T54N, R36W, Platte County, Missouri

1. Specifications, Operating Limits and Emission Limits for Coal Storage and Handling.
  - A. The coal storage pile footprint area (active and in-active storage) shall not exceed 25.3 acres.
  - B. The rail car unloading rate shall not exceed 4,000 tons of coal per hour, averaged over the duration of a train-set unloading event.
  - C. Required Pollution Control Techniques and Equipment. The following conditions represent best available control technology (BACT) for coal storage and handling.
    - 1) Particulate emissions from rail car unloading shall be controlled by a baghouse.
    - 2) A water/chemical dust suppressant mixture shall be applied to the coal at a point between the rail car unloading hopper and the transfer tower.
    - 3) Kansas City Power & Light Company (KCPL) shall periodically add water and/or chemical dust suppressant to the top of the coal storage pile. A system shall be designed, constructed and operated to allow for distribution of water and/or chemical dust suppressant over the top of the coal storage pile. The use of truck-mounted pumps is acceptable provided that this method is capable of effective distribution over all areas of the storage pile.
    - 4) Coal conveyance and transfer systems shall be enclosed and vented to a baghouse. For any portions of the coal conveyance system that can not be enclosed and vented to a baghouse, KCPL must receive prior written authorization from the Air Pollution Control Program for an alternate control method prior to startup.
    - 5) A telescoping chute shall be used to drop coal from conveying equipment to the storage pile and the free fall distance from the end of the chute to the top of the coal pile shall be less than ten (10) feet.

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### SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

- 6) Particulate emissions from coal crushing and transfer operations shall be controlled by a baghouse.
  - 7) Particulate emissions from the pulverized coal storage silos shall be controlled by a baghouse.
  - 8) Housekeeping measures such as sweeping, water washing and vacuuming shall be used to clean equipment, structures and pavement to prevent or minimize generation of fugitive particulate emissions to the extent practicable.
- D. Coal storage, handling and processing shall be conducted in compliance with 40 CFR Part 60, Subpart Y, *Standards of Performance for Coal Preparation Plants*, as incorporated in 10 CSR 10-6.070.
- E. Coal storage, handling and processing operations shall be conducted in compliance with 10 CSR 10-6.170, *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*.
2. Specifications, Operating Limits and Emission Limits for Iatan Unit 1 (pulverized coal boiler and the associated pollution control equipment).
- A. The Unit 1 boiler shall utilize a low-sulfur (less than 1.4 lbs SO<sub>2</sub>/MMBTU generated upon combustion) subbituminous coal as the primary fuel. The heat input to the boiler shall not exceed 7,800 million British Thermal Units (MMBTU) per hour. No. 2 fuel oil with a sulfur content of less than 0.05 percent shall be used for light off, startup and flame stabilization. No other fuels shall be used without receiving prior written authorization from the Air Pollution Control Program.
- B. KCPL shall install and effectively operate an SCR unit for the Unit 1 boiler. At least 120 days prior to initial startup, KCPL shall submit to the Air Pollution Control Program design specifications and an operations and maintenance manual for the SCR unit to include the following:
- 1) Catalyst type, volume and pitch;
  - 2) Catalyst vendor;
  - 3) Catalyst bed elevation and layout drawings;
  - 4) Piping and instrumentation diagrams for the catalyst beds and the ammonia injection system;
  - 5) Process flow diagrams;
  - 6) Anticipated inlet NO<sub>x</sub> rate;
  - 7) Anticipated ammonia injection rate;
  - 8) Anticipated ammonia slip;
  - 9) Anticipated flue gas temperatures through the SCR unit;

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The permittee is authorized to construct and operate subject to the following special conditions:

- 10) A description of catalyst monitoring and replacement procedures;
  - 11) A description of ammonia and NO<sub>x</sub> monitoring equipment and procedures; and
  - 12) A description of equipment and procedures that will be utilized to prevent or minimize masking, plugging, poisoning, accumulation of sulfates or other deterioration in catalyst performance.
- C. KCPL shall install and effectively operate a flue gas desulfurization system (wet scrubber) for the Unit 1 boiler. At least 120 days prior to initial startup, KCPL shall submit to the Air Pollution Control Program design specifications, process flow diagrams, elevation and layout drawings and an operations and maintenance manual for the flue gas desulfurization system.
- D. KCPL shall install and effectively operate a fabric filtration system (baghouse(s)) for the Unit 1 boiler. At least 120 days prior to initial startup, KCPL shall submit to the Air Pollution Control Program design specifications, process flow diagrams, elevation and layout drawings and an operations and maintenance manual for the fabric filtration system.
- E. The following emission limits apply to the stack that is associated with the modified Unit 1 pulverized coal boiler and associated pollution control equipment. KCPL shall not exceed the following emission limits:
- 1) Nitrogen Oxides (NO<sub>x</sub>) - 0.09 lbs/MMBTU, based on a 30 day rolling average.
  - 2) Sulfur Dioxide (SO<sub>2</sub>) - 0.07 lbs/MMBTU, based on a 30 day rolling average.
  - 3) SO<sub>2</sub> – 4,212 lbs/hr, based on a 24-hour rolling average.
  - 4) SO<sub>2</sub> – 6,630 lbs/hr, based on a 3-hour block average.
  - 5) Particulate Matter Less Than Ten Microns in Aerodynamic diameter (PM<sub>10</sub>) – 0.0244 lbs/MMBTU, based on a 30 day rolling average. This limit includes both filterable and condensable particulate matter.
  - 6) Filterable PM<sub>10</sub> – 0.014 lbs/MMBTU, based on a 3-hour rolling average.
  - 7) Filterable Particulate Matter – 0.015 lbs/MMBTU, based on a 3-hour rolling average.
  - 8) Opacity – 15 percent (6-minute average) excluding periods of start-up and shut-down, except for one 6-minute period per hour of not more than 27 percent.
  - 9) Carbon Monoxide (CO) - 0.16 lbs/MMBTU, based on a 30 day rolling average.

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**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

- 10) Volatile Organic Compounds (VOC) – 0.0036 lbs/MMBTU, test method average.
- 11) Vapor Phase Mercury – KCPL shall comply with the following three (3) limits:
  - a)  $39 \times 10^{-6}$  lbs/gross MWh, based on a rolling annual average;
  - b) The federally established emission limitation applicable to this unit; and,
  - c) 210 lbs/year, total for Unit 1 and Unit 2, based on a rolling annual average.
- 12) Sulfuric Acid Mist ( $H_2SO_4$ ) – KCPL shall submit a BACT analysis for sulfuric acid mist. Such analysis will include a proposed BACT limit no higher than  $5.5 \times 10^{-3}$  lbs/MMBTU. The Air Pollution Control Program will conduct a BACT analysis and determine a BACT emissions limit. The final emissions limit shall be the lower of the BACT emissions limit determined by the Air Pollution Control Program or  $5.5 \times 10^{-3}$  lbs/MMBTU until the BACT limit is determined.
- 13) Lead (Pb) –  $5.93 \times 10^{-6}$  lbs/MMBTU, test method average.
- 14) Hydrogen Fluoride (HF) – 33.15 lbs/hr, test method average.

Note: These emission limits (except the opacity limit) include periods of start-up, shutdown and malfunction; see also 10 CSR 10-6.050 and the definitions in 10 CSR 10-6.020.

- F. KCPL shall maintain the pulverized coal boiler and associated air pollution control equipment in accordance with good air pollution control practices to assure proper functioning of the equipment and minimize malfunctions.
3. Specifications, Operating Limits and Emission Limits for Iatan Unit 2 (supercritical pulverized coal boiler and the associated pollution control equipment)
    - A. The Unit 2 boiler shall utilize a low-sulfur (less than 1.4 lbs  $SO_2$ /MMBTU generated upon combustion) subbituminous coal as the primary fuel. The heat input to the boiler shall not exceed 8,100 MMBTU per hour. No. 2 fuel oil with a sulfur content of less than 0.05 percent shall be used for light off, startup and flame stabilization. No other fuels shall be used without receiving prior written authorization from the Air Pollution Control Program.

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**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

- B. KCPL shall install and effectively operate an SCR unit for the Unit 2 boiler. At least 120 days prior to initial startup, KCPL shall submit to the Air Pollution Control Program design specifications and an operations and monitoring plan for the SCR unit to include the information listed in Special Condition 2.B.
- C. KCPL shall install and effectively operate a flue gas desulfurization system (wet scrubber) for the Unit 2 boiler. At least 120 days prior to initial startup, KCPL shall submit to the Air Pollution Control Program design specifications, process flow diagrams, elevation and layout drawings and an operations and maintenance manual for the flue gas desulfurization system.
- D. KCPL shall install and effectively operate a fabric filtration system (baghouse(s)) for the Unit 2 boiler. At least 120 days prior to initial startup, KCPL shall submit to the Air Pollution Control Program design specifications, process flow diagrams, elevation and layout drawings and an operations and maintenance manual for the fabric filtration system.
- E. The following emission limits apply to the stack that is associated with the Unit 2 pulverized coal boiler and associated pollution control equipment. KCPL shall not exceed the following emission limits:
  - 1) NO<sub>x</sub> - 0.07 lbs/MMBTU, based on a 30 day rolling average.
  - 2) SO<sub>2</sub> - 0.06 lbs/MMBTU, based on a 30 day rolling average.
  - 3) SO<sub>2</sub> – 4,374 lbs/hr, based on a 24-hour rolling average.
  - 4) SO<sub>2</sub> – 6,885 lbs/hr, based on a 3-hour block average.
  - 5) PM<sub>10</sub> - 0.0236 lbs/MMBTU, based on a 30 day rolling average.  
This limit includes both filterable and condensable particulate matter.
  - 6) Filterable PM<sub>10</sub> – 0.014 lbs/MMBTU, based on a 3-hour rolling average.
  - 7) Filterable Particulate Matter – 0.015 lbs/MMBTU, based on a 3-hour rolling average.
  - 8) Opacity – 15 percent (6-minute average) excluding periods of start-up and shut-down, except for one 6-minute period per hour of not more than 27 percent.
  - 9) CO - 0.14 lbs/MMBTU, based on a 30 day rolling average.
  - 10) VOC – 0.0036 lbs/MMBTU, based on the average of 3 test runs.
  - 11) Vapor Phase Mercury – KCPL shall comply with the following three (3) limits:
    - a) 39 X 10<sup>-6</sup> lbs/gross MWh, based on a rolling annual

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The permittee is authorized to construct and operate subject to the following special conditions:

- average;
  - b) The federally established emission limitation applicable to this unit; and,
  - c) 210 lbs/year, total for Unit 1 and Unit 2, based on a rolling annual average.
- 12) Sulfuric Acid Mist ( $H_2SO_4$ ) – KCPL shall submit a BACT analysis for sulfuric acid mist. Such analysis will include a proposed BACT limit no higher than  $5.5 \times 10^{-3}$  lbs/MMBTU. The Air Pollution Control Program will conduct a BACT analysis and determine a BACT emissions limit. The final emissions limit shall be the lower of the BACT emissions limit determined by the Air Pollution Control Program or  $5.5 \times 10^{-3}$  lbs/MMBTU until the BACT limit is determined.
- 13) Lead (Pb) –  $5.93 \times 10^{-6}$  lbs/MMBTU, test method average.
- 14) HF – 34.43 lbs/hr, test method average.

Note: These emission limits (except the opacity limit) include periods of start-up, shutdown and malfunction; see also 10 CSR 10-6.050 and the definitions in 10 CSR 10-6.020.

- F. KCPL shall maintain the pulverized coal boiler and associated air pollution control equipment in accordance with good air pollution control practices to assure proper functioning of the equipment and minimize malfunctions.
4. Specifications, Operating Limits and Emission Limits for Ash Handling and Disposal.
- A. Fly ash shall be conveyed pneumatically to a storage silo. Emissions from the storage silo shall be controlled by a baghouse.
  - B. A shrouded load-out spout with a vacuum return that is routed to a baghouse or fabric filter shall be used to control emissions when loading marketed fly ash from the fly ash silo to trucks that are leaving the site.
  - C. Fly ash that is destined for the landfill shall be conditioned to at least 20 percent moisture content before it is disposed of in the landfill.
  - D. Bottom ash removed from the pulverized coal boilers shall be conditioned to at least 20 percent moisture prior to subsequent handling.

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**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

5. Specifications, Operating Limits and Emission Limits for Limestone Handling.
  - A. Particulate emissions from the limestone conveyor system (for reclamation of limestone from the storage pile) shall be controlled by a baghouse.
  - B. Particulate emissions from the limestone day storage bins shall be controlled by baghouses.
  - C. With regard to limestone handling, KCPL shall comply with the *New Source Performance Standard for Nonmetallic Mineral Processing Plants*, 40 CFR Part 60, Subpart OOO, as incorporated in 10 CSR 10-6.070.
6. Specifications, Operating Limits and Emission Limits for an Auxiliary Boiler.
  - A. The auxiliary boiler shall be fired with No. 2 fuel oil. The sulfur content of the fuel oil shall not exceed 0.05 percent sulfur by weight.
  - B. Heat input to the auxiliary boiler shall not exceed 219.4 MMBTU/hr or 1,560 gal/hr.
  - C. The auxiliary boiler shall not be operated more than 876 hours per calendar year.
  - D. The following emission limits apply to the auxiliary boiler. KCPL shall not exceed the following emission limits:
    - 1) NO<sub>x</sub> - 0.100 lbs/MMBTU, test method average.
    - 2) SO<sub>2</sub> - 0.052 lbs/MMBTU, test method average.
    - 3) PM<sub>10</sub> - 0.024 lbs/MMBTU, test method average. (Note: This is a BACT limit, based on good combustion practices and clean fuel.)
    - 4) Particulate Matter – 0.030, lbs/MMBTU, test method average. (Note: This is a BACT limit, based on good combustion practices and clean fuel.)
    - 5) CO - 0.04 lbs/MMBTU, test method average. (Note: This is a BACT limit and the control technology selected to meet this BACT limit is good combustion practices.)
    - 6) VOC – 0.005 lbs/MMBTU, test method average. (Note: This is a BACT limit and the control technology selected to meet this BACT limit is good combustion practices.)
7. Specifications and Operating Limits for a Fuel Oil Storage Tank.
  - A. The fuel oil storage tank shall be a vertical fixed roof tank with a maximum capacity of 500,000 gallons.
  - B. The throughput shall not exceed 1,872,817 gallons per year. Fuel oil sulfur analysis must be conducted by KCPL or the fuel oil supplier for each

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**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

shipment of fuel oil delivered to the storage tank.

**8. BACT for Cooling Towers**

- A. The cooling towers shall be equipped with high efficiency drift eliminators that are designed to reduce drift to less than 0.0005 percent. Verification of drift loss shall be by manufacturer's guaranteed drift loss and shall be kept on site and made readily available to Department of Natural Resources' employees upon request.
- B. The cooling tower(s) shall be operated and maintained in accordance with the manufacturer's specifications. Manufacturer's specifications shall be kept on site and made readily available to Department of Natural Resources' employees.
- C. The cooling water circulation rate shall not exceed 30,096 thousand gallons per hour (= 21,970 mmgal/mth = 263,640 mmgal/yr).
- D. KCPL shall keep records of the monthly and 12-month rolling averages of the amount of water circulated.
- E. The total dissolved solids (TDS) concentration in the circulated cooling water shall not exceed a TDS concentration of 15,000 parts per million (ppm). A TDS sample shall be collected and the results recorded daily to verify the TDS concentration.

**9. Baghouses and Other Particulate Control Devices**

- A. All baghouses shall be operated and maintained in accordance with the manufacturer's specifications. Each baghouse shall be equipped with a gauge that indicates pressure drop across the control device. Pressure gauges or a visual display of the pressure data (i.e., monitor or chart) shall be located such that the Department of Natural Resources' employees may easily observe them during a site visit. Replacement filters for the baghouses shall be kept on hand at all times. The bags shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance).
- B. KCPL shall monitor and record the operating pressure drop across the baghouses at least once every 24 hours. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer.
- C. KCPL shall maintain an operating and maintenance log for the baghouses which shall include the following:

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## SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

- 1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
  - 2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.
- D. Bin vent filters, cyclones and other particulate control devices shall be operated in accordance with manufacturer's recommendations and shall receive periodic inspection and maintenance to ensure proper operation.
10. Haul Roads
- A. Paved Roads
- 1) Maintenance and/or repair of the road surface shall be conducted as necessary to ensure that the physical integrity of the pavement is adequate to achieve control of fugitive emissions from these roads.
  - 2) KCPL shall periodically water, wash and/or otherwise clean all of the paved portions of the haul roads as necessary to achieve control of fugitive emissions from these roads.
- B. Unpaved Roads and Storage Pile Vehicle Activity Area  
KCPL shall control emissions from all unpaved haul roads by **either** documented watering or the application of chemical dust suppressant.
- 1) Chemical Dust Suppressant
    - a) The suppressant (such as magnesium chloride, calcium chloride, lignosulfonates, etc.) shall be applied in accordance with the manufacturer's suggested application rate and re-applied as necessary to achieve control of fugitive emissions from these areas.
    - b) KCPL shall keep records of the time, date, and the amount of material applied for each application of chemical dust suppressant agent on these areas. The records shall be kept on site for not less than five (5) years, and made available to Department of Natural Resources' personnel upon request.
  - 2) Documented Watering
    - a) Water shall be applied in accordance with a recommended application rate of 100 gallons per day per 1,000 square feet of unpaved/untreated surface area of haul roads/vehicle active area as necessary to achieve control of fugitive emissions from these areas.
    - b) KCPL shall maintain a log that documents daily water

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The permittee is authorized to construct and operate subject to the following special conditions:

applications. This log shall include, but is not limited to, date and volumes (e.g., number of tanker applications and/or total gallons used) of water application. The log shall also record rationale for not applying water on day(s) the areas are in use (e.g., meteorological situations, precipitation events, freezing, etc.).

- c) Meteorological precipitation of any kind, (e.g. a quarter inch or more rainfall, sleet, snow, and/or freeze thaw conditions) which is sufficient in the amount or condition to achieve control of fugitive emissions from these areas while the areas are in use, may be substituted for water application until such time as conditions warrant application of water.
- d) Watering may also be suspended when the ground is frozen, during periods of freezing conditions when watering would be inadvisable for traffic safety reasons, or when there will be no traffic on the roads. KCPL shall record a brief description of such events in the same log that documents the watering.
- e) The records shall be kept on site for not less than five (5) years, and made available to Department of Natural Resources' personnel upon request.

**C. Daily Limits for Haul Roads**

KCPL shall not exceed the following daily tonnage-hauled limits:

<b>Description</b>	<b>Limit – Tons /Day</b>
Unit 1 Fly Ash Sold	343.3
Unit 1 Bottom Ash Sold	205.5
Unit 1 Gypsum Sold	<b>0</b>
Unit 1 Fly Ash to Landfill	410.9
Unit 1 Bottom Ash to Landfill	<b>0</b>
Unit 1 Gypsum to Landfill	592.8
Unit 1 Limestone	301.5
Unit 2 Fly Ash Sold	356.5
Unit 2 Bottom Ash Sold	213.4
Unit 2 Gypsum Sold	<b>0</b>
Unit 2 Fly Ash to Landfill	426.7
Unit 2 Bottom Ash to Landfill	<b>0</b>
Unit 2 Gypsum to Landfill	615.6
Unit 2 Limestone	330.0

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The permittee is authorized to construct and operate subject to the following special conditions:

If any parameters affecting the emission factors for the haul roads change, these daily limits are subject to amendment. The parameters affecting the haul road emission factors include the length of the haul road, surface material silt content (a default value of 8.3 % was used) and mean vehicle weight. If KCPL wants to sell gypsum or send bottom ash to the on-site landfill, a permit amendment will be required.

### 11. Restriction of Public Access – Fencing or Physical Barrier to Restrict Public Access to Property

KCPL shall preclude public access to property that is considered within the non-ambient air zone with respect to the air quality impact analysis conducted for this permit. Installation and maintenance of a fence or other physical barrier shall be the means to preclude public access. A map showing property boundary (precluded areas) can be found in January 27, 2006, *Kansas City Power and Light Prevention of Significant Deterioration Air Dispersion Modeling (Iatan I and II) Memorandum*, Figure 14. KCPL shall complete construction of the physical barrier to prior to commencing operation of the modified Unit 1 boiler.

### 12. Compliance Testing

- A. Initial performance/certification testing shall be conducted in order to verify compliance with special conditions 2.E.(1) through (14), 3.E.(1) through (14), 6.D.(1) through (6) and to certify the accuracy of the continuous emission monitoring systems (CEMS).
- B. The performance/certification tests shall be performed within 60 days of achieving the maximum production rate, but no later than 180 days after initial startup.
- C. The date on which performance/certification tests are conducted shall be pre-arranged with the Air Pollution Control Program a minimum of 30 days prior to the proposed test so that a pretest meeting may be arranged if necessary, and to assure that the test date is acceptable for an observer to be present. A completed Proposed Test Plan form (copy enclosed) may serve the purpose of notification and must be approved by the Air Pollution Control Program prior to conducting the required emission testing.
- D. During the initial performance tests KCPL shall analyze a minimum of ten (10) representative samples of as-received coal for the following

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**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

parameters:

- 1) Higher Heating Value
- 2) Ash
- 3) Moisture
- 4) Sulfur
- 5) Arsenic
- 6) Beryllium
- 7) Cadmium
- 8) Chlorine
- 9) Chromium
- 10) Fluorine
- 11) Lead
- 12) Manganese
- 13) Mercury
- 14) Nickel
- 15) Selenium

The analytical results shall be submitted with the performance test report.

- E. As part of the initial performance test, KCPL shall measure emission rates for hydrogen fluoride, arsenic, beryllium, cadmium, chromium, cobalt, manganese, nickel and selenium from the pulverized coal boilers. In the event that the measured emission rates of these HAPs exceed the emission rates used in the air quality analysis, then KCPL shall be required to submit to the Air Pollution Control Program a revised ambient air quality analysis for these pollutants.
- F. As part of the performance/certification test plan, KCPL shall include details regarding the CEMS to include the following:
  - 1) Manufacturer's specifications for the analyzers,
  - 2) A description of how the installation of sampling probes and lines was conducted to ensure compliance with applicable regulatory requirements and to ensure delivery of a properly conditioned representative sample of stack gas to the analyzer(s), and
  - 3) A description of the testing procedures and methods that will be utilized to certify the accuracy of the CEMs.
- G. Two (2) copies of a written report of the performance test results shall be submitted to the Director of the Air Pollution Control Program within 30 days of completion of any required testing. The report must include legible copies of the raw data sheets, analytical instrument laboratory data, and complete sample calculations from the required EPA method for

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The permittee is authorized to construct and operate subject to the following special conditions:

at least one (1) sample run.

- H. With regard to the pulverized coal fired boilers, stack testing for VOC, sulfuric acid mist, lead, hydrogen fluoride, condensable particulate matter and filterable PM<sub>10</sub> shall be repeated at least once every 2 years and the results shall be reported to the Air Pollution Control Program. The date on which these stack tests are conducted must be pre-arranged with the Air Pollution Control Program a minimum of 30 days prior to the proposed test so that a pretest meeting may be arranged if necessary, and to assure that the test date is acceptable for an observer to be present. A completed Proposed Test Plan form (copy enclosed) may serve the purpose of notification and must be approved by the Air Pollution Control Program prior to conducting the required emission testing.
13. Continuous Emission Monitoring System (CEMS)/Continuous Opacity Monitoring System (COMS) – Pulverized Coal Boilers (Units 1 and 2).
- A. KCPL shall install, certify, operate, calibrate, test and maintain CEMS for NO<sub>x</sub>, SO<sub>2</sub>, CO and any necessary auxiliary monitoring equipment in accordance with all applicable regulations. If there are conflicting regulatory requirements, the more stringent shall apply.
- B. KCPL shall install, certify, operate, calibrate, test and maintain COMS for opacity in accordance with all applicable regulations. If there are conflicting regulatory requirements, the more stringent shall apply.
- C. KCPL shall install, certify, operate, calibrate, test and maintain CEMS for vapor phase mercury in accordance with the Environmental Protection Agency's regulations published in the May 18, 2005 Federal Register. See 40 CFR Part 75, Appendices A, B and K.
- D. KCPL shall install, certify, operate, correlate and maintain CEMS for particulate matter in accordance with the performance specification and quality assurance procedures of 40 CFR Part 60, Appendix B, Performance Specification 11 and Appendix F, Procedure 2.
- E. KCPL shall install and operate a data acquisition and handling system to calculate emissions in terms of the emission limitations specified in this permit.
- F. Compliance with the NO<sub>x</sub>, SO<sub>2</sub> and CO emission limits for the pulverized coal boilers shall be demonstrated through the use of the required CEMS.

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**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

- G. Compliance with the opacity limit for the pulverized coal boilers shall be demonstrated through the use of the required COMS.
- H. Compliance with the PM<sub>10</sub>, filterable PM<sub>10</sub> and filterable particulate matter emission limits for the pulverized coal boilers shall be demonstrated through the use of the required CEMS, however data gathered from the CEMS shall be adjusted as follows:

$$PM_{10} = PM_{CEM} + PM_{CONDENSIBLE} - PM_{>10}$$

$$\text{Filterable } PM_{10} = PM_{CEM} - PM_{>10}$$

Where,

PM<sub>CEM</sub> = reported value from the particulate matter CEMS.  
= Filterable particulate matter.

PM<sub>CONDENSIBLE</sub> = condensible particulate matter, from the stack test data.

PM<sub>>10</sub> = mass fraction of particulate matter greater than ten microns in diameter (from stack test data) multiplied by PM<sub>CEM</sub>.

- I. Compliance with the mercury emission limits for the pulverized coal boilers shall be demonstrated through use of the required CEMS.
14. Operational Monitoring
- A. KCPL shall maintain an operational log, which shall detail each startup, shutdown, and malfunction of the pulverized coal boilers and associated pollution control systems.
  - B. KCPL shall maintain an operational log, which shall detail each startup, shutdown, and malfunction of the auxiliary boiler. This operations log shall include a running total of the hours per year the auxiliary boiler is on-line.
  - C. KCPL shall maintain an operational log for the emergency fire pumps that includes a running total of the hours per year the emergency fire pumps are in use; the total shall not exceed 200 hours.
  - D. KCPL shall maintain inspection, maintenance, and repair log(s) for the pulverized coal boilers and associated pollution control systems.

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#### SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

- E. KCPL shall record the analysis of higher heating value, ash, sulfur and moisture content of every shipment of coal that is delivered to the installation, using a sample that is collected in a manner representative of the entire shipment.
- F. KCPL shall analyze a representative sample of fuel oil from the fuel oil storage tank for sulfur content and higher heating value at least once per year. As an alternative, KCPL may use analytical results from the fuel vendor.
- G. KCPL shall continuously monitor and record the following process parameters:
  - 1) Operating status of each major piece of equipment;
  - 2) Gross kilowatts produced by the turbine(s) associated with the pulverized coal boilers and auxiliary boiler;
  - 3) Mass feed rate of coal fed to the pulverized coal boilers;
  - 4) Mass feed rate of fuel oil fed to the auxiliary boiler;
  - 5) Pressure drop across the baghouses that are associated with the Unit 1 and Unit 2 pulverized coal boilers;
  - 6) Ammonia injection rate for the SCR system;
  - 7) Inlet NO<sub>x</sub> upstream of the SCR system;
  - 8) Flue gas temperature in the vicinity of ammonia injection;
  - 9) Flue gas temperature at the outlet of the SCR catalyst; and
  - 10) Pressure drop across the SCR catalyst.

#### 15. Recordkeeping

- A. KCPL shall maintain daily records for railcar unloading operations. For each train-set unloaded, KCPL shall record the total duration of the unloading event and total mass of coal unloaded. KCPL shall calculate an average unloading rate for each unloading event to demonstrate compliance with Special Condition 1.B of this permit.
- B. KCPL shall maintain daily records to demonstrate compliance with the heat input rate limitations specified in Special Conditions 2.A., 3.A. and 20 of this permit.
- C. KCPL shall maintain daily records to document the tonnage of combustion by-products and limestone hauled to demonstrate compliance with Special Condition 10.C. of this permit.

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**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

- D. KCPL shall maintain all records required by this permit for not less than five (5) years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request.

**16. Reporting**

- A. KCPL shall report to the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten (10) days after the day in which emissions exceed the limits established by this permit.
- B. KCPL shall report to the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten (10) days after the day in which operation of equipment at this installation is not in accordance with any operational limitation or condition established by this permit.
- C. KCPL shall comply with the requirements of 10 CSR 10-6.050 with regard to Start-Up, Shutdown and Malfunction Conditions.
- D. KCPL shall report to the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten (10) days after the date in which it is discovered that emission factors used in this permit (or permit application) underestimated actual emissions.

**17. Post-Construction Ambient Air Monitoring**

- A. KCPL shall conduct post-construction ambient air monitoring for mercury and PM<sub>10</sub> for a minimum of one (1) year after the pulverized coal boiler is fully operational. The monitoring period shall begin within six (6) months of the date that the pulverized coal boiler becomes fully operational. Monitoring may be discontinued upon written request and receipt of approval from the Air Pollution Control Program's Director.
- B. The monitoring shall be conducted under an approved Quality Assurance Project Plan at sites approved by the Air Pollution Control Program.
- C. The Quality Assurance Project Plan shall be submitted to the Air Pollution Control Program within six (6) months from the date of issuance of this permit.
- D. In the event that post-construction monitoring reveals a concentration of

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#### SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

mercury, at or beyond the property boundary, in excess of 0.14 micrograms per cubic meter, 24-hour averaging time, then KCPL shall submit a corrective action plan to the Air Pollution Control Program within 20 days of receipt of such analytical results. The corrective action plan shall specify additional control measures that will be employed to control mercury emissions from combustion by-product handling and disposal.

- E. The post-construction PM<sub>10</sub> monitoring shall be evaluated along with the pre-construction monitoring data collected at this location. The purpose of this portion of the monitoring exercise is to evaluate the 24-hour PM<sub>10</sub> increment standard. If this evaluation demonstrates a contribution greater than the increment standard from the new project emissions, then KCPL shall submit a corrective action plan to the Air Pollution Control Program to address this finding. The corrective action plan shall identify alternatives to reduce particulate emissions/impacts. The corrective action plan will be due 30 days from a finding of excessive concentration.
18. This project will create excess netting emissions reductions totaling approximately 3,500 tons of NO<sub>x</sub> and 12,200 tons of SO<sub>2</sub>. KCPL shall not use these excess emission reduction credits for SO<sub>2</sub> and NO<sub>x</sub> to avoid the applicability of BACT in any future permit applications to construct additional units at the Iatan Station or to modify Iatan Units 1 or 2 during the contemporaneous period (2001 to 2010).
19. In the event that there are conflicting requirements or specifications when comparing state and federal regulations and laws, the contents of the amended permit application and the conditions of this permit, the most stringent requirements or specifications shall apply.
20. The Unit 1 boiler heat input rate shall not exceed 6,600 MMBTU/hr. KCPL shall record and report pursuant to this condition within 90 days of issuance of this permit. After the new pollution controls (SCR, baghouse and wet scrubber) are in place and fully operational, the Unit 1 boiler heat input rate may exceed 6,600 MMBTU/hr, but shall not exceed 7,800 MMBTU/hr.
21. The purpose of this condition is to determine a more accurate heat input measurement than the method in use as of the date of this permit. KCPL may propose alternate methods for making this compliance demonstration. Prior to using any alternate methods KCPL must receive written approval from the Director of the Air Pollution Control Program. Heat input rate compliance demonstrations (see Special Conditions 2.A., 3.A. and 20) shall be accomplished

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**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

using coal mass feed rate data, oil volumetric flow rate data and heating value analyses of the coal and oil. The higher heating value for coal used in the heat input rate compliance calculations shall be at least 95 percent of the 30-day rolling average of as-received coal higher heating values. The higher heating value for oil used in the heat input rate compliance calculations shall be the results of KCPL's most recent analysis, or 135,000 BTU/gallon, whichever is greater. The 95<sup>th</sup> percentile heat input rate for any given 24-hr period shall not exceed the rates specified in Special conditions 2.A., 3.A. and 20. The 95<sup>th</sup> percentile heat input rate shall be calculated at least once per hour and shall include data from the 24-hour period that just passed.

22. Within 90 days after initial startup of the modified Unit 1 boiler, KCPL shall submit to the Air Pollution Control Program detailed descriptive information (e.g., as-built drawings, copies of work orders, copies of contracts) to cover the following:
- A. Low-NO<sub>x</sub> burner design.
  - B. Burner and over-fire air port locations and specifications relating to the revised combustion system.
  - C. Any work done to the turbine/generator set.
  - D. Increased economizer surface area.
  - E. Modifications to the bottom ash and economizer ash handling system(s).

