

STATE OF MISSOURI



DEPARTMENT OF NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: **022012-011** Project Number: 2011-06-019

Installation Number: 047-0096

Parent Company: City of Independence

Parent Company Address: P.O. Box 1019, Independence, MO 64051

Installation Name: Independence Power & Light - Missouri City Station

Installation Address: 22225 State Route 210, Missouri City, MO 64072

Location Information: Clay County, S18, T51N, R30W

Application for Authority to Construct was made for:
Fly ash and bottom ash handling equipment. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

Standard Conditions (on reverse) are applicable to this permit.

Standard Conditions (on reverse) and Special Conditions are applicable to this permit.

FEB 21 2012

EFFECTIVE DATE

A handwritten signature in cursive script that reads "Kyna L Moore".
DIRECTOR OR DESIGNEE
DEPARTMENT OF NATURAL RESOURCES

STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Department's Air Pollution Control Program of the anticipated date of start up of these air contaminant sources. The information must be made available within 30 days of actual startup. Also, you must notify the Department of Natural Resources Regional office responsible for the area within which you are located within 15 days after the actual start up of these air contaminant sources.

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant sources(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.

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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."

Independence Power & Light - Missouri City Station
Clay County, S18, T51N, R30W

1. Control Device Requirement-Baghouse
 - A. Independence Power & Light - Missouri City Station shall control emissions from the fly ash silo vent (EP-21) using a cartridge type pulse jet fabric filter as specified in the permit application.
 - B. The fabric filter shall be operated and maintained in accordance with the manufacturer's specifications. The fabric filter shall have no visible emissions while the fly ash silo vent is in operation.
 - C. Replacement cartridge filters shall be kept on hand at all times. The cartridges shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance).
 - D. Independence Power & Light - Missouri City Station shall conduct opacity readings on the fabric filter using EPA Method 22. Readings shall be taken when the fly ash silo vent is in operation and when weather conditions allow, at least once monthly.
 - 1) If no visible emissions are read, no further action is required.
 - 2) If visible emissions are read, then Independence Power & Light - Missouri City Station shall conduct opacity readings on the fabric filter using EPA Method 9. Weekly readings shall be conducted for a minimum of eight consecutive weeks.
 - i. If no visible emissions are detected during this period then readings shall be taken once every two weeks for a period of eight consecutive weeks.
 - ii. If visible emissions are detected during this period then readings shall be conducted weekly.
 - a) If no visible emissions are detected during this period then readings shall be taken once per month.

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SPECIAL CONDITIONS:

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

- b) If visible emissions are detected during this period then readings shall be conducted weekly.
 - iii. If readings shall be conducted weekly then reading frequency shall progress in accordance with special condition 1.D.2.
 - E. Independence Power & Light - Missouri City Station shall maintain an operating and maintenance log for the fabric filter which shall include the following:
 - 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.
- 2. Record Keeping and Reporting Requirements
 - A. Independence Power & Light - Missouri City Station shall maintain all records required by this permit for not less than five years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request.
 - B. Independence Power & Light - Missouri City Station shall report to the Air Pollution Control Program's Compliance/Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten days after the end of the month during which any record required by this permit shows an exceedance of a limitation imposed by this permit.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW

Project Number: 2011-06-019
Installation ID Number: 047-0096
Permit Number:

Independence Power & Light - Missouri City Station Complete: June 13, 2011
22225 State Route 210
Missouri City, MO 64072

Parent Company:
City of Independence
P.O. Box 1019
Independence, MO 64051

Clay County, S18, T51N, R30W

REVIEW SUMMARY

- Independence Power & Light - Missouri City Station has applied for authority to construct fly ash and bottom ash handling equipment.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment. HAPs of concern from this process are in particulate matter form from coal ash handling. Coal ash HAPs are a small weight percent of coal ash. Since the potential emissions associated with the coal ash handling are so low, HAP potential emissions are insignificant and negligible.
- None of the New Source Performance Standards (NSPS) apply to the installation due to equipment installation dates or sizes. The proposed amendments to 40 CFR Part 60 Subparts D, Da, Db, Dc, *Standards of Performance for Fossil-Fuel-Fired Electric Utility, Industrial-Commercial-Institutional, and Small Industrial-Commercial-Institutional Steam Generating Units* has been stayed pending an extended public comment period. The public comment period ended August 4, 2011.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) apply to this installation. None of the currently promulgated Maximum Achievable Control Technology (MACT) regulations apply to the proposed equipment. The proposed 40 CFR 63 Subpart UUUUU, *National Emission Standards for Hazardous Air Pollutants From Coal- and Oil-Fired Electric Utility Steam Generating Units* has been stayed pending an extended public content period. The public comment period ended August 4, 2011.
- An inherent fly ash separator filter and a fly ash silo filter are being used to control the particulate matter (PM), particulate matter less than 10 microns in diameter (PM₁₀), and particulate matter less than 2.5 microns in diameter (PM_{2.5}) emissions from the equipment in this permit.

- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of all pollutants are below de minimis levels.
- This installation is located in Clay County, a maintenance area for ozone and an attainment area for all other criteria pollutants.
- This installation is on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation is classified as item number 26. *Fossil-fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input*. The installation's major source level is 100 tons per year and fugitive emissions are counted toward major source applicability.
- Ambient air quality modeling was not performed since potential emissions of the application are below de minimis levels.
- Emissions testing are not required for the equipment.
- An application to amend the Part 70 Operating Permit is required for this installation within 1 year of equipment startup.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

The City of Independence operates a coal and fuel oiled fired, steam generating, electric power plant near Missouri City. Boilers 1 and 2 were constructed in 1954. A smaller heating boiler was installed in 1978. The plant holds a Part 70 operating permit and has previously never been issued a construction permit. The following permits have been issued to Independence Power & Light - Missouri City Station from the Air Pollution Control Program.

Table 1: Permit History

Permit Number	Description
P047-0096-0001	Part 70 operating permit
OP2010-020	Part 70 operating permit

PROJECT DESCRIPTION

Currently, fly and bottom ash are collected, mixed with water, and sluiced to on-site surface impoundments. The plant proposes to collect dry fly ash from the boiler 1 and 2 baghouse and pneumatically transfer it to a fly ash filter separator (EP-20). Separated fly ash will be pneumatically transferred into a fly ash silo (EP-21) and pneumatically loaded into tanker trucks for off site use. The application states that the truck loading system is under negative pressure where air and captured fly ash is routed back to the silo. Fly ash haul roads (EP-24) contain paved and unpaved portions.

The plant also proposes to redirect the existing bottom ash sluice pipe to a dewatering

structure similar to a concrete basin (EP-22). A front end loader will transport (EP-23) dewatered bottom ash to trucks for off site use. Bottom ash haul roads (EP-24) contain paved and unpaved portions. Fly and bottom ash trucks travel some of the same roads.

The maximum hourly design rates (mhdr) of the project equipment are limited by the amount of fly and bottom ash boilers 1 and 2 can produce. The applicant submitted maximum fly and bottom ash production rates based upon combined heat input of the boilers (530 million British thermal units per hour), coal higher heating value (10,900 Btu per pound), coal to ash conversion weight (10%), and fly and bottom ash portion of total ash (90% and 10%, respectively). Fly ash mhdr is 2.188 tons per hour. Bottom ash mhdr is 0.243 tons per hour.

EMISSIONS/CONTROLS EVALUATION

Emissions from the dewatered bottom ash transfer (EP-22 and EP-23) were calculated using the Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, section 13.2.4, *Aggregate Handling and Storage Piles*, November 2006. Moisture content was selected as the maximum of the range, 4.8%. Actual moisture is expected to be greater. Wind erosion from the bottom ash in the dewatering structure was not calculated and assumed negligible, due to the high moisture content.

Emissions from the fly ash transfer (EP-20 and EP-21) were calculated using AP-42 section 11.12, *Concrete Batching*, June 2006. The controlled emission factor for pneumatic cement unloading to elevated storage silos, SCC 3-05-011-07, was selected as fly ash has properties similar to cement. The process does not contain a PM_{2.5} emission factor, therefore, conservatively, PM_{2.5} was assumed equal to PM₁₀. The plant claims the fly ash filter separator is an inherent control because the process could not collect fly ash without it.

Haul road emissions were calculated using AP-42 section 13.2.1, *Paved Roads*, January 2011 and section 13.2.2, *Unpaved Roads*, November 2006. Paved silt loading and unpaved silt % were selected for disposal routes at municipal solid waste landfills. The plant does not intend to apply water or other control; therefore no controls were used in the calculations.

Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8,760 hours per year). The following table provides an emissions summary for this project. Permit need was based upon the uncontrolled potential PM₁₀ emissions from the fly ash silo, 1.028 pounds per hour. This value exceeds the insignificant emission exemption level in 10 CSR 10-6.061(3)(A)3.A. of 1.0 pound per hour.

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory	Existing	Existing	Potential	New
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	<i>De Minimis Levels</i>	Potential Emissions	Actual Emissions (2010 EIQ)	Emissions of the Application	Installation Conditioned Potential
PM _{2.5}	10.0	N/D	115.06	0.04	N/A
PM ₁₀	15.0	N/D	122.35	0.21	N/A
PM	25.0	N/D	N/D	0.86	N/A
SO _x	40.0	N/D	1,908.33	N/A	N/A
NO _x	40.0	N/D	426.48	N/A	N/A
VOC	40.0	N/D	0.56	N/A	N/A
CO	100.0	N/D	7.11	N/A	N/A
HAPs	10.0/25.0	N/D	12.36	N/D	N/A

N/A = Not Applicable; N/D = Not Determined

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of all pollutants are below de minimis levels.

APPLICABLE REQUIREMENTS

Independence Power & Light - Missouri City Station shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved. For a complete list of applicable requirements for your installation, please consult your operating permit.

GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110. The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of a hardcopy Emissions Inventory Questionnaire (EIQ) is required April 1 for the previous year's emissions. Alternatively, submission of an electronic EIQ via MoEIS is required May 1.
- *Operating Permits*, 10 CSR 10-6.065
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-6.165

SPECIFIC REQUIREMENTS

- *Restriction of Emission of Sulfur Compounds*, 10 CSR 10-6.260 applies to the installation.
- *Maximum Allowable Emission of Particulate Matter From Fuel Burning Equipment Used for Indirect Heating*, 10 CSR 10-2.040 applies to the installation.

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

David Little
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated June 8, 2011, received June 13, 2011, designating City of Independence as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Kansas City Regional Office Site Survey, dated June 21, 2011.

Mr. Eric Holder
Environmental Program Supervisor
Independence Power & Light
P.O. Box 1019
Independence, MO 64051

RE: New Source Review Permit - Project Number: 2011-06-019

Dear Mr. Holder:

Enclosed with this letter is your permit to construct. Please study it carefully. Also, note the special conditions on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files. Operation in accordance with these conditions, your new source review permit application, and with your amended operating permit is necessary for continued compliance. The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

If you have any questions regarding this permit, please do not hesitate to contact David Little, at the Department's Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale
New Source Review Unit Chief

KBH:dll

Enclosures

c: Kansas City Regional Office
PAMS File: 2011-06-019

Permit Number: