

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: 102010-005

Project Number: 2010-08-056

Parent Company: Ameren Corporation

Parent Company Address: P.O. Box 66149, MC-602, St. Louis, MO 63166

Installation Name: Union Electric Co. - Callaway Plant

Installation Number: 027-0026

Installation Address: Junction of Missouri Highway CC & Highway O, Callaway, MO 65251

Location Information: Callaway County, S14, T46N, R8W

Application for Authority to Construct was made for:

Installation of 4 permanent backup generators each rated at 2 MWe. The generators are skid-mounted diesel powered units. 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.

OCT - 8 2010

EFFECTIVE DATE

A handwritten signature in black ink, appearing to read "James C. Kwanen".

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 Departments' Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). 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 this (these) air contaminant source(s).

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 source(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."

Union Electric Co. - Callaway Plant
Callaway County, S14, T46N, R8W

1. Emergency Generator Operating Conditions
 - A. Union Electric Co. - Callaway Plant shall operate each of the four emergency generators (Emission Points: B-12a, B-12b, B-12c and B-12d) only in the event of interruption of electric power from the local utility and for short periods of time to perform maintenance and operational readiness testing.
 - B. Union Electric Co. - Callaway Plant shall not operate each emergency generator for more than 500 hours annually. The generator shall be equipped with a non-resettable meter to record the annual hours of operation for compliance.
 - C. The sulfur content of the diesel fuel combusted in the emergency generator at the installation shall not exceed 0.0015 percent by weight (Wt. %). Union Electric Co. - Callaway Plant shall obtain the sulfur content of the fuel oil for each fuel oil delivery from the fuel vendors or conduct their own fuel analysis to evaluate the sulfur content weight percent of the fuel oil.
2. Record Keeping and Reporting Requirements
 - A. Union Electric Co. - Callaway Plant 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. These records shall include Material Safety Data Sheets (MSDS) for fuels used
 - B. Union Electric Co. - Callaway Plant shall report to the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, Missouri 65102, no later than ten days after the end of the month during which any record required by this permit show an exceedance of a limitation imposed by this permit.

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

Project Number: 2010-08-056
Installation ID Number: 027-0026
Permit Number:

Union Electric Co. - Callaway Plant
Junction of Missouri Highway CC & Highway O
Callaway, MO 65251

Complete: August 30, 2010

Parent Company:
Ameren Corporation
P.O. Box 66149, MC-602
St. Louis, MO 63166

Callaway County, S14, T46N, R8W

REVIEW SUMMARY

- Union Electric Co. - Callaway Plant has applied for authority to install 4 permanent backup generators (Emission Point B12) each rated at 2 MWe. The generators are skid-mounted diesel powered units.
- A small amount of Hazardous Air Pollutant (HAP) emissions are expected from the combustion of fuel in the generators
- 40 CFR 60 Subpart IIII, *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines* applies to the diesel generators.
- 40 CFR 63 Subpart ZZZZ, *National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, of the Maximum Achievable Control Technology (MACT) applies to the diesel generators.
- No air pollution control equipment is being used to control the 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 Callaway County, an attainment area for all criteria pollutants.
- This installation is not on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation's major source level is 250 tons per year and fugitive emissions are not counted toward major source applicability.

- Ambient air quality modeling was not performed since the conditional potential emissions of the application are below de minimis levels.
- Emissions testing are not required for the new equipment.
- A modification to your Part 70 Operating Permit is required for this installation within one (1) year of equipment startup.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Union Electric Company owns and operates a nuclear power plant in Callaway County. The facility is currently operating the following air emissions sources:

1. Auxiliary Boiler (123 mmBTU/hr)
2. Emergency Diesel Generator A
3. Emergency Diesel Generator B
4. Security Emergency Diesel Generator
5. TSC Emergency Diesel Generator
6. EOF Emergency Diesel Generator
7. Fire Protection Emergency Diesel Pump A
8. Fire Protection Emergency Diesel Pump B
9. Natural Draft Cooling Tower
10. Five Emergency Generators

This facility is a major (Part 70) installation for operating permits. At this point in time, the installation is being considered a major source for construction permitting. The issue of Callaway's major source status is discussed further in the Installation Description of Permit No. 062010-003.

The following permits have been issued to Union Electric Co. - Callaway Plant from the Air Pollution Control Program.

Table 1: Permit History

Permit Number	Description
0684-003	The construction of various air emissions sources at an existing nuclear power plant.
0795-012	Temporary permit for equipment to vitrificate generator cleaning waste.
1195-010	Installation of a portable diesel generator.
0899-013	Temporary permit for eight (8) diesel powered air compressors.
062010-003	Installation of 5 emergency diesel generator each capable of generating 2 MWe.

PROJECT DESCRIPTION

Union Electric Co. - Callaway Plant is seeking authority to install 4 permanent backup generators for emergency power during power outages or other emergency situations where backup power is necessary for emergency response activities as required under

Nuclear Regulatory Commission mandates. The new generators will replace 5 emergency diesel generators installed under Permit No. 062010-003. Ameren anticipates that both the new generators and the 5 existing generators will be at the site and operational during a short period of time. However, startup of the new units will not be predicated on the removal of the existing units. Expectations are that once testing of the new generators is complete, the 5 currently installed existing generators will be removed from the site.

Each of the four diesel generators will be capable of generating 2 megawatts of electrical power (MWe) and each has maximum heat input of 19.5 million British thermal units per hour (MMBtu/hr). The proposed emergency generators will comply with US EPA's Tier 2 emission rate standards (40 CFR89.112 Table 1).

EMISSIONS/CONTROLS EVALUATION

The emission factors used for SO₂ and HAPs were obtained from Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Chapter 3.4, *Large Stationary Diesel Engine and All Stationary Engine and All Stationary Dual-Fuel Engines* (October 1996). The emission factors for all other pollutants were obtained from the manufacturer's performance data. This data is based on nominal data emission rates at 100% load. Nominal data was utilized as representative of average engine operation. The maximum 1-hour rates which represent "not to exceed data" for the worst performing engines can be found in the supplied manufacturer data located in the application.

The following table provides an emissions summary for this project. Existing actual emissions are based on the applicant's 2009 Emission Inventory Questionnaire (EIQ) Submittal. Potential emissions of the application represent the potential of the new equipment, assuming 500 hours of operation per generator per year.

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory De Minimis Levels	Existing Potential Emissions	Existing Actual Emissions (2009 EIQ)	Potential Emissions of the Application	New Installation Conditioned Potential
PM ₁₀	15.0	9.75 ^{1,2}	0.26	0.16	N/A
PM _{2.5}	10.0	N/D	N/D	N/D	N/A
SO _x	40.0	202.03	2.53	0.04	N/A
NO _x	40.0	186.87	7.94	35.09	N/A
VOC	40.0	7.22	0.25	1.92	N/A
CO	100.0	40.78	1.82	2.19	N/A
HAPs	10.0/25.0	N/D	N/D	0.03	N/A

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

¹ Does not include PM₁₀ emissions from cooling tower.

² Emissions associated with the 5 emergency diesel generators permitted under Permit No. 062010-003 were not included in the installation's existing potential emissions since it is Union Electric Co. - Callaway Plant's intention to remove them from the site once the new generators are operational. Removal of the existing generators should be verified before calculating the potential emissions for the entire installation.

PERMIT RULE APPLICABILITY

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

APPLICABLE REQUIREMENTS

Union Electric Co. - Callaway Plant 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 an Emissions Inventory Questionnaire (EIQ) is required June 1 for the previous year's emissions.
- *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 10-3.090

SPECIFIC REQUIREMENTS

- *New Source Performance Regulations*, 10 CSR 10-6.070 – *New Source Performance Standards (NSPS) for Stationary Compression Ignition Internal Combustion Engines*, 40 CFR Part 60, Subpart IIII
- *Maximum Achievable Control Technology (MACT) Regulations*, 10 CSR 10-6.075, *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, 40 CFR Part 63, Subpart ZZZZ

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.

Susan Heckenkamp
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated August 26, 2010, received August 27, 2010, designating Ameren Corporation as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Northeast Regional Office Site Survey, dated September 17, 2010.