

STATE OF MISSOURI

PERMIT BODY



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: 062010-003 Project Number: 2010-05-022

Parent Company: Ameren Corporation

Parent Company Address: 1901 Chouteau Avenue, St. Louis, MO 63166-6149

Installation Name: Union Electric Co. - Callaway Plant

Installation Number: 027-0026

Installation Address: Junction of Missouri Highway CC and Highway O,
Portland, MO 65251

Location Information: Callaway County, S14, T46N, R8W

Application for Authority to Construct was made for:

The installation of five (5) emergency generators. 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.

JUN - 4 2010

EFFECTIVE DATE


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. Emission Limitation
 - A. Union Electric Co. - Callaway Plant shall emit less than 40.0 tons of nitrogen oxides (NO_x) combined in any consecutive 12-month period from the five (5) diesel generators.
 - B. Attachment A, or equivalent forms, such as electronic forms, approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Condition 1.A.
 - C. To track NO_x emissions with Attachment A, Union Electric Co. – Callaway Plant may use an emission factor from one of the following sources:
 - 1.) Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources*, Fifth Edition, Chapter 3.4, *Large Stationary Diesel Engine and All Stationary Dual-Fuel Engines* (October, 1996);
 - 2.) Manufacturer's performance data; or
 - 3.) Stack tests performed by the installation.
 - D. If the facility decides to use the manufacturer's performance data as specified in Special Condition 1.C.2), it must keep a copy of the performance data at the site and make it available to any Department of Natural Resources personnel upon request. If Union Electric Co. – Callaway Plant decides to test emissions from the diesel generator, the facility shall notify the Air Pollution Control Program and follow the procedure below.
 - 1.) Tests shall be performed on each model of diesel generators. If there are multiple diesel generators that are the same model, only one is required to be tested.
 - 2.) The tests shall be performed no later than 180 days after the Air Pollution Control Program is notified of the facility's intent to conduct performance tests.

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SPECIAL CONDITIONS:

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

- 3.) A completed Proposed Test Plan Form (enclosed) must be submitted to the Air Pollution Control Program 30 days prior to the proposed test date so that the Air Pollution Control Program may arrange a pretest meeting, if necessary, and assure that the test date is acceptable for an observer to be present. The Proposed Test Plan may serve the purpose of notification and must be approved by the Director prior to conducting the required emission testing.
 - 4.) Two (2) copies of a written report of the performance test results shall be submitted to the Director 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 U.S. EPA Method for at least one (1) sample run.
 - 5.) The test report is to fully account for all operational and emission parameters addressed both in the permit conditions as well as in any other applicable state or federal rules or regulations.
2. Emergency Generator Operating Conditions
- A. Union Electric Co. - Callaway Plant shall operate the emergency generators 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 the 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 0.5 percent by weight (Wt. %). Union Electric Co. - Callaway Plant shall obtain and record, for each fuel oil delivery from the fuel vendors, the sulfur content for the diesel fuel. The installation can also perform its own tests to determine the sulfur content of the fuel.

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SPECIAL CONDITIONS:

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

3. **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: 2010-05-022
Installation ID Number: 027-0026
Permit Number:

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

Complete: May 12, 2010

Parent Company:
Ameren Corporation
1901 Chouteau Avenue
St. Louis, MO 63166-6149

Callaway County, S14, T46N, R8W

REVIEW SUMMARY

- Union Electric Co. - Callaway Plant has applied for authority to construct five (5) diesel generators each capable of generating two (2) megawatts of electrical power (MWe).
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment but only in amounts less than their respective Screening Model Action Levels (SMAL).
- 40 CFR 60 Subpart IIII, *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines*, of the New Source Performance Standards (NSPS) may apply to the equipment depending on the purchase date and the manufacturing date of the generators. After acquiring the units, the facility shall determine whether this subpart is applicable and ensure that the diesel generators meet the requirements of this subpart if this subpart is applicable.
- 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.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) apply to this installation.
- No air pollution control equipment is being used in association with the new equipment.
- 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 conditioned 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 conditioned potential emissions of the application are below *de minimis* levels.
- Emissions testing is not required for the 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 permitted to operate 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

There is also a pressurized water reactor at the facility. A natural draft cooling tower is used to cool the pressurized water reactor. 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. However, this determination is being evaluated further. At issue is whether or not the particulate matter less than ten (10) microns (PM₁₀) emissions from the cooling tower should be considered fugitive. Since the installation is a non-named source, fugitive emissions are not counted towards major source status and thus Prevention of Significant Deterioration (PSD) applicability. The Air Pollution Control Program is in the process of submitting a determination request to the Environmental Protection Agency (EPA) for a final decision on whether the PM₁₀ emissions from the cooling tower should be considered fugitive.

The exemption for emergency generators found in 10 CSR 10-6.061(3)(A)2.BB would not apply if the project would trigger a PSD review without limitations. If the existing installation is considered a major source, then the emergency generators associated with this project would trigger PSD. However, if the cooling tower emissions should be

considered fugitive, then the installation is not an existing major source for construction permitting and the emergency generator exemption would be applicable and a permit would not be necessary. Ameren and the Air Pollution Control Program made the conservative decision, due to timing, to go a head and issue a permit for the emergency generators and then work towards making a final determination on the cooling tower emissions.

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

PROJECT DESCRIPTION

Union Electric Co. – Callaway Plant has applied for authority to construct five (5) emergency diesel generators each capable of generating two (2) megawatts of electrical power (MWe). The facility is currently planning to rent the units from a provider of temporary electrical generating systems and has not decided on the specific diesel generators that will be installed. The facility is in the process of obtaining proposals from several contractors for these systems.

Since the facility has not decided on the specific diesel generators to be used, it is not known whether 40 CFR 60 Subpart IIII, *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines*, of the New Source Performance Standards (NSPS) applies to the equipment because the applicability of these subparts depend on the date of purchase and date of manufacture. The subpart applies to engines purchased after July 11, 2005 and manufactured after April 1, 2006. 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) Standards applies to the diesel generators, but existing engines at area sources do not have to comply with the applicable emissions and operational limitations until May 3, 2013. Therefore, the diesel generators may be subject to subpart ZZZZ but may not currently have any requirements to meet. An existing engine is an engine constructed or reconstructed before June 12, 2006. The facility, after acquiring the units, shall determine whether each of these subparts are applicable and ensure that the diesel generators meet the requirements of the subparts if they are.

EMISSIONS/CONTROLS EVALUATION

The emission factors used in this analysis were obtained from the 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 Dual-Fuel Engines*, (October, 1996). Potential emissions of the application are based on 500 hours of operation for each generator. The existing potential emissions were calculated by the company and assumes that the emissions from the cooling tower are fugitive. If the EPA decides that the emissions from the cooling tower are not fugitive, the existing PM₁₀ emissions would be higher. The existing actual emissions are obtained from the 2008 Emissions Inventory Questionnaire (EIQ) because the company has not yet submitted the 2009 EIQ. The following table provides an emissions summary for this project.

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory De Minimis Levels	Existing Potential Emissions	Existing Actual Emissions (2008EIQ)	Potential Emissions of the Application	New Installation Conditioned Potential
PM ₁₀	15.0	9.75	0.71	1.40	0.72
SOx	40.0	202.03	5.51	12.31	6.31
NOx	40.0	186.87	18.99	78.00	<40.0
VOC	40.0	7.22	0.69	2.19	1.12
CO	100.0	40.78	4.34	20.72	10.63
HAPs	10.0/25.0	N/D	N/D	0.038	0.019

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 conditioned 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

- *Restriction of Emission of Particulate Matter From Industrial Processes, 10 CSR 10-6.400*
- *Restriction of Emission of Sulfur Compounds, 10 CSR 10-6.260*

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.

Chia-Wei Young
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated May 7, 2010, received May 12, 2010, designating Union Electric Co. - Callaway Plant as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.

Attachment A - NO_x Compliance Worksheet

Union Electric Co. - Callaway Plant
 Callaway County, S14, T46N, R8W
 Project Number: 2010-05-022
 Installation ID Number: 027-0026
 Permit Number: _____

This sheet covers the month of _____ in the year _____

Copy as needed.

Generator	Column A	Column B	Column C
	(a) Monthly Amount of Fuel Combusted or Hours of Operation (include units)	(b) NO _x Emission Factor (lbs/unit)	(c) Monthly NO _x Emissions (Tons)
No. 1			
No. 2			
No. 3			
No. 4			
No. 5			
(d) Total NO _x Emissions Calculated for this Month in Tons:			
(e) NO _x Emissions Total from the Previous Eleven (11) Months in Tons:			
(f) Current 12-month Total of NO _x Emissions in Tons:			

- (a) Total amount of fuel combusted in each diesel generator.
- (b) Emission factor for NO_x can be obtained from (1) AP-42, Chapter 3.4, (2) manufacturer's performance data or (3) stack test performed by the facility. The AP-42 factor is 0.438 lbs of NO_x per gallon of diesel.
- (c) Column A x Column B x 0.0005.
- (d) Summation of [Column C] in Tons;
- (e) NO_x emissions total from the previous eleven (11) months can be obtained by summing (d) in the Attachment A for the last eleven (11) months.
- (f) Calculate the new 12-month NO_x emissions total. **A 12-Month NO_x emissions total of less than 40.0 tons indicates compliance.**

Mr. Michael Hutcheson
Union Electric Co. - Callaway Plant
1901 Chouteau Avenue
St. Louis, MO 63166

RE: New Source Review Permit - Project Number: 2010-05-022

Dear Mr.Hutcheson:

Enclosed with this letter is your permit to construct. Please study it carefully. Also, note the special conditions, if any, 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 Chia-Wei Young, at the Departments' 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:cwyl

Enclosures

c: Northeast Regional Office
PAMS File: 2010-05-022

Permit Number: