

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



CONSTRUCTION PERMIT

The Missouri Department of Natural Resources hereby issues a permit to:

Ameren Missouri-Rush Island Energy Center
100 Big Hollow Road
Festus, MO 63028

for the construction of (described facilities):

See attached.

Permit Conditions:

See attached.

Construction of such proposed facilities shall be in accordance with the provisions of the Missouri Clean Water Law, Chapter 644, RSMo, and regulation promulgated thereunder, or this permit may be revoked by the Department of Natural Resources (Department).

As the Department does not examine structural features of design or the efficiency of mechanical equipment, the issuance of this permit does not include approval of these features.

A representative of the Department may inspect the work covered by this permit during construction. Issuance of a permit to operate by the Department will be contingent on the work substantially adhering to the approved plans and specifications.

This permit applies only to the construction of water pollution control components; it does not apply to other environmentally regulated areas.

March 16, 2018
Effective Date


Edward B. Galbraith, Director, Division of Environmental Quality

March 15, 2020
Expiration Date


Chris Wieberg, Director, Water Protection Program

CONSTRUCTION PERMIT

I. CONSTRUCTION DESCRIPTION

Ameren Rush Island Energy Center is required to change their existing process wastewater handling methods with the proposed closure of the ash pond due to the federal Coal Combustion Residuals Rule, 40 CFR 257, and the revised Steam Electric Generating Effluent Limit Guidelines, 40 CFR 423. With the closure of the ash pond, Ameren is proposing the construction of an earthen basin to handle flows from the process and stormwater flows at Rush Island. The earthen detention basin will have a capacity of 3.6 MG and be designed to handle flows from the 1 in 25 year, 24 hour storm event. Flows from the detention basin will be routed back to the low volume waste treatment system (LVWTS) for treatment before discharge through Outfall #01A. The detention basin will have an emergency spillway to protect the berms that would discharge through Outfall #009. The detention basin will be an earthen basin with HDPE geomembrane liner.

This project will also include general site work appropriate to the scope and purpose of the project and all necessary appurtenances to make a complete and usable wastewater treatment facility.

II. COST ANALYSIS FOR COMPLIANCE

Pursuant to Section 644.145, RSMo, when issuing permits under this chapter that incorporate a new requirement for discharges from publicly owned combined or separate sanitary or storm sewer systems or publicly owned treatment works, or when enforcing provisions of this chapter or the Federal Water Pollution Control Act, 33 U.S.C. 1251 et seq., pertaining to any portion of a publicly owned combined or separate sanitary or storm sewer system or [publicly owned] treatment works, the Department of Natural Resources shall make a “finding of affordability” on the costs to be incurred and the impact of any rate changes on ratepayers upon which to base such permits and decisions, to the extent allowable under this chapter and the Federal Water Pollution Control Act. This process is completed through a cost analysis for compliance. Permits that do not include new requirements may be deemed affordable.

The Department is not required to complete a cost analysis for compliance because the facility is not a combined or separate sanitary sewer system for a publically-owned treatment works.

III. CONSTRUCTION PERMIT CONDITIONS

The permittee is authorized to construct subject to the following conditions:

1. This construction permit does not authorize discharge.
2. All construction shall be in accordance with the plans and specifications submitted by Black & Veatch on August 11, 2016.
3. The Department must be contacted in writing prior to making any changes to the approved plans and specifications that would directly or indirectly have an impact on the capacity, flow, system layout, or reliability of the proposed wastewater treatment facilities or any design parameter that is addressed by 10 CSR 20-8, in accordance with 10 CSR 20-8.110(8).
4. State and federal law does not permit bypassing of raw wastewater, therefore steps must be taken to ensure that raw wastewater does not discharge during construction. If a sanitary sewer overflow or bypass occurs, report the appropriate information to the Department's St. Louis Regional Office per 10 CSR 20-7.015(9)(E)2.
5. In addition to the requirements for a construction permit, 10 CSR 20-6.200 requires land disturbance activities of 1 acre or more to obtain a Missouri state operating permit to discharge stormwater. The permit requires best management practices sufficient to control runoff and sedimentation to protect waters of the state. Land disturbance permits will only be obtained by means of the Department's ePermitting system available online at dnr.mo.gov/env/wpp/epermit/help.htm. See dnr.mo.gov/env/wpp/stormwater/sw-land-disturb-permits.htm for more information.
6. A United States (U.S.) Army Corps of Engineers (COE) permit (404) and a Water Quality Certification (401) issued by the Department or permit waiver may be required for the activities described in this permit. This permit is not valid until these requirements are satisfied. If construction activity will disturb any land below the ordinary high water mark of jurisdictional waters of the U.S. then a 404/401 will be required. Since the COE makes determinations on what is jurisdictional, you must contact the COE to determine permitting requirements. You may call the Department's Water Protection Program at 573-751-1300 for more information. See dnr.mo.gov/env/wpp/401/ for more information.
7. Upon completion of construction:
 - A. Ameren Missouri will become the continuing authority for operation, maintenance, and modernization of these facilities;
 - B. Submit an electronic copy of the as built's if the project was not constructed in accordance with previously submitted plans and specifications; and

- C. Submit the enclosed form Statement of Work Completed to the Department in accordance with 10 CSR 20-6.010(5)(D).

IV. REVIEW SUMMARY

1. CONSTRUCTION PURPOSE

Ameren Energy Center is required to change their existing process wastewater handling methods with the proposed closure of the ash pond due to the federal Coal Combustion Residuals Rule, 40 CFR 257, and the revised Steam Electric Generating Effluent Limit Guidelines, 40 CFR 423. The proposed construction is the construction of new wastewater treatment systems to manage stormwater and process water generated at the Ameren Missouri Rush Island Energy Center. While the construction at the facility includes different components, only the detention basin is required to have a construction permit.

2. FACILITY DESCRIPTION

The Ameren Missouri – Rush Island Energy Center is located at 100 Big Hollow Rd., Festus in Jefferson County. Rush Island is an electrical generating establishment primarily engaged in the generation of electricity for distribution and sale which results primarily from the processing of a fossil fuel (coal). The facility commenced operations in 1976 and the two coal-fired boilers produce steam for the generation of approximately 1250MWe.

- Outfall #01A-Low Volume Wastewater Treatment:
 - Outfall #01A is a new outfall for the release of low volume wastewater. Outfall #01A was constructed to handle low volume process wastewater flows with the planned closure of the ash ponds, Outfall #002. As Outfall #01A will replace and manage the process wastewater from Outfall #002, an Antidegradation review was not required as the overall flows at the plant will be reduced with the change to a dry handling ash system, closure of the ash pond, and the new low volume treatment basins.
- Outfall #009-Detention Basin Emergency Overflow
 - The detention basin will receive stormwater from the coal yard and process wastewater from a large portion of the Rush Island Energy Center. The detention basin will receive flows when excess flows are received at the low volume wastewater treatment basin, Outfall #01A. During normal operations, flows received in the detention basin will be treated and discharged through Outfall #01A.

3. COMPLIANCE PARAMETERS

The construction of the new detention basin is to provide treatment for process and wastewater flows in the conversion to dry handling of coal ash. The new detention basin will work with the new coal pile runoff basin and the LVWTS basins to provide treatment of flows. The LVWTS will discharge through the new outfall, Outfall #01A and is required to meet the effluent limits established in 40 CFR 423. The detention basin has an emergency spillway with monitoring requirements, however under normal operating conditions the flows from the detention basin will flow to the LVWTS for additional treatment. During extreme weather events, the detention basin may discharge and is required to meet the effluent limits listed below.

The final effluent limits the project is expected to meet are established in the permit renewal for Rush Island Energy Center, MO-0000043 and listed below. A condition of the operating permit is the facility will have 180 days from completion of construction to place the outfall identification sign.

OUTFALL #01A EFFLUENT PARAMETERS	UNITS	FINAL EFFLUENT LIMITATIONS		
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE
Oil & Grease	mg/L	15		10
pH (Note 1)	SU	6.0 to 9.0		6.0 to 9.0
Net Total Suspended Solids	mg/L	100		30

4. **REVIEW of MAJOR TREATMENT DESIGN CRITERIA**

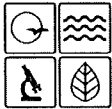
- The Rush Island Energy Center is located within the 100 year flood elevation according to FEMA for the Mississippi River.
- The detention basin is subject to construction permitting requirements.
 - The total area of the detention basin is 111,000 ft² with a design capacity of 3.6 million gallons at an elevation 404 feet.
 - The detention basin will have a finished grade of the bottom of the basin slopes from south to north from a maximum elevation of 399 feet to a minimum elevation of 398.25 feet.
 - The detention basin is not rectangular which is an approved deviation from 10 CSR 20-8.200(5)(F) as the shape is adjusted to fit the existing rail line.
 - The interior and exterior slopes of the berms will be constructed with a 3:1 (H:V) slope, which meets the requirements of 10 CSR 20-8.200(6)(A)3.
 - The interior slopes and the bottom of the detention basin will be covered by a HDPE liner system
 - The detention basin's liner is a 60-mil HDPE geomembrane, with an equivalent hydraulic conductivity of the liner lower than the requirements in 10 CSR 20-8.200(6)(C)1.
 - The finished grade top of berm elevation is 407 feet, which provides three feet of freeboard for wave action at maximum operating level of 404 feet per 10 CSR 20-8.200(6)(A)5.
 - The Detention Basin will be located in within the 100 year flood elevation according to FEMA. With the berms of the detention basin and the existing levee system, the detention basin will be protected from the 100 year flood elevation per 10 CSR 20-8.140(3)(A).
 - Under normal operating conditions, water from the detention basin will be routed back to the Low Volume Waste Treatment System for treatment and discharge through Outfall 001A. The effluent system is designed to completely drain the detention basin.

- Emergency Spillway
 - 10 CSR 20-8.200(6)(E) requires consideration of an emergency spillway to prevent overtopping of a berm or dike around a lagoon. The Detention Basin's emergency spillway, designated as Outfall 009, is located on the western berm.
 - The emergency spillway is lined with Rip Rap and a 60-mil HDPE liner.
 - The flow path of the emergency spillway will be lined with riprap, woven geotextile and HDPE Liner.

5. OPERATING PERMIT

Operating permit MO-0000043 will reflect the construction activities with the issuance of the renewal. The renewal permit was successfully public noticed from January 5, 2018 to March 8, 2018 with no comments related to the construction activities received. The reissued operating permit will reflect the comments received through the public notice process and in the public hearing. Submit the Statement of Work Completed to the Department in accordance with 10 CSR 20-6.010(5)(D).

Leasue Meyers, EI
Engineering Section
leasue.meyers@dnr.mo.gov



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

**APPLICATION FOR CONSTRUCTION PERMIT –
WASTEWATER FACILITY**

RECEIVED

AUG 11 2016

Water Protection Program

AP24659
MO-000043
CP0001861

FOR DEPARTMENT USE ONLY	
APP NO.	CP NO.
FEE RECEIVED	CHECK NO.
DATE RECEIVED	

\$1500.00/432032
8-11-16 88

APPLICATION OVERVIEW

The Application for Construction Permit – Wastewater Facility form is for construction pertaining to domestic wastewater treatment facilities, agrichemical facilities, and components thereof. This form has been developed in a modular format and consists of Part A and B. **All applicants must complete Part A.** Part B should be completed for applicants who currently land-apply wastewater or propose land application for wastewater treatment. **Please read the accompanying instructions before completing this form.** **Submittal of an incomplete application may result in the application being returned.**

PART A – BASIC INFORMATION

1.0 APPLICATION INFORMATION (Note – If any of the questions in this section are answered NO, this application may be considered incomplete and returned.)

- 1.1 Is this a Federal/State funded project? ☐ YES ☒ N/A Funding Agency: _____ Project #: _____
- 1.2 Is this an application for an agrichemical? ☐ YES (See instructions.) ☒ N/A
- 1.3 Has the Missouri Department of Natural Resources approved the proposed project's antidegradation review?
☐ YES Date of Approval: N/A - no discharge
- 1.4 Has the department approved the proposed project's facility plan*?
☐ YES Date of Approval: _____ ☐ NO ☒ N/A (If Not Applicable, complete No. 1.5.)
- 1.5 [Complete only if answered Not Applicable on No. 1.4] Is a copy of the engineering report* for wastewater treatment facilities with a design flow less than 22,500 gpd included with this application?
☐ YES ☐ NO ☒ N/A
- 1.6 Is a copy of the appropriate plans* and specifications* included with this application?
☒ YES Denote which form is submitted: ☐ Hard copy ☒ Electronic copy (See instructions.) ☐ NO
- 1.7 Is a summary of design* included with this application? ☒ YES ☐ NO
- 1.8 Is a general operating permit applicable?
☐ YES Submit the appropriate operating permit application to the Regional Office at least 60 days prior to operation.
☒ NO Enclose the appropriate operating permit application and fee submittal. Denote which form: ☐ B ☐ B2 ☒ Form C
- 1.9 Is the facility currently under enforcement with the department or the Environmental Protection Agency? ☐ YES ☒ NO
- 1.10 Is the appropriate fee included with this application? ☒ YES ☐ NO (See instructions for appropriate fee.)

* Must be affixed with a Missouri registered professional engineer's seal, signature and date.

2.0 PROJECT INFORMATION

2.1 NAME OF PROJECT

Ameren Missouri Rush Island Energy Center - ELG Detention Basin

2.2 PROJECT DESCRIPTION

Construction of impoundment (ELG Detention Basin) to receive stormwater and process water prior to treatment (via separate system) and discharge. Please see Section 1.3 of attached Detention Basin Engineering Report.

2.3 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION

Any removed solids remaining in the Detention Basin after draining will be transported to a properly permitted landfill or alternatively placed on the coal pile for boiler combustion fuel. Please see Section 5.5.4 of attached Detention Basin Engineering Report.

2.4 DESIGN INFORMATION

- A. Current population: N/A; Design population: N/A
- B. Actual Flow: N/A gpd; Design Average Flow: N/A gpd;
Actual Peak Daily Flow: N/A gpd; Design Maximum Daily Flow: N/A gpd;
Design Wet Weather Event: 25Y 24H

2.5 ADDITIONAL INFORMATION

- A. Is a topographic map attached? ☒ YES ☐ NO
- B. Is a process flow diagram attached? ☒ YES ☐ NO Please see drawing 188552-DC-1000 for flow information.

2.6 ESTIMATED PROJECT CONSTRUCTION COST

\$ 500,000.00 (Detention Basin only)

3.0 WASTEWATER TREATMENT FACILITY

NAME Ameren Missouri Rush Island Energy Center		TELEPHONE NUMBER WITH AREA CODE (314) 554-4581		EMAIL ADDRESS msmallwood@ameren.com	
ADDRESS (PHYSICAL) 100 Big Hollow Road	CITY Festus	STATE MO	ZIP CODE 63028	COUNTY Jefferson	
Wastewater Treatment Facility: Mo- 0000043 (Outfall Of)					
3.1 Legal Description: ¼, NW ¼, NE ¼, Sec. 08 , T 39N , R 07E (Use additional pages if construction of more than one outfall is proposed.)					
3.2 UTM Coordinates Easting (X): 739870 Northing (Y): 4223372 For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)					
3.3 Name of receiving streams: Mississippi River after treatment in separate treatment basins via new Outfall 001A					

4.0 PROJECT OWNER

NAME Union Electric Company d/b/a Ameren Missouri		TELEPHONE NUMBER WITH AREA CODE (314) 554-4581		EMAIL ADDRESS msmallwood@ameren.com	
ADDRESS PO Box 66149, MC602	CITY St. Louis	STATE MO	ZIP CODE 63166		

5.0 CONTINUING AUTHORITY: Permanent organization that will serve as the continuing authority for the operation, maintenance and modernization of the wastewater collection system.

NAME Same as Owner		TELEPHONE NUMBER WITH AREA CODE		EMAIL ADDRESS	
ADDRESS	CITY	STATE	ZIP CODE		

5.1 A letter from the continuing authority, if different than the owner, is included with this application. ☐ YES ☐ NO ☒ N/A

5.2 COMPLETE THE FOLLOWING IF THE CONTINUING AUTHORITY IS A MISSOURI PUBLIC SERVICE COMMISSION REGULATED ENTITY.

A. Is a copy of the certificate of convenience and necessity included with this application? ☐ YES ☐ NO ☒ N/A

5.3 COMPLETE THE FOLLOWING IF THE CONTINUING AUTHORITY IS A PROPERTY OWNERS ASSOCIATION. N/A

A. Is a copy of the as-filed restrictions and covenants included with this application? ☐ YES ☐ NOB. Is a copy of the as-filed warranty deed, quitclaim deed or other legal instrument which transfers ownership of the land for the wastewater treatment facility to the association included with this application? ☐ YES ☐ NOC. Is a copy of the as-filed legal instrument (typically the plat) that provides the association with valid easements for all sewers included with this application? ☐ YES ☐ NOD. Is a copy of the Missouri Secretary of State's nonprofit corporation certificate included with this application? ☐ YES ☐ NO**6.0 ENGINEER**

ENGINEER NAME / COMPANY NAME Black & Veatch		TELEPHONE NUMBER WITH AREA CODE (913) 458-2000		EMAIL ADDRESS	
ADDRESS 11401 Lamar Avenue	CITY Overland Park	STATE KS	ZIP CODE 66211		

7.0 PROJECT OWNER: I hereby certify that I am familiar with the information contained in this application and to the best of my knowledge and belief such information is true, complete, and accurate, and if granted this permit, I agree to abide by the Missouri Clean Water Law and all rules, regulations, orders, and decisions, subject to any legitimate appeal available to applicant under Missouri Clean Water Law. I also understand the issuance of the construction permit does not guarantee the proposed wastewater treatment will meet the required effluent limitations of the issued Missouri State Operating Permit for this facility.

PROJECT OWNER SIGNATURE

PRINTED NAME James V. Vaughn		DATE 7/21/16	
TITLE OR CORPORATE POSITION Director, Rush Island Energy Center		TELEPHONE NUMBER WITH AREA CODE (314) 992-9201	
		EMAIL ADDRESS	

Mail completed copy to:
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
P.O. BOX 176
JEFFERSON CITY, MO 65102-0176

END OF PART A.**REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHETHER PART B NEEDS TO BE COMPLETE.**

PART B – LAND APPLICATION ONLY Not applicable.
(Submit only if the proposed construction project includes land application of wastewater.)

8.0 FACILITY INFORMATION

8.1 Type of wastewater to be irrigated: ☐ Domestic ☐ State/National Park ☐ Seasonal business
☐ Municipal ☐ Municipal with a pretreatment program or significant industrial users
☐ Other (explain)

8.2 Months when the business or enterprise will operate or generate wastewater:
☐ 12 months per year ☐ Part of the year (list months):

8.3 This system is designed for:
☐ No-discharge ☐ Subsurface
☐ Partial irrigation when feasible and discharge rest of time
☐ Irrigation during recreational season, April – October, and discharge during November – March
☐ Other (explain)

9.0 STORAGE BASINS

9.1 Number of storage basins: _____ (Use additional pages if greater than two basins.)

9.2 Type of basins: ☐ Steel ☐ Concrete ☐ Fiberglass ☐ Earthen ☐ Earthen with membrane liner

9.3 Storage basin dimensions at inside top of berm (feet). Report freeboard as feet from top of berm to emergency spillway or overflow pipe.
Basin #1: Length _____ Width _____ Depth _____ Freeboard _____ Depth _____ Safety _____ % Slope _____
Basin #2: Length _____ Width _____ Depth _____ Freeboard _____ Depth _____ Safety _____ % Slope _____

9.4 Storage Basin operating levels (report as feet below emergency overflow level).
Basin #1: Maximum operating water level _____ ft Minimum operating water level _____ ft
Basin #2: Maximum operating water level _____ ft Minimum operating water level _____ ft

9.5 Design depth of sludge in storage basins.
Basin #1: _____ ft Basin #2: _____ ft

9.6 Existing sludge depth, if the basins are currently in operation.
Basin #1: _____ ft Basin #2: _____ ft

9.7 Total design sludge storage: _____ dry tons and _____ cubic feet

10.0 LAND APPLICATION SYSTEM

10.1 Type of land application: ☐ Fixed Head Sprinklers ☐ Center Pivot ☐ Traveling Gun ☐ Drip Dispersal
☐ Subsurface Low Pressure Pipe ☐ Other (describe) _____

10.2 Number of irrigation sites _____ Total Acres _____ Maximum % field slopes _____
Location: _____ 1/4, _____ 1/4, _____ 1/4, _____ Sec. _____ T _____ R _____ County _____ Acres
Location: _____ 1/4, _____ 1/4, _____ 1/4, _____ Sec. _____ T _____ R _____ County _____ Acres
Location: _____ 1/4, _____ 1/4, _____ 1/4, _____ Sec. _____ T _____ R _____ County _____ Acres
(Use additional pages if greater than three irrigation sites.)

10.3 Type of vegetation: ☐ Grass hay ☐ Pasture ☐ Timber ☐ Row crops
☐ Other (describe)

10.4 Wastewater flow (dry weather) gallons per day: Average annual _____
Seasonal _____ Off-season _____

10.5 Land application rate (design flow including 1-in-10 year storm water flows):
Design: _____ inches/year _____ inches/hour _____ inches/day _____ inches/week
Actual: _____ inches/year _____ inches/hour _____ inches/day _____ inches/week

10.6 Total irrigation per year (gallons): Design: _____ gal Actual: _____ gal

10.7 Actual months used for irrigation (check all that apply):
☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec

10.8 Land application rate is based on:
☐ Hydraulic Loading ☐ Other (describe) _____
☐ Nutrient Management Plan (N and P) If N and P is selected, is the plan included? ☐ YES ☐ NO