

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



CONSTRUCTION PERMIT

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

Associated Electric Cooperative, Inc.
2814 South Golden Ave.
Springfield, MO 65801

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.

June 11, 2020
Effective Date

June 10, 2022
Expiration Date


Edward B. Galbraith, Director, Division of Environmental Quality


Chris Wieberg, Director, Water Protection Program

CONSTRUCTION PERMIT

I. CONSTRUCTION DESCRIPTION

The Associated Electric Cooperative, Inc. (AECI) - New Madrid Power Plant is required to change its existing process wastewater handling methods due to the federal Coal Combustion Residuals (CCR) Rule, 40 CFR 257, and the revised Steam Electric Generating Effluent Limit Guidelines, 40 CFR 423. AECI is proposing to construct a new secondary settling basin to allow for the closure of Ash Pond 003.

This Construction Permit is intended to cover construction of a new secondary settling basin for the treatment of plant process waters and coal pile runoff. The secondary settling basin will be approximately 12 acres in size. The site is adjacent to the Army Corps of Engineer's Levee and associated AECI impoundments. The project includes, but is not limited to, clearing, grubbing, and demolition of the site, earthwork required for new subgrade, installation of piping and drainage structures, installation of a soil liner, geomembrane liner, and protective cover, roller compacted concrete, installation of manhole inlet structure, emergency spillway, and pump station outflow structure.

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 consistent with plans and specifications signed and sealed by Steven. F. Putrich, P.E. with Haley & Alrich, Inc. and as described in this permit.
3. The Department must be contacted in writing prior to making any changes to the 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(11).
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 Southeast Regional Office per 10 CSR 20-7.015(9)(G).
5. The wastewater treatment facility shall be located at least two hundred feet (200') from any dwelling or establishment and fifty feet (50') from the property line.
6. The wastewater treatment facility shall be located above the twenty-five (25)-year flood level.
7. The wastewater facility structures, electrical equipment, and mechanical equipment shall be protected from physical damage by not less than the one hundred- (100-) year flood elevation per 10 CSR 20-8.140(2)(B). The minimum distance between wastewater treatment facilities and all potable water sources shall be at least three hundred feet (300') per 10 CSR 20-8.140(2)(C)1.
8. 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.
9. 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.

10. All construction must adhere to applicable 10 CSR 20-8 (Chapter 8) requirements listed below.

- The minimum berm width shall be eight feet (8') to permit access of maintenance vehicles. 10 CSR 20-8.200 (4) (A) 2.
- Minimum freeboard shall be two feet (2'). 10 CSR 20-8.200 (4) (A) 3.
- An emergency spillway shall be provided. 10 CSR 20-8.200 (4) (A) 4.
- An emergency spillway must have the ability for a representative sample to be collected if a discharge occurs. 10 CSR 20-8.200 (4) (A) 4. C.
- Soil shall be compacted with the moisture content between two percent (2%) below and four percent (4%) above the optimum water content and compacted to at least ninety-five percent (95%) maximum dry density test method. 10 CSR 20-8.200 (4) (B).
- The lagoon shall be sealed to ensure that seepage loss is as low as possible and has a design permeability not exceeding 1.0×10^{-7} cm/sec. 10 CSR 20-8.200 (4) (C) 1.
- Unlined corrugated metal pipe shall not be used for influent lines due to corrosion problems. 10 CSR 20-8.200 (4) (D) 1.
- A manhole shall be installed with its invert at least six inches (6") above the maximum operating level of the lagoon, prior to the entrance into the primary cell, and provide sufficient hydraulic head without surcharging the manhole. 10 CSR 20-8.200 (4) (D) 2.
- The influent line(s) shall be located along the bottom of the lagoon so that the top of the pipe is just below the average elevation of the lagoon seal; however, there shall be an adequate seal below the pipe. 10 CSR 20-8.200 (4) (D) 3.

11. Upon completion of construction:

- A. Associated Electric Cooperative, Inc. will become the continuing authority for operation and maintenance of these facilities;
- B. Submit an electronic copy of the as built 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)(N). When the facility applies for their next operating permit renewal, they will be expected to include an updated facility description on their application.

IV. REVIEW SUMMARY

1. CONSTRUCTION PURPOSE

The AECI-New Madrid Power Plant is required to change its existing process wastewater handling methods due to the federal Coal Combustion Residuals (CCR) Rule, 40 CFR 257, and the revised Steam Electric Generating Effluent Limit Guidelines, 40 CFR 423. Modifications to the ash pond system are anticipated to (1) cease discharge of current non-CCR process waters into the active CCR Pond, Pond 003, (2) to allow for the reconfiguration and continued discharge from Pond 004, and (3) for the ultimate closure of Pond 003. To allow for the closure of Pond 003, a new, approximately 12-acre secondary settling basin will be constructed for the treatment and storage of non-CCR process wastewater and stormwater. A pump station will be constructed to discharge flows from the new settling basin to existing Pond 004. Flow will ultimately discharge to the Missouri River through existing Outfall #004.

2. FACILITY DESCRIPTION

The New Madrid Power Plant is located at 41 St. Jude Industrial Park, Marston, in New Madrid County, Missouri. The plant is a steam electrical power generation facility primarily engaged in the generation of electricity for distribution and sale located on the western bank of the Mississippi River. The facility includes two (2) 615-megawatt coal-fired cyclone burner steam electric generating units (Unit 1 & 2). The facility's existing Missouri State Operating Permit (MSOP) became effective on January 1, 2020 and expires on December 31, 2024. This facility has nine (9) outfalls and four (4) permitted features, which are further described in the effective MSOP.

3. COMPLIANCE PARAMETERS

The proposed project is required to meet the effluent limits as established in Operating Permit MO-0001171. The proposed construction will impact Outfall #004, which has a design average flow of 7.5 MGD.

Upon completion of construction, the following effluent limitations will remain applicable to Outfall #004:

Parameter	Units	Maximum Daily Limit	Monthly Average Limit
Oil & Grease	mg/L	15	10
Total Suspended Solids	mg/L	100	30
pH	SU	6.0-9.0	6.0-9.0

-Monitoring requirements for additional parameters will also apply.

4. ANTIDegradation

The Department has reviewed the antidegradation report for this facility and determined the proposed project will not require an antidegradation review according to the *Missouri Antidegradation Rule and Implementation Procedure*. See **APPENDIX – ANTIDegradation Applicability Review**.

5. REVIEW of MAJOR TREATMENT DESIGN CRITERIA

- Secondary Settling Basin – The new secondary settling basin will be divided into two (2) sequential sub-basins for maintenance and operation purposes. Influent will enter the cell via a 24-in diameter HDPE gravity flow pipe from a 48-in diameter manhole in the northeast corner of the basin. Floating baffles will be used to direct flow and prevent dead zones. The basin will contain approximately two (2) ft of standing water at the normal operating elevation of 296 ft. The top of the berm surrounding the basin is located at elevation 302 ft, resulting in approximately 6 feet of freeboard from the top of the berm to the normal operating level. The normal volume of water contained within the basin is approximately 0.4 million cubic feet. The emergency spillway is located at elevation 301 ft, one (1) ft below the top of the berm. The maximum volume of water the cell may contain before overtopping occurs is 1.9 million cubic ft. The berm width will be 20 ft. The basin will have 3:1 sloping side walls. Water will be discharged from the basin via a pump station and 10-in diameter HDPE forcemain in the southeast corner of the basin.
 - The slopes and bottom of the basin will be covered by a bottom liner system consisting of a 24-in compacted soil liner (1×10^{-7} cm/sec), 60 mil textured HPDE geomembrane liner, and an 18-in protective soil layer. The bottom liner system will also include an 8 oz/sy non-woven geotextile cushion layer in areas near the berm.

6. OPERATING PERMIT

These construction activities do not require a modification to the operating permit under 10 CSR 20-6.010. It is expected that the facility owner will include a new facility description and process flow diagram in their next operating permit renewal application to reflect the changes to the wastewater handling at the facility.

V. NOTICE OF RIGHT TO APPEAL

If you were adversely affected by this decision, you may be entitled to an appeal before the Administrative Hearing Commission (AHC) pursuant to Section 621.250 RSMo. 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. Any appeal should be directed to:

Administrative Hearing Commission
U.S. Post Office Building, Third Floor
131 West High Street, P.O. Box 1557
Jefferson City, MO 65102-1557
Phone: 573-751-2422
Fax: 573-751-5018
Website: <https://ahc.mo.gov>

Ellen Modglin, EI
Engineering Section
Ellen.Modglin@dnr.mo.gov

Cindy LePage, P.E.
Engineering Section
Cindy.LePage@dnr.mo.gov

APPENDIX – Antidegradation Applicability Review



May1, 2020

Rob LeForce
AECI-Land and Water Resources
2814 S. Golden
P.O. Box 754
Springfield, MO 65801

Re: Antidegradation Applicability Review for AECI-New Madrid, MO-0001171, ACT#759,
New Madrid County

Dear Rob LeForce:

In accordance with the *Missouri Antidegradation Rule and Implementation Procedure*, your proposed discharge is not subject to an Antidegradation Review. The enclosed Antidegradation Applicability Review summarizes this determination based upon your review request received on April 3, 2020. You propose to modify the stormwater an industrial process water flows at the New Madrid Power Plant to comply with United States Environmental Protection Agency (USEPA) regulations related to coal combustion residuals (CCR) and effluent limitation guidelines. The proposed alterations to the facility will not result in a new or expanded discharge of pollutants from the facility.

This determination does not supersede any requirements of the operating permit or enforcement actions. Nothing in this review removes any obligations to comply with county or other local ordinances or restrictions.

For your convenience, the Water Protection Program has developed a new Internet web page (<http://www.dnr.mo.gov/env/wpp/permits/antideg-implementation.htm>) where you may access information related to implementation of the antidegradation rule. The Internet web site includes links to forms, data sources, publications, as well as links to related Internet web sites.

You may proceed with submittal of an application for an operating permit modification, an engineering report, or a complete application for a construction permit. These submittals must reflect the design flow, facility description, and general treatment components of this WQAR or this preliminary determination may have to be revisited. 10 CSR 20-6.010 now requires all submittals to include an electronic copy along with a hard paper copy. Typically, this can be accomplished by enclosing a compact disc or other removable electronic media.

Following the department's public notice of a draft Missouri State Operating Permit, the department will review any public notice comments received. If significant comments are made, the project may require another public notice. If no comments are received or

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comments are resolved without another public notice, this determination will be considered final. Following issuance of the construction permit and completion of the actual facility construction, the department will proceed with the issuance of the operating permit.

If you should have questions, please contact Ellen Modglin by telephone at (573) 751-7566; by e-mail at Ellen.Modglin@dnr.mo.gov; or by mail at the Missouri Department of Natural Resources, Water Protection Program, PO Box 176, Jefferson City, Missouri 65102-0176.

Sincerely,

WATER PROTECTION PROGRAM

A handwritten signature in black ink that reads "John Rustige". The signature is written in a cursive style with a large initial "J" and "R".

John Rustige, P.E.
Wastewater Engineering Unit Chief

JR:emt

Enclosure

c: Heather Peters, Water Protection Program



Missouri Department of Natural Resources
 Water Protection Program
 Water Pollution Control Branch
 Engineering Section

Antidegradation Applicability Review

FACILITY INFORMATION

FACILITY NAME: AECI-New Madrid Power Plant PERMIT #: MO-0001171
 COUNTY: New Madrid UTM COORDINATES: X= 808189 / Y= 4046476
 12-DIGIT HUC: 08010100-0301 LEGAL DESCRIPTION: Land Grant 1107, T22N, R14E
 EDU*: MS Alluvial Basin / St. Johns Bayou ECOREGION: Mississippi Alluvial Plain

*Ecological Drainage Unit

CHARACTERISTICS OF IMPACTED OUTFALLS

OUTFALL	DESIGN FLOW (MGD)	TREATMENT LEVEL	EFFLUENT TYPE	DISTANCE TO CLASSIFIED SEGMENT (MI)
003	38	settling	Ash settling pond #003	~0
004	7.5	settling	Boiler slag/bottom ash dewatering pond #004	~0

RECEIVING WATERBODY INFORMATION

WATERBODY NAME: Mississippi River (WBID 3152) CLASS: P

PROJECT INFORMATION

DESCRIPTION: The New Madrid Power Plant in Marston, MO is owned and operated by Associated Electric Cooperative, Inc. (AECI). The Plant is a steam electrical power generation facility primarily engaged in the generation of electricity for distribution and sale located on the western bank of the Mississippi River. The Plant is categorized by the Standard Industrial Classification (SIC) # 4911 and North American Industry Classification System (NAICS) # 221112. This facility includes two (2) 615-megawatt coal-fired cyclone burner steam electric generating units (Units 1 & 2). The facility's existing Missouri State Operating Permit (MSOP) became effective on January 1, 2020 and expires on December 31, 2024. This facility has nine (9) outfalls and four (4) permitted features, which are further described in the effective MSOP.

PROPOSAL: According to a letter dated March 20, 2020, AECI is proposing to modify its current stormwater and industrial process water treatment and discharges at the New Madrid Power Plant. The modifications are required to comply with

United States Environmental Protection Agency regulations related to coal combustion residuals and effluent limitation guidelines. The facility intends to install settling improvements at the coal perimeter ditch and coal pile runoff pond, construct a new secondary settling basin, and reconfigure existing ash Pond 004. These improvements are necessary as AECEI is required to eliminate flows to Pond 003.

The primary source of water into the new secondary settling basin will be stormwater from coal pile runoff. Other miscellaneous flows include heavy machinery wash and coal handling dust suppression water. These flows are currently permitted for discharge to the Mississippi River through Outfall 003. The proposed modifications will reroute the effluent for discharge to the Mississippi River through Outfall 004. All discharges will continue to the same receiving waterbody.

In summary, "modifications to the operating system are anticipated to (1) cease discharge of current non-CCR process water in the active CCR Pond 003, (2) to allow for the reconfiguration and continued discharge from Pond 004, and (3) for the ultimate closure of Pond 003."

DISCUSSION: The proposed modifications to the New Madrid Power Plant are considered a reconfiguration of existing process flows. There will be no increase in design flow or discharge of new pollutants of concern associated with the proposed modifications. The current design flow and effluent limitations for Outfall 004 in the effective MSOP will be maintained.

In the event that the facility requests to discharge wastewater through Outfall #006 an antidegradation review will be required as noted in the facility's current MSOP.

DETERMINATION : The proposed upgrade will not require an antidegradation review according to *Missouri Antidegradation Rule and Implementation Procedure*. The proposed modifications will not result in a new or expanded discharge from the facility. Mass loading to the receiving waterbody, the Mississippi River, will be maintained.

Reviewer: Ellen Modglin, EI
Date: April 2020
Unit Chief: John Rustige, P.E.