

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



CONSTRUCTION PERMIT

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

Confluence Rivers Utility Operating Company, Inc.
500 Northwest Plaza Dr., #500
St. Ann, MO 63074

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.

August 10, 2018
Effective Date Modification Date

Edward B. Galbraith
Edward B. Galbraith, Director, Division of Environmental Quality

August 9, 2020
Expiration Date

Chris Wieberg
Chris Wieberg, Director, Water Protection Program

CONSTRUCTION PERMIT

I. CONSTRUCTION DESCRIPTION

This is a **DEMONSTRATION** project and additional monitoring requirements are included in the operating permit in accordance with the Approval Process for Innovative Technology Factsheet. This construction includes the addition of an MBBR, clarifier, and a UV disinfection unit to a facility with an existing lagoon system with chlorine disinfection.

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 publicly-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 21 Design Group on March 16, 2018.
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 Southeast 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. Confluence Rivers Utility Operating Company, Inc. will become the continuing authority for operation, maintenance, and modernization 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) and request the operating permit modification be issued.

IV. REVIEW SUMMARY

1. CONSTRUCTION PURPOSE

The existing facility is unable to meet ammonia limits as updated in the 2015 operating permit renewal.

2. FACILITY DESCRIPTION

This is an existing facility with a 3 cell lagoon system with chlorine disinfection. It is being modified to achieve limits as addressed in the current schedule of compliance.

The Gladlo Sewer WWTF is located at 10833 St. Rte. V, Rolla, in Phelps County, Missouri. The facility has a design average flow of 15,000 gpd and serves a population equivalent of approximately 210 people.

3. COMPLIANCE PARAMETERS

The final effluent limits for ammonia the project is required to meet are established in MO-0084191 as 3.6 and 7.5 mg/L, respectively, for summer and winter.

4. REVIEW of MAJOR TREATMENT DESIGN CRITERIA

Installation of one MBBR capable of treating a design average flow of 15,000 gpd and a peak flow of 30,000 gpd. The MBBR is approximately 8 ft diameter and 11 ft deep for a volume of approximately 4128 gallons. The hydraulic retention time at design flow is 6 hours. The MBBR will be filled approximately 65% with high surface area media. The aeration tank uses a grid of diffusers anchored 0.5' above the base of the unit. Aeration is by means of two positive displacement blowers each capable of supplying 33.1 scfm with 2.0 HP motors to the fine bubble hub diffusers. Unit is capable of maintaining 5.0 mg/L of DO. The effluent from the MBBR will flow by gravity to the clarifier.

The clarifier will have a volume of 2911 gallons and a detention time of 4 hours and 40 minutes. An air lift surface skimmer is provided to remove grease and floatables and return to the third lagoon cell. The clarified effluent will flow by gravity to the ultraviolet disinfection system. An air lift pump will be provided to move settled sludge from the cone-shaped hopper bottom to Cell 2 and Cell 3 of the lagoon system.

A closed chamber ultraviolet unit capable of treating a maximum flow rate of 40 gpm will be installed. Effluent gravity flows through the purifying chamber. A low pressure mercury arc germicidal UV lamp that is capable of transmitting 90% of the UV energy while delivering a minimum UV intensity of 42 J/s. The disinfected effluent will flow by gravity through flow measurement equipment and to Outfall No. 001.

5. OPERATING PERMIT

Operating permit MO-0084191 will require a modification to reflect the construction activities. The modified Gladlo Water and Sewer WWTF, MO-0084191, was successfully public noticed from June 22, 2018 to July 23, 2018 with no comments received. Submit the Statement of Work Completed to the Department in accordance with 10 CSR 20-6.010(5)(N) and request the operating permit modification be issued.

6. CONSTRUCTION PERMIT MODIFICATION

On May 29, 2019, Confluence Rivers Utility Operating Company, Inc. submitted an ownership transfer. The construction permit has been updated to reflect the new owner and continuing authority. Permit condition #7 was updated to reflect the new continuing authority. The construction permit modification is issued to Confluence Rivers Utility Operating Company, Inc.

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