

**STATE OF MISSOURI**  
**DEPARTMENT OF NATURAL RESOURCES**  
**MISSOURI CLEAN WATER COMMISSION**



**CONSTRUCTION PERMIT**

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

The Honorable Steve Wehrle  
Mayor  
Village of Rhineland  
P.O. Box 428  
Rhineland, MO 65069

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.

May 4, 2020  
Effective Date

  
Edward B. Galbraith, Director, Division of Environmental Quality

May 3, 2022  
Expiration Date

  
Chris Wieberg, Director, Water Protection Program

## **CONSTRUCTION PERMIT**

### **I. CONSTRUCTION DESCRIPTION**

Modification to an existing wastewater treatment facility by the addition of surface aeration equipment in cell one and cell two; this converts the system from a facultative lagoon to an aerated lagoon; replacement of the existing chlorine contact chamber with a precast concrete chamber with an effective volume of approximately 900 gallons, and the necessary appurtenances to make the facilities complete and usable to treat the waste from a population equivalent of 200, with an average daily flow of 20,000 gallons. The existing outfall will remain in use. This facility discharges to Modoc Creek, in Section 30, T46N, R5W, Montgomery County, Missouri. UTM; X=629082, Y= 4286327 (Zone 15).

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 determine Cost Analysis for Compliance because the permit contains no new conditions or requirements that convey a new cost to the facility.

### **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 Scheer Design Group, LLC 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 St. Louis Regional Office per 10 CSR 20-7.015(9)(G).
5. The wastewater treatment facility shall be located above the twenty-five (25)-year flood level.
6. 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.
7. 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](http://dnr.mo.gov/env/wpp/epermit/help.htm). See [dnr.mo.gov/env/wpp/stormwater/sw-land-disturb-permits.htm](http://dnr.mo.gov/env/wpp/stormwater/sw-land-disturb-permits.htm) for more information.
8. 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/](http://dnr.mo.gov/env/wpp/401/) for more information.
9. All construction must adhere to applicable 10 CSR 20-8 (Chapter 8) requirements listed below.
  - Flood protection shall apply to new construction and to existing facilities undergoing major modification. 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. 10 CSR 20-8.140 (2) (B)
  - Electrical systems and components in raw wastewater or in enclosed or partially enclosed spaces where hazardous concentrations of flammable gases or vapors that are normally present, shall comply with the NFPA 70 *National Electric Code (NEC)* (2017 Edition), as approved and published August 24, 2016, requirements for Class I, Division 1, Group D locations. 10 CSR 20-8.140 (7) (B)

- Adequate provisions shall be made to effectively protect facility personnel and visitors from hazards. The following shall be provided to fulfill the particular needs of each wastewater treatment facility:
  - Fencing. Enclose the facility site with a fence designed to discourage the entrance of unauthorized persons and animals; 10 CSR 20-8.140 (8) (A)
  - Gratings over appropriate areas of treatment units where access for maintenance is necessary; 10 CSR 20-8.140 (8) (B)
  - Appropriate personal protective equipment (PPE); 10 CSR 20-8.140 (8) (E)
  - Appropriately-placed warning signs for slippery areas, non-potable water fixtures (see subparagraph (7)(D)3.B. of this rule), low head clearance areas, open service manholes, hazardous chemical storage areas, flammable fuel storage areas, high noise areas, etc.; 10 CSR 20-8.140 (8) (I)
  - Provisions for local lockout/tagout on stop motor controls and other devices; 10 CSR 20-8.140 (8) (L)
  - Provisions for an arc flash hazard analysis and determination of the flash protection boundary distance and type of PPE to reduce exposure to major electrical hazards shall be in accordance with NFPA 70E *Standard for Electrical Safety in the Workplace* (2018 Edition), as approved and published August 21, 2017. 10 CSR 20-8.140 (8) (M)
- Contact period for Chlorine Disinfection. A minimum contact period of fifteen (15) minutes at design peak hourly flow or maximum rate of pumpage shall be provided after thorough mixing. 10 CSR 20-8.190 (3) (A)
- Disinfection and dechlorination, when used, shall be provided during all power outages. 10 CSR 20-8.140 (7) (A) 2.
- Solid dechlorination systems shall not be located in the chlorine contact tank. 10 CSR 20-8.190 (4) (B) 1.
- Contact time. A minimum of thirty (30) seconds for mixing and contact time of dechlorination systems shall be provided at the design peak hourly flow or maximum rate of pumpage. 10 CSR 20-8.190 (4) (B) 2.

10. Upon completion of construction:

- A. Submit an electronic copy of the as built if the project was not constructed in accordance with previously submitted plans and specifications; and
- B. Submit the enclosed form Statement of Work Completed to the Department in accordance with 10 CSR 20-6.010(5)(N). and request that the operating permit modification be issued.

## **IV. REVIEW SUMMARY**

### **1. CONSTRUCTION PURPOSE**

Village of Rhineland desires to aerate the lagoon to help meet BOD limits. Also the Chlorine Contact tank is being expanded to handle full peak flow based on design flow.

### **2. FACILITY DESCRIPTION**

The current treatment facility is a three cell facultative lagoon with a tablet chlorinator and chlorine contact tank designed to handle half of the design flow. This was allowed in the past because flows are less than 20% of design flow.

The improvements will add aeration and provide chlorine contact sufficient for peak design flow. The improvements do not address the future ammonia limits which become effective April 1, 2023.

The Rhineland WWTF is located at Blumer Avenue and Lafayette Street, Rhineland, in Montgomery County, Missouri. The facility has a design average flow of 20,000 gpd and serves an organic population equivalent of approximately 200 people.

### **3. COMPLIANCE PARAMETERS**

The proposed project is required to meet final BOD and TSS effluent limits of 30 mg/l as established in Operating Permit MO-0117013 as placed on Public notice on March 20, 2020.

The limits following the completion of construction will be applicable to the facility:

Parameter	Units	Monthly average limit
Biochemical Oxygen Demand <sub>5</sub>	mg/L	30
Total Suspended Solids	mg/L	30
Ammonia as N-summer	mg/L	*
Ammonia as N-winter	mg/L	*
Oil & Grease	Mg/L	10
pH	SU	6.5-9.0
Total Residual Chlorine	µg/L	8 (130 ML)
E. Coli	#/100mL	206

\* monitoring only until 4-1-2023

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

##### **Existing major components which will remain in use include the following:**

- The existing facility is a three cell facultative lagoon with tablet chlorination and dechlorination. The system is designed to treat a flow of 20,000 GPD and an organic population equivalent of 200.
- Lagoon is a single earthen basin with a baffle system to create three cells. Total surface area is approximately 77,340 sq. ft.; depth of water is 5 ft.
- Primary cell has an area of 55,245 sq. ft.; approximate volume of 2.06 million gallons.
- Secondary cell has an area of 15,833 sq. ft.; approximate volume of 0.59 million gallons.
- Final cell has an area of 6,262 sq. ft.; approximate volume of 0.23 million gallons.
- Total volume is approximately 2.8 million gallons for a detention time of 144 days at design flow.

##### **Construction will cover the following items:**

- Replace influent force main that discharges directly into the lagoon with a discharge to a manhole followed by gravity flow into lagoon.
- Add three – 2 HP surface aerators to primary cell. Add one – 2 HP surface aerator to second cell .
- Each 2 HP Aqua Jet surface aerator has a capacity to supply 55 lbs. of O<sub>2</sub>/day based on an oxygen transfer rate of 1.15 lb/hp/hr.
- Normal O<sub>2</sub> requirements for BOD treatment at design flow of 20,000 gpd is approximately 48 lbs/day based on 10 CSR 20-8.200(3)(A)C.
- The intention is to operate the aerators on timers and as-needed, based on actual loading and flow conditions.
- Installation of a precast concrete chlorine contact chamber with inside dimensions of 5 feet by 7.5 feet, effective water depth of 4 feet; with four baffles. Total effective contact volume of approximately 897 gallons. This volume allows for more than 15 minutes of contact time at a peak flow of 80,000 gpd.
- Design flow will remain at 20,000 gpd with a PE of 200.

#### **5. OPERATING PERMIT**

Operating permit MO-0117013 will require a modification to reflect the construction activities. The modified Rhineland WWTF, MO-0117013, was successfully public noticed from March 20, 2020 to April 20, 2020 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 that the operating permit modification be issued.

Along with your CP application, an operating permit modification was submitted for public notice to reflect the change in your operating permit. Your operating permit application for a renewal will be due before your CP is expired. The modification action does not fulfill the renewal application obligation. A renewal application must be filed before September 30, 2020.

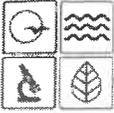
This facility does not meet the requirements of the MOGD, issued on July 1, 2019 for the following reason: publicly owned.

## **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>

Andrew Appelbaum, P.E.  
Engineering Section  
[andy.appelbaum@dnr.mo.gov](mailto:andy.appelbaum@dnr.mo.gov)



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
 WATER PROTECTION PROGRAM  
**APPLICATION FOR CONSTRUCTION PERMIT –  
 WASTEWATER FACILITY**

**RECEIVED**  
 DEC 23 2019  
 Water Protection Program

FOR DEPARTMENT USE ONLY	
APP NO. AP 341167	CP NO.
FEE RECEIVED \$1000.00	CHECK NO. 5526
DATE RECEIVED 12-23-19	

SB

**APPLICATION OVERVIEW**

The Application for Construction Permit – Wastewater Facility form is for construction pertaining to domestic wastewater treatment facilities, agricultural 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 agricultural?  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: \_\_\_\_\_
- 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
- 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
- 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

Rhineland Wastewater Treatment Facility

2.2 PROJECT DESCRIPTION

Investigate the pressure inlet and replace if deemed not to have backflow prevention, Install surface aerators to aid in mixing and increased oxygen levels. replace existing undersized chlorine contact chamber with properly sized unit.

2.3 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION

storage within the lagoon

2.4 DESIGN INFORMATION

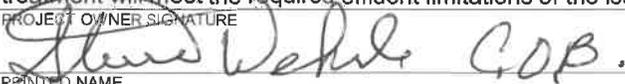
- A. Current population: \_\_\_\_\_; Design population: 200
- B. Actual Flow: 4,000 gpd; Design Average Flow: 20,000 gpd;  
 Actual Peak Daily Flow: \_\_\_\_\_ gpd; Design Maximum Daily Flow: 80,000 gpd;  
 Design Wet Weather Event: \_\_\_\_\_

2.5 ADDITIONAL INFORMATION

- A. Is a topographic map attached?  YES  NO
- B. Is a process flow diagram attached?  YES  NO

2.6 ESTIMATED PROJECT CONSTRUCTION COST

\$ 48,000.00

3.0 WASTEWATER TREATMENT FACILITY				
NAME Rhineland Wastewater Treatment Facility		TELEPHONE NUMBER WITH AREA CODE		EMAIL ADDRESS
ADDRESS (PHYSICAL) E. Blumer Ave. & Lafayette St. Intersection		CITY Rhineland	STATE MO	ZIP CODE 65069
COUNTY Montgomery				
Wastewater Treatment Facility: Mo-0117013 (Outfall 1 Of 1 )				
3.1 Legal Description: ¼, SE ¼, SE ¼, Sec. 30 , T 46N , R 5W (Use additional pages if construction of more than one outfall is proposed.)				
3.2 UTM Coordinates Easting (X): 629220 Northing (Y): 4286449 For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)				
3.3 Name of receiving streams: Modoc Creek (C)				
4.0 PROJECT OWNER				
NAME Village of RhineLand		TELEPHONE NUMBER WITH AREA CODE		EMAIL ADDRESS
ADDRESS P.O. Box 428		CITY Rhineland	STATE MO	ZIP CODE 65069
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 Above		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. <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> 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? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO				
5.3 COMPLETE THE FOLLOWING IF THE CONTINUING AUTHORITY IS A PROPERTY OWNERS ASSOCIATION.				
A. Is a copy of the as-filed restrictions and covenants included with this application? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO				
B. 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? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO				
C. 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? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO				
D. Is a copy of the Missouri Secretary of State's nonprofit corporation certificate included with this application? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO				
6.0 ENGINEER				
ENGINEER NAME / COMPANY NAME Kirby Scheer, P.E.; Scheer Design Group, LLC		TELEPHONE NUMBER WITH AREA CODE (573) 459-2611		EMAIL ADDRESS kirbs@fidnet.com
ADDRESS 8584 Hwy YY		CITY New Haven	STATE MO	ZIP CODE 63068
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 Mr. Steve Wehrle			DATE 12/18/2019	
TITLE OR CORPORATE POSITION Mayor		TELEPHONE NUMBER WITH AREA CODE (573) 690-4964		EMAIL ADDRESS VOR 2022 @ KTS : NET
Mail completed copy to: MISSOURI DEPARTMENT OF NATURAL RESOURCES WATER PROTECTION PROGRAM P.O. BOX 176 JEFFERSON CITY, MO 65102-0176				
<b>END OF PART A.</b>				
<b>REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHETHER PART B NEEDS TO BE COMPLETE.</b>				