

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



**CONSTRUCTION PERMIT**

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

David and Collette Smith  
R & B Rentals  
761 Southwest 800 Road  
Holden, MO 64040

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.

July 28, 2020  
Effective Date

  
Edward B. Galbraith, Director, Division of Environmental Quality

July 27, 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 a Norweco AT 1500 UV disinfection system with two units arranged in series, having a peak capacity of 6 gpm (8,640 GPD), and all the necessary appurtenances to make the facilities complete and usable to treat the effluent from an existing recirculating sand filter treatment plant.

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. Design flow will remain at 2,880 gallons per day and the outfall will remain at the existing location. This facility discharges to a Tributary to Fletcher Creek, in Section 1, T45N, R26W, Johnson County, Missouri.

### **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 Harvard Ebers, P.E., Eaves Engineering 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 Kansas City Regional Office per 10 CSR 20-7.015(9)(G).
5. 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.
6. 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.
7. 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.
8. All construction must adhere to applicable 10 CSR 20-8 (Chapter 8) requirements listed below.
  - The UV dosage shall be based on the design peak hourly flow, maximum rate of pumpage, or peak batch flow. 10 CSR 20-8.190 (5) (A) 1.
  - If no flow equalization is provided for a batch discharger, the UV dosage shall be based on the peak batch flow. 10 CSR 20-8.190 (5) (A) 2.
  - The UV system shall deliver the target dosage based on equipment derating factors and, if needed, have the UV equipment manufacturer verify that the scale up or scale down factor utilized in the design, and is appropriate for the specific application under consideration. 10 CSR 20-8.190 (5) (A) 3.
  - Open channel UV systems. The combination of the total number of banks shall be capable of treating the design peak hourly flow, maximum rate of pumpage, or peak batch flow. 10 CSR 20-8.190 (5) (B) 1.
  - The UV system must continuously monitor and display at the UV system control panel the following minimum conditions:

- The relative intensity of each bank or closed vessel system; 10 CSR 20-8.190 (5) (C) 1. A.
  - The operational status and condition of each bank or closed vessel system; 10 CSR 20-8.190 (5) (C) 1. B.
  - The ON/OFF status of each lamp in the system; 10 CSR 20-8.190 (5) (C) 1. C. and
  - The total number of operating hours of each bank or each closed vessel system. 10 CSR 20-8.190 (5) (C) 1. D.
- The UV system shall include an alarm system. Alarm systems shall comply with 10 CSR 20-8.140(7)(C). 10 CSR 20-8.190 (5) (C) 2.
  - 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)

9. 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) 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**

*E. coli* limitations became effective on March 1, 2019, per MO-0130834. *E. Coli* limits are only effective during the recreation season from April 1 through October 31. UV disinfection will enable the facility to meet the *E coli* limitations.

## **2. FACILITY DESCRIPTION**

The existing wastewater treatment facility consists of a septic tank and recirculating sand filter. This project will add UV disinfection, the design flow will not change.

The R & B Rentals treatment facility is located at 266 Southwest 13 Highway, Warrensburg, in Johnson County, Missouri. The facility has a design average flow of 2,880 gpd and design organic population equivalent of 29 people.

## **3. COMPLIANCE PARAMETERS**

The proposed project will enable the treatment facility to meet final *E. coli* effluent limits of 206 colonies/100 ml as established in Operating Permit MO-0130834.

The following limits are 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	1.4
Ammonia as N-winter	mg/L	2.9
pH	SU	6.5-9.0
<i>E. Coli</i>	#/100mL	206

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

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

- The existing facility is a septic tank and recirculating sand filter. The system is designed to treat a flow of 2,880 GPD and an organic population equivalent of 29.

**Construction will cover the following items:**

- Disinfection – Disinfection is the process of removal, deactivation, or killing or pathogenic microorganisms.
- Open Channel Ultraviolet (UV) – An open channel, gravity flow, low pressure high intensity UV disinfection system capable of treating a peak flow of 160,000 gpd while delivering a minimum UV intensity of 30 mJ/cm<sup>2</sup> with an expected ultraviolet transmissivity of 65% or greater.
- The dual open channel UV system consists of two banks in series with 3 modules per bank and 2 lamps per module. The effluent flows by gravity first through flow measurement then through ultraviolet disinfection; disinfected flow goes by gravity to Outfall No. 001.

- Standby Emergency electrical generator is present at existing treatment plant.
- Disinfection – Disinfection is the process of removal, deactivation, or killing or pathogenic microorganisms.
  - A Norweco AT1500 UV disinfection system capable of treating a peak flow of 8,640 gpd while delivering a minimum UV intensity of 40 mJ/cm<sup>2</sup> with an expected ultraviolet transmissivity of 65% or greater. The UV system consists of two modules in series with 1 lamp per module.
  - The disinfected effluent will flow by gravity through flow measurement equipment and to the existing Outfall.
- Design sludge production is 0.44 tons per year. Sludge will be stored in the septic tanks and removed by a contract hauler.
- Emergency Operation is such that when power is off the recirculating sand filter will not be pumping to the filter and discharging; flow is stored in the recirculation tank and septic tank. A portable generator is also available if needed for extended power outages

## **5. OPERATING PERMIT**

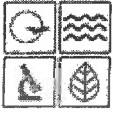
These construction activities do not require a modification to the operating permit. Operating permit MO-0130834 will be expiring on December 31, 2021. A renewal application must be filed before June 30, 2021, regardless of the status of these construction activities. If you have questions on completing the renewal application, please contact the NPDES permitting section at 573-751-1300.

## **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 TREATMENT FACILITY**

RECEIVED

JAN 03 2020

Water Protection Program

MO0130834

FOR DEPARTMENT USE ONLY	
APP NO.	CP NO.
FEE RECEIVED \$1000.00	CHECK NO. 1330
DATE RECEIVED	1-3-20

**APPLICATION OVERVIEW**

The Application for Construction Permit – Wastewater Treatment Facility 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 Has the Missouri Department of Natural Resources approved the proposed project's antidegradation review?  
 YES Date of Approval: \_\_\_\_\_  N/A
- 1.3 Has the department approved the proposed project's facility plan\*?  
 YES Date of Approval: \_\_\_\_\_  NO (If No, complete No. 1.4.)
- 1.4 [Complete only if answered No on No. 1.3.] Is a copy of the facility plan\* for wastewater treatment facilities included with this application?  
 YES  NO  Exempt because \_\_\_\_\_
- 1.5 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
- 1.6 Is a summary of design\* included with this application?  YES  NO
- 1.7 Has the appropriate operating permit application (A, B, or B2) been submitted to the department?  
 YES Date of submittal: 3/1/17  
 Enclosed is the appropriate operating permit application and fee submittal. Denote which form:  A  B  B2  
 N/A: However, In the event the department believes that my operating permit requires revision to permit limitation such as changing equivalent to secondary limits to secondary limits or adding total residual chlorine limits, please share a draft copy prior to public notice?  YES  NO
- 1.8 Is the facility currently under enforcement with the department or the Environmental Protection Agency?  YES  NO
- 1.9 Is the appropriate fee or JetPay confirmation included with this application?  YES  NO  
See Section 7.0

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

**2.0 PROJECT INFORMATION**

2.1 NAME OF PROJECT <u>Ultraviolet Disinfection for R+B Rentals</u>	2.2 ESTIMATED PROJECT CONSTRUCTION COST <u>\$ 20,000</u>
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2.3 PROJECT DESCRIPTION  
Installation of four (4) UV treatment units in parallel for removal of pathogens as an addition to present recycling sand filter

2.4 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION  
N/A

**2.5 DESIGN INFORMATION**

A. Current population: 10; Design population: 29  
 B. Actual Flow: 3000 gpd; Design Average Flow: 3000 gpd;  
 Actual Peak Daily Flow: 12000 gpd; Design Maximum Daily Flow: 12000 gpd; Design Wet Weather Event: 12000

**2.6 ADDITIONAL INFORMATION**

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

3.0 WASTEWATER TREATMENT FACILITY				
NAME <b>R+B Rentals</b>		TELEPHONE NUMBER WITH AREA CODE <b>(816) 200-9275</b>		E-MAIL ADDRESS <b>cmsdms@hughes.net</b>
ADDRESS (PHYSICAL) <b>226 SW 13 Hwy</b>		CITY <b>Warrensburg</b>	STATE <b>Mo</b>	ZIP CODE <b>64093</b>
Wastewater Treatment Facility: Mo- <b>(Outfall</b>		Of <b>9</b>		
3.1 Legal Description: <u>      </u> ¼, <u>NW</u> ¼, <u>NE</u> ¼, Sec. <u>1</u> , T <u>45N</u> , R <u>24W</u> (Use additional pages if construction of more than one outfall is proposed.)				
3.2 UTM Coordinates Easting (X): <u>43693</u> Northing (Y): <u>428678i</u> For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)				
3.3 Name of receiving streams: <u>Tributary to Fletcher Creek</u>				
4.0 PROJECT OWNER				
NAME <b>David and Collette Smith</b>		TELEPHONE NUMBER WITH AREA CODE <b>(816) 200-9275</b>		E-MAIL ADDRESS <b>cmsdms@hughes.net</b>
ADDRESS <b>761 Southwest 800 Rd</b>		CITY <b>Holden</b>	STATE <b>MO</b>	ZIP CODE <b>64040</b>
5.0 CONTINUING AUTHORITY: A continuing authority is a company, business, entity or person(s) that will be operating the facility and/or ensuring compliance with the permit requirements.				
NAME <b>David + Collette Smith</b>		TELEPHONE NUMBER WITH AREA CODE <b>(816) 200-9275</b>		E-MAIL ADDRESS <b>cmsdms@hughes.net</b>
ADDRESS <b>761 SW 800 Rd</b>		CITY <b>Holden</b>	STATE <b>MO</b>	ZIP CODE <b>64040</b>
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				
<del>5.2 COMPLETE THE FOLLOWING IF THE CONTINUING AUTHORITY IS A MISSOURI PUBLIC SERVICE COMMISSION REGULATED ENTITY.</del>				
A. Is a copy of the certificate of convenience and necessity included with this application? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <u>N/A</u>				
<del>5.3 COMPLETE THE FOLLOWING IF THE CONTINUING AUTHORITY IS A PROPERTY OWNERS ASSOCIATION.</del>				
A. Is a copy of the as-filed restrictions and covenants included with this application? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <u>N/A</u>				
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 <u>N/A</u>				
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 <u>N/A</u>				
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 <b>Harval Ebers / Eaves Engineering</b>		TELEPHONE NUMBER WITH AREA CODE <b>660/527-3401</b>		E-MAIL ADDRESS <b>eavesm@eaves-eng.com</b>
ADDRESS <b>18474 White Rd</b>		CITY <b>Green Ridge</b>	STATE <b>Mo</b>	ZIP CODE <b>65332</b>
7.0 APPLICATION FEE				
<input type="checkbox"/> CHECK NUMBER <input type="checkbox"/> JETPAY CONFIRMATION NUMBER				
8.0 PROJECT OWNER: I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.				
PROJECT OWNER SIGNATURE				
PRINTED NAME <b>David Smith</b>				DATE <b>7/15/2019</b>
TITLE OR CORPORATE POSITION <b>Owner</b>		TELEPHONE NUMBER WITH AREA CODE <b>(816) 200-9275</b>		E-MAIL ADDRESS <b>cmsdms@hughes.net</b>
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>				