

Jeremiah W. (Jay) Nixon, Governor • Sara Parker Pauley, Director

## DEPARTMENT OF NATURAL RESOURCES

[www.dnr.mo.gov](http://www.dnr.mo.gov)

**MAR 11 2014**

Steve Stumep  
Horse Shoe Bend MHP  
6154 Hwy AC  
Leslie, MO 63056

RE: AP#17643 Ultraviolet Disinfection – Horse Shoe Bend MHP Wastewater Treatment Facility,  
MO-0050199, Construction Permit No. CP0001627

Dear Mr. Stumep:

The Missouri Department of Natural Resources' (Department) Water Protection Program has reviewed and approved the plans and specifications submitted by Scheer Design Group, LLC for the Horse Shoe Bend MHP. Please find enclosed Construction Permit No. CP0001627.

This permit will terminate 12 months from the date of issuance. In accordance with 10 CSR 20-6.010(4)(G), the Department may grant an extension only one time. If you believe that an extension is necessary, you must submit a request and a justification in writing for the extension at least 30 days prior to the permit expiration date.

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

If you were adversely affected by this decision, you may appeal to have the matter heard by the Administrative Hearing Commission. To appeal, you must file a petition with the Administrative Hearing Commission 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 Administrative Hearing Commission.

If you have any questions concerning this matter, please contact Cailie McKinney, of the Water Protection Program, at (573) 526-1289 or Missouri Department of Natural Resources, P.O. Box 176, Jefferson City, MO 65102-0176.

Thank you for your efforts to help ensure clean water in Missouri.

Sincerely,

WATER PROTECTION PROGRAM

A handwritten signature in black ink, appearing to read 'Refaat Mefrakis', with a long horizontal stroke extending to the right.

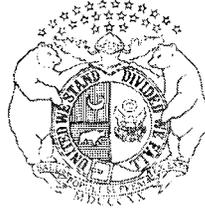
Refaat H. Mefrakis, P.E.  
Engineering Section Chief

RHM: cmi

Enclosures

c: Kirby Scheer, P.E., Scheer Design Group, LLC  
Saint Louis Regional Office  
Cailie McKinney, Water Protection Program

STATE OF MISSOURI  
DEPARTMENT OF NATURAL RESOURCES  
MISSOURI CLEAN WATER COMMISSION



# CONSTRUCTION PERMIT

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

Steve Stumep 6154 Hwy AC Leslie, MO 63056
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for the construction of (described facilities):

See attached.
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Permit Conditions:

See attached.
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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).

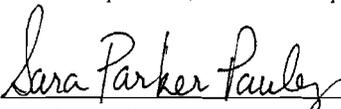
As the Department does not examine structural features of design or the efficiency of mechanical equipment, the issuance of this permit does not include approval of these features.

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 11, 2014  
Effective Date

March 10, 2015  
Expiration Date

  
Sara Parker Pauley, Director, Department of Natural Resources

  
Director of Staff, Clean Water Commission or Designee

## **CONSTRUCTION PERMIT**

### **I. CONSTRUCTION DESCRIPTION**

An Aqua Azul AZ-400 ultraviolet (UV) disinfection system will be installed, which is capable of providing continuous disinfection for up to 35 gallons per minute (50,000 gallons per day). This system will be located within a concrete structure for convenient servicing and will have a lockable hatch or grating. The UV system will have one (1) channel, with one (1) bank per channel, two (2) modules per bank, and two (2) lamps per module for a total of four (4) lamps.

A UV intensity monitoring system will be installed that will include a detector which will give a percentage readout of the UV intensity. The UV control panel will be equipped with an alarm and a telephone dialer with a battery backup to contact the owner/operator in the event of alarm

The following spare parts will be provided: at least one (1) bulb, one (1) quartz crystal, and one (1) ballast.

The discharge point will be moved to below the UV system and re-graded to allow for easy sampling of the final effluent.

### **II. FINDING OF AFFORDABILITY**

The Finding of Affordability is not applicable. The permittee is not a combined or separate sanitary sewer system or 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 Scheer Design Group, LLC on February 10, 2014 and revised February 24, 2014.
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 Saint Louis Regional Office per 10 CSR 20-7.015(9)(E)2.
5. This Construction Permit is invalid for projects required to comply with the requirements contained in 10 CSR 20-4, "Grants and Loans"

6. Protection of drinking water supplies shall be in accordance with 10 CSR 20-8.120(10). “There shall be no physical connections between a public or private potable water supply system and a sewer, or appurtenance thereto which would permit the passage of any wastewater or polluted water into the potable supply. No water pipe shall pass through or come in contact with any part of a sewer manhole.”
  - A. Sewers in relation to water works structures shall meet the requirements of 10 CSR 23-3.010 with respect to minimum distances from public water supply wells or other water supply sources and structures.
  - B. Sewer mains shall be laid at least ten feet horizontally from any existing or proposed water main. The distances shall be measured edge-to-edge. In cases where it is not practical to maintain a ten foot separation, the Department may allow a deviation on a case-by-case basis, if supported by data from the design engineer. Such a deviation may allow installation of the sewer closer to a water main, provided that the water main is in a separate trench or on an undisturbed earth shelf located on either side of the sewer and at an elevation so the bottom of the water main is at least 18 inches above the top of the sewer. If it is impossible to obtain proper horizontal and vertical separation as described above for sewers, the sewer must be constructed of slip-on or mechanical joint pipe or continuously encased and be pressure tested to 150 pounds per square inch to assure water tightness.
  - C. Manholes should be located at least ten feet horizontally from any existing or proposed water main.
  - D. Sewers crossing water mains shall be laid to provide a minimum vertical distance of 18 inches between the outside of the water main and the outside of the sewer. This shall be the case where the water main is either above or below the sewer. The crossing shall be arranged so that the sewer joints will be equidistant and as far as possible from the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer to maintain line and grade. When it is impossible to obtain proper vertical separation as stipulated above, one of the following methods must be specified:
    - a. The sewer shall be designed and constructed equal to the water pipe and shall be pressure tested to assure water tightness prior to backfilling; or
    - b. Either the water main or sewer line may be continuously encased or enclosed in a watertight carrier pipe which extends ten feet on both sides of the crossing, measured perpendicular to the water main. The carrier pipe shall be of materials approved by the Department for use in water main construction.
7. In addition to the requirements for a construction permit, 10 CSR 20-6.200 requires land disturbance activities of one 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 [www.dnr.mo.gov/env/wpp/epermit/help.htm](http://www.dnr.mo.gov/env/wpp/epermit/help.htm). See [www.dnr.mo.gov/env/wpp/stormwater/sw-land-disturb-permits.htm](http://www.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 [www.dnr.mo.gov/env/wpp/401/](http://www.dnr.mo.gov/env/wpp/401/) for more information.
9. Upon completion of construction;
  - A. Submit the enclosed form Statement of Work Completed to the Department in accordance with 10 CSR 20-6.010(5)(D); and
  - B. Submit an electronic copy of the as builts if the project was not constructed in accordance with previously submitted plans and specifications.

#### **IV. REVIEW SUMMARY**

##### **1. AMMONIA**

The Water Protection Program is providing this notice to inform permittees that EPA's published ammonia criteria for aquatic life protection is lower than the current Missouri criteria. The department has initiated stakeholder discussions on this topic and at this time, there is no firm target date for starting the rulemaking to adopt new standards. More information can be found at <http://dnr.mo.gov/pubs/pub2481.pdf>.

The design engineer noted that he had spoken with the owner about the facility's final effluent limits for ammonia, which will become effective November 1, 2016, as well as about the EPA's published ammonia criteria and future potential limits. The owner was informed by the design engineer that the current lagoon facility would not meet either of these ammonia limits and that the lagoon would need to be abandoned and a new facility designed. They intend to begin the antidegradation review and selection process for replacing the lagoon early in spring of 2014.

##### **2. CONSTRUCTION PURPOSE**

The existing operating permit includes final effluent limitations for *E. coli*. This ultraviolet disinfection project will enable the facility to meet the *E. coli* limits.

##### **3. FACILITY DESCRIPTION**

The wastewater from Horse Shoe Bend Mobile Home Park is currently collected in a common gravity collection system which flows to a single cell facultative lagoon with a design flow of 7,400 gpd and an actual flow of 4,500 gpd. The facility discharges to a Tributary to Fenton Creek and is approximately 1.9 miles from the first classified water body (Fenton Creek WBID 3335).

#### **4. COMPLIANCE PARAMETERS**

The existing operating permit (MO-0050199, issued November 1, 2013) includes final effluent limitations for *E. coli* of 1030 #/100 mL daily maximum and 206 #/100 mL monthly average effective January 1, 2014. The permit also contains final effluent limits for ammonia of 3.6 mg/L daily maximum and 1.4 mg/L monthly average in summer and 7.5 mg/L daily maximum and 2.9 mg/L monthly average in winter effective November 1, 2016.

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

The design flow for this facility is 7,400 gpd. A peaking factor of 4 was used to estimate a peak flow of 29,600 gpd (20.6 gpm). The proposed UV unit, Aqua Azul AZ-400, is capable of treating up to 50,000 gpd (35 gpm).

The UV dose produced by the system shall not be less than 30,000  $\mu\text{W}\cdot\text{s}/\text{cm}^2$  of lamp operation measured in an effluent with a 60 percent UV transmission at 253.7 nm and with lamp output at 70 percent of its initial level after one year of operation and with no fouling on the lamp sleeves.

Spare parts will include at least one (1) bulb, one (1) quartz crystal, and one (1) ballast. For servicing the UV system, a plug will be installed in the outlet structure. With the plug in place, the flow from the lagoon will be retained and maintenance or repairs can be completed.

A UV intensity monitoring system will be installed that will include a detector which will give a percentage readout of the UV intensity. The UV control panel will be equipped with an alarm and a telephone dialer with a battery backup to contact the owner/operator in the event of alarm.

#### **6. OPERATING PERMIT MODIFICATION**

Operating permit MO-0050199 will *not* require a modification to reflect the construction activities. The existing operating permit already contains the appropriate final effluent limitations. The facility description will be updated at operating permit renewal to reflect installation of an ultraviolet disinfection system.

Review Engineer: Cailie McKinney, E.I.  
Unit Chief Approval: Cindy LePage, P.E.  
Date: 02/28/2014



RECEIVED

CP0001627  
AP17643 C12838



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
WATER PROTECTION PROGRAM, WATER POLLUTION BRANCH  
FORM B - APPLICATION FOR CONSTRUCTION OR OPERATING PERMIT FOR  
FACILITIES WHICH RECEIVE PRIMARILY DOMESTIC WASTE (≤100,000 gallons per  
day) UNDER MISSOURI CLEAN WATER LAW WATER PROTECTION PROGRAM

FEB 10 2014

FOR AGENCY USE ONLY	
CHECK NUMBER	3002
DATE RECEIVED	2/10/14
FEE SUBMITTED	\$750

NOTE ► PLEASE READ THE ACCOMPANYING INSTRUCTIONS BEFORE COMPLETING THIS FORM

1. This application is for:

- An operating permit and antidegradation review public notice.
- A construction permit following an appropriate operating permit and antidegradation review public notice.
- A construction permit and a concurrent operating permit and antidegradation review public notice.
- A construction permit (submitted before Aug. 30, 2008 or antidegradation review is not required).
- An operating permit for a new or unpermitted facility. Construction Permit # \_\_\_\_\_
- An operating permit renewal: Permit #MO- 0050199 Expiration Date \_\_\_\_\_
- An operating permit modification: Permit #MO- Reason: \_\_\_\_\_

1.1 Is this a Federal/State Funded Project?  YES  NO Funding Agency/Project #: \_\_\_\_\_

1.2 Is the appropriate fee included with the application (See instructions for appropriate fee)?  YES  NO

2. FACILITY (Outfall 1 of 1 )

NAME Horse Shoe Bend MHP		TELEPHONE WITH AREA CODE	
ADDRESS (PHYSICAL) Hwy 47 South	CITY Union	STATE MO	ZIP CODE 63084
2.1 LEGAL DESCRIPTION:	¼, SW ¼, NW ¼, Sec. 14, T 43, R 1W Frankl County		
2.2 UTM Coordinates Easting (X): 674151 Northing (Y): 426096	For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)		
2.3 Name of receiving stream:	Unnamed Trib. to Fenton Creek		

3. OWNER

NAME Steve Stumpe		E-MAIL ADDRESS scs123@fidnet.com	TELEPHONE WITH AREA CODE (573) 457-2121	
ADDRESS 6154 Hwy AC	CITY Leslie	STATE MO	ZIP CODE 63056	

3.1 Request review of draft permit prior to Public Notice?  YES  NO

4. CONTINUING AUTHORITY: Permanent organization which will serve as the continuing authority for the operation, maintenance and modernization of the facility.

NAME Same		TELEPHONE WITH AREA CODE	
ADDRESS	CITY	STATE	ZIP CODE

5. OPERATOR

NAME	CERTIFICATE NUMBER	TELEPHONE WITH AREA CODE
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6. FACILITY CONTACT

NAME Steve Stumpe	TITLE Owner	TELEPHONE WITH AREA CODE (573) 457-2121
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7.0 ADDITIONAL FACILITY INFORMATION

7.1 Description of facilities (Attach additional sheet if required). Attach a 1" = 2,000' scale U.S. Geological Survey topographic map showing location of all outfalls and downstream landowners. (See Item 9.)

7.2 Facility SIC code: 6515; Discharge SIC code: \_\_\_\_\_; Facility NAICS code: \_\_\_\_\_; Discharge NAICS code: \_\_\_\_\_.

7.3 Number of people presently connected or population equivalent (P.E.) \_\_\_\_\_ Design P.E. 74  
 Number of units presently connected: Homes \_\_\_\_\_ Trailers \_\_\_\_\_ Apartments \_\_\_\_\_ Other \_\_\_\_\_  
 Design flow for this outfall: 7400 Total design flow for the facility: \_\_\_\_\_ Actual flow for this outfall: 4500  
 Commercial Establishment: Daily number of employees working \_\_\_\_\_ Daily number of customers/guests \_\_\_\_\_

7.4 Length of pipe in the sewer collection system? \_\_\_\_\_ feet/miles (Please denote which unit is appropriate.)

7.5 Does any bypassing occur in the collection system or at the treatment facility?  Yes  No (If yes, attach explanation.)

7.6 Does significant infiltration occur in the collection system?  Yes  No (If yes, attach explanation and proposed repair.)

7.7 Is industrial waste discharged to the facility identified in Item 2?  Yes  No (If yes, see instructions.)

7.8 Will the discharge be continuous through the year?  Yes  No  
 a. Discharge will occur during the following months: \_\_\_\_\_  
 b. How many days of the week will the discharge occur? \_\_\_\_\_

7.9 Is wastewater land applied?  Yes  No (If yes, attach Form I.)

7.10 Will chlorine be added to the effluent?  Yes  No  
 a. If chlorine is added, what is the resulting residual? \_\_\_\_\_ µg/l (micrograms per liter)

7.11 Does this facility discharge to a losing stream or sinkhole?  Yes  No

7.12 Attach a flow chart showing all influents, treatment facilities and outfalls.

7.13 Has a waste load allocation study been completed for this facility?  Yes  No

7.14 List all permit violations, including effluent limit exceedances in the last five years. Attach a separate sheet if necessary.  
 If none, write none. \_\_\_\_\_

**8. SLUDGE HANDLING, USE AND DISPOSAL**

- 8.1 Is the sludge a hazardous waste as defined by 10 CSR 25?  Yes  No
- 8.2 Sludge Production, including sludge received from others: <sup>1.1</sup> \_\_\_\_\_ Design Dry Tons/Year \_\_\_\_\_ Actual Dry Tons/Year
- 8.3 Capacity of sludge holding structures:  
Sludge storage provided: \_\_\_\_\_ cubic feet; \_\_\_\_\_ days of storage; \_\_\_\_\_ average percent solids of sludge;  
 No sludge storage is provided.
- 8.4 Type of Storage:  Holding tank  Building  
 Basin  Other (Please describe) \_\_\_\_\_  
 Concrete Pad
- 8.5 Sludge Treatment:  
 Anaerobic Digester  Lagoon  Composting  
 Storage Tank  Aerobic Digester  Other (Attach description)  
 Lime Stabilization  Air or Heat Drying
- 8.6 Sludge Use or Disposal:  
 Land Application  Surface Disposal (Sludge Disposal Lagoon, Sludge held for more than two years)  
 Contract Hauler  Incineration  
 Hauled to Another Treatment Facility  Sludge Retained in Wastewater treatment lagoon  
 Solid Waste Landfill  Other \_\_\_\_\_ Attach explanation sheet.
- 8.7 PERSON RESPONSIBLE FOR HAULING SLUDGE TO DISPOSAL FACILITY  
 By Applicant  By Others (complete below)

NAME *By bid with licensed hauler*

ADDRESS	CITY	STATE	ZIP CODE
CONTACT PERSON	TELEPHONE WITH AREA CODE	PERMIT NO. MO-	

**8.8 SLUDGE USE OR DISPOSAL FACILITY**  
 By Applicant  By Others (Please complete below.)

NAME *By bid*

ADDRESS	CITY	STATE	ZIP CODE
CONTACT PERSON	TELEPHONE WITH AREA CODE	PERMIT NO. MO-	

8.9 Does the sludge or biosolids disposal comply with federal sludge regulations under 40 CFR 503?  
 Yes  No (Please attach explanation)

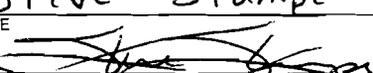
**9. DOWNSTREAM LANDOWNER (S). ATTACH ADDITIONAL SHEETS AS NECESSARY. SEE INSTRUCTIONS.**

NAME *Wm. D. Dawson Quarry*

ADDRESS <i>Hwy 47</i>	CITY <i>Union</i>	STATE <i>MO</i>	ZIP CODE <i>63084</i>
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**10. DRINKING WATER SUPPLY INFORMATION**

- 10.1 WHAT IS THE SOURCE OF YOUR DRINKING WATER SUPPLY:  
A. Public supply (municipal or water district water) \_\_\_\_\_  
If public, please give name of the public supply \_\_\_\_\_  
B. Private well community well   
C. Surface water (lake, pond or stream) \_\_\_\_\_
- 10.2 Does your drinking water source serve at least 25 people at least 60 days per year (not necessarily consecutive days)?  
 Yes  No
- 10.3 Does your supply serve housing which is occupied year round by the same people? This does not include housing which is occupied seasonally?  Yes  No
11. I certify that I am familiar with the information contained in the application, that 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 the Missouri Clean Water Law.

NAME AND OFFICIAL TITLE (TYPE OR PRINT) <i>Steve Stumpe - OWNER</i>	TELEPHONE WITH AREA CODE <i>573-457-2121</i>
SIGNATURE 	DATE SIGNED <i>1/30/14</i>