

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



CONSTRUCTION PERMIT

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

MISSOURI-AMERICAN WATER COMPANY
Stewartsville WWTF
3524 S Leonard Road
St. Joseph, MO 64503

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.

February 28, 2025

Effective Date

February 27, 2027

Expiration Date

A handwritten signature in black ink, appearing to read "John Hoke", written over a horizontal line.

John Hoke, Director, Water Protection Program

CONSTRUCTION PERMIT

I. CONSTRUCTION DESCRIPTION

Construction and installation of a new ultra-violet (UV) disinfection system, electromagnetic flow meter, metering vault, and two manholes, as well as all necessary internal piping. The UV system is designed for a peak flow of 0.396 million gallons per day (MGD), and design average flow of 104,600 gallons per day (gpd) will be maintained.

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 consistent with plans and specifications signed and sealed by Hope Drennan, P.E. with Bartlett & West, 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 Kansas City Regional Office per 10 CSR 20-7.015(9)(G).
5. 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 <https://dnr.mo.gov/data-e-services/missouri-gateway-environmental-management-mogem>. See <https://dnr.mo.gov/data-e-services/water/electronic-permitting-epermitting> for more information.
6. A United States Army Corps of Engineers (USACE) Clean Water Act Section 404 Department of the Army permit and a Section 401 Water Quality Certification issued by the department may be required for the activities described in this permit. This permit is not valid until these requirements are satisfied or notification is provided that no Section 404 permit is required by the USACE. You must contact your local USACE district since they determine what waters are jurisdictional and which permitting requirements may apply. You may call the department's Water Protection Program, Operating Permits Section at 573-522-4502 for more information. See <https://dnr.mo.gov/water/business-industry-other-entities/permits-certification-engineering-fees/section-401-water-quality> for more information.
7. All construction must adhere to applicable 10 CSR 20-8 (Chapter 8) requirements listed below.
 - Facilities shall be readily accessible by authorized personnel from a public right-of-way at all times. 10 CSR 20-8.140(2)(D)
 - 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 100- year flood elevation. 10 CSR 20-8.140(2)(B)
 - A means of flow measurement shall be provided at all wastewater treatment facilities. 10 CSR 20-8.140(7)(E)
 - Emergency Power. Disinfection and dechlorination processes, when used, shall be provided during all power outages. 10 CSR 20-8.190(2)(A)
 - 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 is appropriate for the specific application under consideration. 10 CSR 20-8.190(5)(A)3.
 - The UV system shall deliver a minimum UV dosage of 30,000 microwatt seconds per centimeters squared ($\mu\text{W} \cdot \text{s}/\text{cm}^2$). 10 CSR 20-8.190(5)(A)4.
 - 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.
8. Upon completion of construction:
- A. The MISSOURI-AMERICAN WATER COMPANY will become the continuing authority for operation and maintenance of these facilities;
 - B. Submit an electronic copy of the as builts if the project was not constructed in accordance with previously submitted plans and specifications; and
 - C. Submit the Statement of Work Completed form to the department in accordance with 10 CSR 20-6.010(5)(N) (<https://dnr.mo.gov/document-search/wastewater-construction-statement-work-completed-mo-780-2155>)

IV. REVIEW SUMMARY

1. CONSTRUCTION PURPOSE

Construction of new UV disinfection for the purpose of meeting *E. Coli*. Effluent limits established in the MSOP and effective 2019. Review of eDMR results of the last five years shows *E. Coli*. exceedances on 9/30/2023, and 12/31/2023.

2. FACILITY DESCRIPTION

The existing facility is a 3-cell lagoon with Reliant Water Moving Aerators in the primary cell. Sludge may be retained in the lagoon, land applied, or hauled to another permitted treatment facility.

The Stewartsville WWTF is located at East of Memorial Street and State Highway Y intersection, City of Stewartsville, in Clinton County, Missouri. The facility has a design average flow of 104,600 gpd, but only receives 41,500 gpd on average. The Stewartsville WWTF serves a hydraulic population equivalent of approximately 1,046 people.

3. COMPLIANCE PARAMETERS

No new compliance parameters are associated with this project. The existing facility can meet *E. Coli.* of 206 #/100mL, but construction is taking place to increase the consistency of meeting this effluent limit established in Missouri State Operating Permit MO-0108880.

4. REVIEW of MAJOR TREATMENT DESIGN CRITERIA

- Flow Measurement – Installation of accurate flow measurement devices will give the treatment facility a means of improved data analysis.
 - Electromagnetic Meter – An effluent electromagnetic 4-inch flow meter shall measure the secondary treated and disinfected wastewater prior to discharge at Outfall No. 001.
- Disinfection – Disinfection is the process of removal, deactivation, or killing of 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 0.396 MGD while delivering a minimum UV intensity of 30 mJ/cm² with an expected ultraviolet transmissivity of 30 percent or greater. The single open channel UV system consists of two banks in series with 4 modules per bank and 4 lamps per module. The disinfected effluent will flow by gravity through flow measurement equipment and to Outfall No. 001.
- Manholes – Construction of two 4-inch diameter cast-in-place manholes of 4 foot and 5.5 foot depths.
- Concrete Vault – Installation of one 6'x6' precast concrete vault of ~8 foot depth to house the electromagnetic flowmeter.

5. OPERATING PERMIT

These construction activities do not change the effluent limits or conditions of the current operating permit. The department will conduct an internal modification to reflect the current facility description upon receipt of the Statement of Work Completed form.

Operating permit MO-0108880 expired on September 30, 2024. A renewal application has been filed with the department. If you have questions about the renewal application, please contact the Operating permitting section at 573-522-4502 or cleanwaterpermits@dnr.mo.gov.

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>

Alex Bielefeldt
Engineering Section
alex.bielefeldt@dnr.mo.gov

Chia-Wei Young, P.E.
Engineering Section
chia-wei.young@dnr.mo.gov

APPENDIX

• Process Flow Diagram

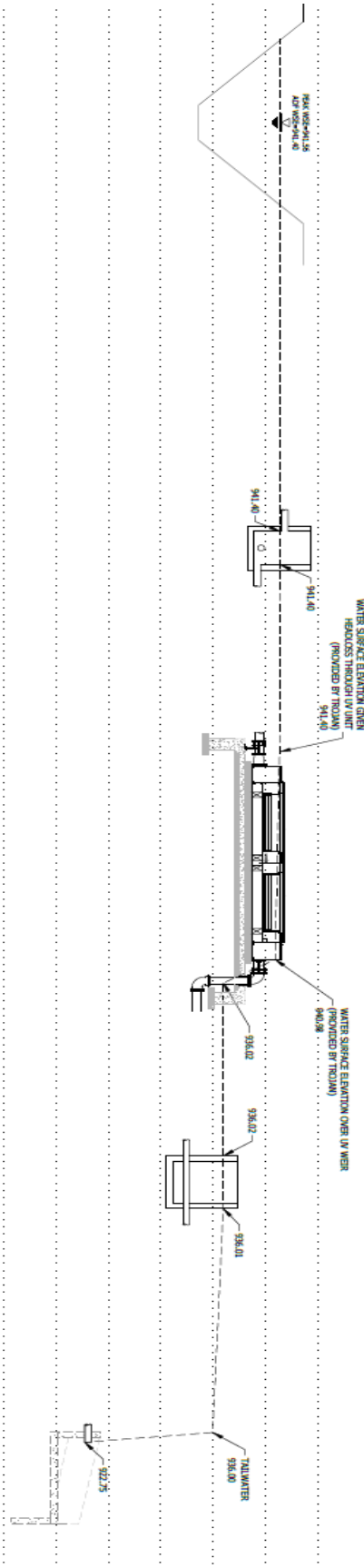
EXISTING
TERTIARY CELL

MANHOLE
1

UV DISINFECTION

METERING
MANHOLE

OUTFALL STRUCTURE





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

FOR DEPARTMENT USE ONLY	
APP NO.	CP NO.
FEE RECEIVED	CHECK NO.
DATE RECEIVED	

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 Disinfection Equipment
- 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: _____
 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 Stewartsville Wastewater Facility System Disinfection Improvements	2.2 ESTIMATED PROJECT CONSTRUCTION COST \$ 400,000
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2.3 PROJECT DESCRIPTION
 The project consists of installing a new UV disinfection unit and an electromagnetic flow meter.

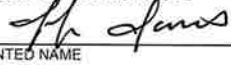
2.4 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION
 No change from existing procedures is proposed. Sludge is retained lagoon, sludge hauled by contract hauler, and sludge landfilled or disposed of at another permitted WWTP or biosolids are land applied by a permitted biosolids disposal facility.

2.5 DESIGN INFORMATION A. Current population: <u>733</u> ; Design population: <u>1,046</u> <small>(2020 US Census Data)</small> B. Actual Flow: <u>0.042</u> MGD Design Average Flow: <u>0.105</u> MGD Actual Peak Daily Flow: <u>0.396</u> MGD Design Maximum Daily Flow: <u>0.396</u> MGD Design Wet Weather Event: _____	These flows are only for UV equipment only - no change to plant design flow
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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 MAWC, Stewartville WWTF		TELEPHONE NUMBER WITH AREA CODE (816) 244-3736		E-MAIL ADDRESS jennifer.jarvis@amwater.com
ADDRESS (PHYSICAL) E of Memorial St. & State Hwy Y Intersect.	CITY Stewartville	STATE MO	ZIP CODE 64490	COUNTY Clinton
Wastewater Treatment Facility: Mo- 0108880 (Outfall 001 Of 001)				
3.1 Legal Description: _____ ¼, NW ¼, NW ¼, Sec. 22, T 57N, R 32W (Use additional pages if construction of more than one outfall is proposed.)				
3.2 UTM Coordinates Easting (X): 372621 Northing (Y): 4400605 For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)				
3.3 Name of receiving streams: Castile Creek (C) (332)				
4.0 PROJECT OWNER				
NAME Missouri American Water Company		TELEPHONE NUMBER WITH AREA CODE (816) 244-3736		E-MAIL ADDRESS jennifer.jarvis@amwater.com
ADDRESS 3524 S Leonard Road	CITY St. Joeshph	STATE MO	ZIP CODE 64503	
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		TELEPHONE NUMBER WITH AREA CODE		E-MAIL 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 checked="" type="checkbox"/> YES <input 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 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 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 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 type="checkbox"/> NO				
6.0 ENGINEER				
ENGINEER NAME / COMPANY NAME Hope Drennan, P.E. / Bartlett & West		TELEPHONE NUMBER WITH AREA CODE (573) 634-7904		E-MAIL ADDRESS hope.drennan@bartwest.com
ADDRESS 601 Monroe Street, Suite 201	CITY Jefferson City	STATE MO	ZIP CODE 65101	
7.0 APPLICATION FEE				
<input type="checkbox"/> CHECK NUMBER <input checked="" type="checkbox"/> JETPAY CONFIRMATION NUMBER 20058734				
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 Jennifer Jarvis			DATE 10/21/2024	
TITLE OR CORPORATE POSITION Missouri American Water, Eng. Project Manager		TELEPHONE NUMBER WITH AREA CODE (816) 244-3736		E-MAIL ADDRESS jennifer.jarvis@amwater.com
Mail completed copy to: MISSOURI DEPARTMENT OF NATURAL RESOURCES WATER PROTECTION PROGRAM P.O. BOX 176 JEFFERSON CITY, MO 65102-0176				
END OF PART A. REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHETHER PART B NEEDS TO BE COMPLETE.				