

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
Shagbark Wastewater Treatment Facility
2629 Shagbark Circle
Jefferson City, MO 65109

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.

November 14, 2018
Effective Date

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

November 13, 2020
Expiration Date

Chris Wieberg
Chris Wieberg, Director, Water Protection Program

CONSTRUCTION PERMIT

I. CONSTRUCTION DESCRIPTION

The purpose of this construction is to improve operations at the facility with the construction of a sludge holding tank, bar screen, and the storm tank to provide some flow equalization to the facility during periods of wet weather. The bar screen will be a manually cleaned screen with $\frac{3}{8}$ inch openings at 30 % slope. The storm tank will have a useable volume of 1,079 gallons. The sludge holding tank will have a volume of 2,976 gallons. 16.1 cfm of aeration will be provided to the storm tank and the sludge holding tank. The facility has a design average flow of 13,000 gpd and serves a hydraulic population equivalent of approximately 130 people. No changes to the existing extended aeration treatment plant or the chlorine disinfection/dechlorination system planned.

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 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 in accordance with the plans and specifications submitted by Bartlett & West on July 26, 2018 and November 1, 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 Northeast 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. Missouri American Water will become the continuing authority for operation, maintenance, and modernization of these facilities;
 - B. Submit an electronic copy of the as built's 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)(D). 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

The purpose of this construction is to improve operations at the facility with the construction of a sludge holding tank, bar screen, and modifications to the existing storm tank to provide some flow equalization to the facility during periods of wet weather.

2. FACILITY DESCRIPTION

The existing facility includes an extended aeration plant with an old storm clarifier and seasonal chlorination/dechlorination. Solids are hauled to the Jefferson City WRC, MO-0094846. The facility is proposing to convert the existing old storm clarifier into a storm tank and sludge holding tank and install a bar screen, see Appendix A. Below is a summary of the facility's existing performance in comparison to its effluent limits. No effluent limits are proposed to change as a result of the construction permit.

The Shagbark WWTF is located at 2629 Shagbark Circle, Jefferson City, in Cole County, Missouri. The facility has a design average flow of 13,000 gpd and serves a hydraulic population equivalent of approximately 130 people. The subdivision is built out and there is not planned expansion of the facility.

Parameter	Units	Average Monthly Effluent Limit	Average from Monthly average DMRS 2012-2018
Flow	MGD	*	0.00215
BOD ₅	mg/L	30	4.46
TSS	mg/L	30	4.27
pH	SU	6.5-9.0	7.87
Ammonia as N-summer	mg/L	1.4	0.17
Ammonia as N-winter	mg/L	2.9	3.3
Dissolved Oxygen	mg/L	*	5.40

*monitoring only

3. REVIEW of MAJOR TREATMENT DESIGN CRITERIA

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

- The existing facility is an extended aeration plant with 3 aeration tanks, a final clarifier, and chlorine disinfection with dechlorination. The tablet dechlorinator was installed under Construction Permit #25-2963 issued by the Northeast Regional Office in May 2009 and has a design flow of 20,000 gpd and a maximum flow of 100,000 gpd.

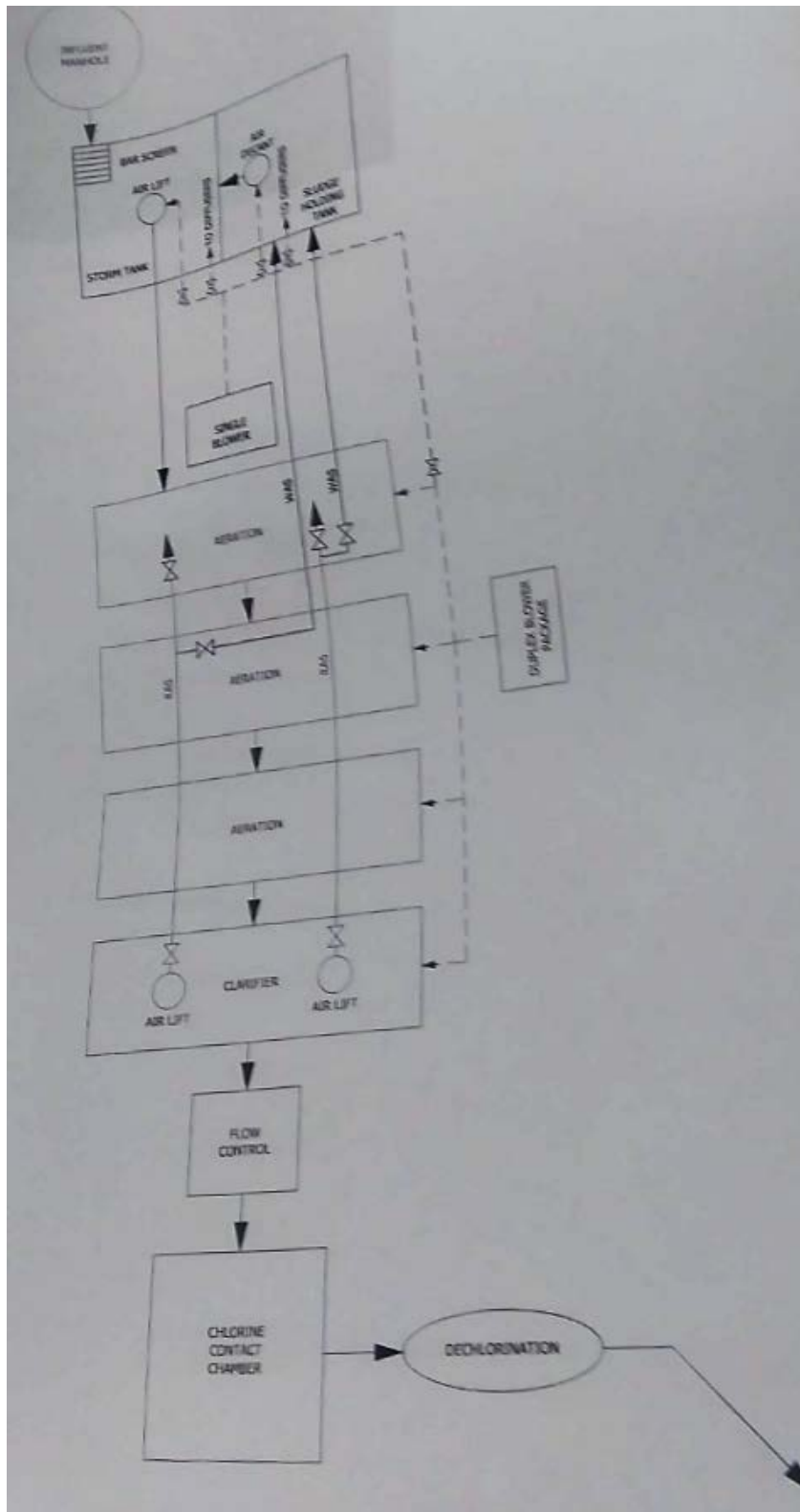
Construction will cover the following items:

- Screening – Installation of screening devices removes nuisance inorganic materials from raw wastewater.
 - Manual Coarse Bar Screen – The manual coarse bar screen will have clear bar spacings of $\frac{3}{8}$ -inch and be positioned at 30% slope from the horizontal to allow for manual raking of the screen.
 - The area of the screenings will provide a velocity of one foot per second (1 fps) through the vertical projection at average design flow.
- Wet Weather/Storm Tank – From the bar screen, flows will enter the wet weather/storm tank. The storm tanks is 4.58 ft x 10.17 ft x 6ft deep.
 - The tank has a design volume of 2,090 gallons; however the useable volume is 1,079 gallons due to the 3" air lift to get the water from the tank to the extended aeration tanks. This is a deviation from 10 CSR 20-8.020(13)(B)4.C. Table I; however it is an improvement in operations as the facility currently does not way to drain the old storm tank and had no storage available for flow equalization during wet weather events.
- Sludge Storage Tank Holding Basin – Construction of the sludge holding tank with dimensions of 6 ft x 10.17 ft x 6.42ft , with a volume of 2,976 gallons, which meets the minimum storage tank volume of 2,917 gallons required by 10 CSR 20-8.020(13)(B)8. The sludge will be received from the final clarifier and then be taken to Jefferson City RWC for treatment.
- The required aeration for the storm tank is 4.18 cfm and the required aeration for the sludge storage tank is 11.81 cfm, which is meet by the supplied 5 HP blowers that will provided 16.1 cfm, which meets the minimum required aeration total of 15.99 cfm per 10 CSR 20-8.020(13)(B)4.E and 10 CSR 20-8.020(13)(B)8.

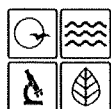
4. OPERATING PERMIT

These construction activities do not require a modification to the operating permit. It is expected that the facility owner will include a new facility description in their next operating permit renewal application to reflect the installation of a bar screen, sludge storage tank, and the storm tank.

Appendix A: Process Flow Diagram



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JUL 26 2018 CP000207



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

Water Protection Program

FOR DEPARTMENT USE ONLY	
APP NO.	CP NO.
FEE RECEIVED \$1000.00	CHECK NO. 1700048273
DATE RECEIVED 7-26-18	

APPLICATION OVERVIEW

The Application for Construction Permit – Wastewater Facility form is for construction pertaining to domestic wastewater treatment facilities, agrichemical 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 agrichemical? ☐ 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: N/A: not expanding flow
- 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

Shagbark WWTF Improvements

2.2 PROJECT DESCRIPTION

The driver of the project is to improve operations of the Shagbark WWTF located in Cole County, Missouri. Capacity upgrades are not being pursued. In general, the scope of this project is to convert the old storm clarifier structure at the head of the WWTF into an equalization tank and a sludge holding tank by adding a partition wall inside the existing storm clarifier. The equalization tank will be drained by a new air lift pump which will use air from a new blower package to make the air lift work. Aeration will also be provided to the sludge holding tank and equalization tank. Means for decanting the sludge tank will be provided. A bar screen will also be added.

2.3 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION

MAWC pumps waste sludge out of this facility and hauls it to the Jefferson City WWTF for processing. No changes are being proposed to the sludge handling process except that a sludge holding tank will be added by converting the existing storm clarifier.

2.4 DESIGN INFORMATION

- A. Current population: unknown; Design population: 130
- B. Actual Flow: 8,500 gpd; Design Average Flow: 13,000 gpd;
Actual Peak Daily Flow: N/A gpd; Design Maximum Daily Flow: N/A gpd;
Design Wet Weather Event: N/A

2.5 ADDITIONAL INFORMATION

- A. Is a topographic map attached? ☒ YES ☐ NO (see Form B)
- B. Is a process flow diagram attached? ☒ YES ☐ NO (see drawings)

2.6 ESTIMATED PROJECT CONSTRUCTION COST

\$

3.0 WASTEWATER TREATMENT FACILITY				
NAME MAWC, Shagbark Wastewater Treatment Facility		TELEPHONE NUMBER WITH AREA CODE (866) 430-0820		EMAIL ADDRESS Robert.Goeltz@amwater.com
ADDRESS (PHYSICAL) 2629 Shagbark Circle	CITY Jefferson City	STATE MO	ZIP CODE 65101	COUNTY Cole
Wastewater Treatment Facility: Mo- 0093734 (Outfall 001 Of 001)				
3.1 Legal Description: ¼, SE ¼, SW ¼, Sec. 28 , T 44N , R 12W (Use additional pages if construction of more than one outfall is proposed.)				
3.2 UTM Coordinates Easting (X): 564811 Northing (Y): 4264667 For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)				
3.3 Name of receiving streams: Unnamed tributary to Moreau River (U)				
4.0 PROJECT OWNER				
NAME Missouri American Water Company		TELEPHONE NUMBER WITH AREA CODE (314) 469-6050		EMAIL ADDRESS timothy.ganz@amwater.com
ADDRESS 727 Craig Rd	CITY St. Louis	STATE MO	ZIP CODE 63141	
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 Missouri American Water Company		TELEPHONE NUMBER WITH AREA CODE (314) 469-6050		EMAIL ADDRESS timothy.ganz@amwater.com
ADDRESS 727 Craig Rd	CITY St. Louis	STATE MO	ZIP CODE 63141	
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 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 Gary W. Davis, P.E. / Bartlett & West, Inc.		TELEPHONE NUMBER WITH AREA CODE (573) 659-6731		EMAIL ADDRESS gary.davis@bartwest.com
ADDRESS 1719 Southridge Drive, Suite 100	CITY Jefferson City	STATE MO	ZIP CODE 65109	
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 Robert Goeltz			DATE 7/18/18	
TITLE OR CORPORATE POSITION Senior Project Engineer		TELEPHONE NUMBER WITH AREA CODE 314-996-2308		EMAIL ADDRESS robert.goeltz@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.				