

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



CONSTRUCTION PERMIT

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

Jennifer Cary, Mayor
City of Tipton
PO Box 517
Tipton, MO 65081

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.

October 25, 2018
Effective Date


Edward B. Galbraith, Director, Division of Environmental Quality

October 24, 2020
Expiration Date


Chris Wieberg, Director, Water Protection Program

CONSTRUCTION PERMIT

I. CONSTRUCTION DESCRIPTION

The proposed project will upgrade of the existing peak flow detention basin with aeration, add 1.54 million gallon digested sludge storage basin, and replace effluent launder troughs on three of 32 ft. diameter clarifiers.

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 in accordance with the plans and specifications submitted by Allgeier, Martin and Associate, Inc. on August 2, 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. The City of Tipton 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;
 - 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

Half of the Tipton WWTF has been in continuous operation for nearly forty years and the other half has been operated for about 20 years. The city authorized an engineering evaluation of the treatment facility. The evaluation report set forth recommendations for additions to sustain operational reliability and manage waste sludge more effectively.

2. FACILITY DESCRIPTION

The facility's overall treatment operation consists of an influent bar screen to physically remove trash, a peak flow storage basin, two oxidation ditches for biological treatment, secondary clarifiers for sedimentation of biomass, and finally ultraviolet disinfection of the clarified water prior to discharge to a receiving stream. The biomass produced has been continuously aerated and dewatered and finally disposed of by distribution onto the surface of selected tracts of land. The proposed project will add aeration to the existing peak flow detention basin and construct a new 1.54 million gallon digested sludge storage basin. The facility performs well and meets effluent limits established in its operating permit. Aeration is being installed in the detention basin in order to lower the BOD of the stored water and thereby permit a higher rate of return flow to oxidation ditches, thus allow the basin volume to be utilized more efficiently. The objective of the sludge storage basin is to transition to final sludge disposal by contracted services. The sludge storage basin will eliminate the continued need for a sludge hauling truck and land apply during inclement weather and non-amiable soil conditions.

The Tipton WWTF is located at 34080 Bahner Quarry Road, Tipton, in Moniteau County, Missouri. The facility has a design average flow of 735,000 gpd and serves a hydraulic population equivalent of approximately 7,350 people.

3. COMPLIANCE PARAMETERS

Aeration of the detention basin will permit a higher rate of return flow to oxidation ditches and thus allow the basin volume to be utilized more efficiently. Having storage volume available during times of peak raw sewage flow reduces the hydraulic load on the plant and thus serves to maintain the quality of effluent generated during times of normal hydraulic load.

4. REVIEW of MAJOR TREATMENT DESIGN CRITERIA

- **Peak Flow Detention Basin:** The existing basin is utilized where the peak flow is greater than the design peak capacity (peak daily flow 1,700,000 gpd) of the treatment facility. Once the flow is lower, the flow returns to the head of the treatment facility for full secondary treatment. Three (3) 7.5 HP floating surface aerators (Aqua Aerobic) will be placed within the basin to provide 1.8 lbs. O₂/hp-hour. To return flow from the basin back to the headworks, a 3.0 HP floating transfer pump (Valley) and appurtenances will be installed in the existing peak flow retention basin. The pump will have a firm capacity of 100 gpm with 40 ft of TDH.

- Sludge Storage Basin: Construction of a sludge holding basin that is 265 ft X137 ft at the top with an 8 ft sidewater depth. The basin will have 1:3 sloping walls and a total volume of 1.54 MG (205,312 cube feet). This reinforced concrete lined basin is for storage of treated waste sludge before it can be land applied.
- Secondary Clarifier: Construction will remove and replace the rectangular effluent troughs and weirs in three (3), thirty-two (32) feet diameter peripheral feed clarifiers with new troughs supplied by Lakeside Equipment, Inc. Each clarifier mechanism is of the peripheral inlet, center launder type.

5. 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 aeration in the peak flow basin and the addition of a 1.54 million gallon digested sludge storage basin.

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