



MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

Michael L. Parson
Governor

Dru Buntin
Director

June 28, 2022

The Honorable Taylor Elwell
Mayor
City of Leeton
P.O. Box 87, 108 West Summerfield
Leeton, MO 64761

RE: C295850-01 City of Leeton, Missouri – Wastewater Treatment and Collection System Improvements, Leeton Wastewater Treatment Facility, MO-0116976, Construction Permit No. CP0002313, Johnson County

Dear Mayor Elwell:

The Missouri Department of Natural Resources' Financial Assistance Center has reviewed and approved the plans and specifications submitted by Lamp Rynearson for the City of Leeton. Please find enclosed Construction Permit No. CP0002313 and one set of approved plans and specifications. You must maintain these with your official project file for a minimum of 4 years following completion of the project. The process flow drawing included in the plans for the project will be updated in a future addendum to clarify that the third lagoon cell will be disconnected from the treatment process.

This permit will terminate 24 months from the date of issuance. In accordance with 10 CSR 20-6.010(5)(J), the Department may grant an extension. 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 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. Contact information for the AHC is: Administrative Hearing Commission, United States Post Office Building., Third Floor, 131 West High Street, P.O. Box 1557, Jefferson City, MO 65102, Phone: 573-751-2422, Fax: 573-751-5018, and Website: ahc.mo.gov/.



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If you have any questions concerning this matter, please contact Joshua Brown of the Financial Assistance Center at 573-526-2415, or Department of Natural Resources, Financial Assistance Center, P.O. Box 176, Jefferson City, MO 65102-0176.

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

Sincerely,

FINANCIAL ASSISTANCE CENTER

A handwritten signature in cursive script that reads "Conrad Blume".

Conrad Blume, P.E.
Clean Water Engineering Unit Chief

CB:jbc

Enclosures

c: Jon Shellhorn, P.E., Lamp Rynearson
Kansas City Regional Office
Joshua Brown, Department of Natural Resources, Financial Assistance Center
Kara Simon, Department of Natural Resources, Financial Assistance Center

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



CONSTRUCTION PERMIT

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

Leeton WWTF
 294 SE 1200 Road
 Leeton, MO 64761

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.

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.

June 28, 2022

Effective Date

A handwritten signature in black ink that reads "Chris Wieberg".

Chris Wieberg, Director, Water Protection Program

June 27, 2024

Expiration Date

CONSTRUCTION PERMIT

I. CONSTRUCTION DESCRIPTION

To meet upcoming ammonia limits, an upgrade to the current lagoon system is planned. This upgrade will involve the installation of a moving bed biofilm reactor (MBBR) system to meet those limits. This upgrade will also involve the installation of aeration into the first cell of the lagoon system to improve effluent quality prior to the MBBR, as well as UV disinfection to meet E. coli limits. Sludge will continue to be stored in the lagoons during treatment.

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 Lamp Rynearson on February 7, 2022, and signed and sealed by Jon Shellhorn, P.E. on January 25, 2022, and approved by the Department on June 28, 2022.
3. Regulation 10 CSR 20-4.040(18)(B)1 requires that projects be publicly advertised, allowing sufficient time for bids to be prepared and submitted. Projects should be advertised at least 30 days prior to bid opening.

4. 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(11).
5. As per 10 CSR 20-4.040, all changes in contract price or time within the approved scope of work must be by change order in accordance with Section 19 of this rule.
6. 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 electronic Sanitary Sewer Overflow/Bypass Reporting system at <https://dnr.mo.gov/mogem/> or Kansas City Regional Office per 10 CSR 20-7.015(9)(G).
7. In addition to the requirements for a construction permit, see 10 CSR 20-6.200 for land disturbance requirements 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. For more information, see www.dnr.mo.gov/env/wpp/stormwater/sw-land-disturb-permits.htm.
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 dnr.mo.gov/env/wpp/401/ for more information.
9. Upon completion of construction:
 - A. The City of Leeton 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;
 - C. Submit the eDMR permit Holder and Certifier Registration, Form--MO 780-2204 to comply with your operating permit; and
 - D. Submit the enclosed form Statement of Work Completed to the Department in accordance with 10 CSR 20-6.010(5)(N) and request the operating permit modification be issued.

IV. REVIEW SUMMARY

1. CONSTRUCTION PURPOSE

This construction will allow for the Leeton WWTF to be able to meet upcoming treatment limits, specifically ammonia and E. coli limits that cannot be met by the current lagoon infrastructure without upgrade.

2. FACILITY DESCRIPTION

The Leeton WWTF is located at 294 SE 1200 Road, Leeton, Missouri, in Johnson County. The facility has a design average flow of 62,500 gpd and serves a hydraulic population equivalent of approximately 625 people.

3. COMPLIANCE PARAMETERS

The limits following the completion of construction will be applicable to the facility:

Parameter	Units	Monthly average limit
Biochemical Oxygen Demand ₅	mg/L	30
Total Suspended Solids	mg/L	30
Ammonia as N-January	mg/L	3.1
Ammonia as N-February	mg/L	2.7
Ammonia as N-March	mg/L	2.7
Ammonia as N-April	mg/L	2.3
Ammonia as N-May	mg/L	1.9
Ammonia as N-June	mg/L	1.5
Ammonia as N-July	mg/L	1.1
Ammonia as N-August	mg/L	1.3
Ammonia as N-September	mg/L	1.7
Ammonia as N-October	mg/L	2.6
Ammonia as N-November	mg/L	3.1
Ammonia as N-December	mg/L	2.7
pH	SU	6.5-9.0
E. Coli	#/100mL	206

4. REVIEW of MAJOR TREATMENT DESIGN CRITERIA

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

- Lagoon Cell No. 1 – The influent is enters into Lagoon Cell No. 1 by gravity flow. Lagoon Cell No. 1 currently is non-aerated and has a surface area of 4.68 acres and a wastewater volume of 7.97 million gallons. This cell has 2 ft of freeboard, 5 ft of operating depth, and an estimated 1.5 ft of sludge depth as a part of the total operating depth. This provides approximately 128 days of retention at the proposed design flow.

- Lagoon Cell No. 2 – Lagoon Cell No. 2 is non-aerated. Cell No. 2 has a surface area of 1.44 acres and a wastewater volume of 2.61 million gallons. Cell No. 2 has 2 ft of freeboard, 5 ft of operating depth, and an estimated 1.5 ft of sludge depth as a part of the total operating depth. This provides approximately 42 days of retention at the proposed design flow.
- Lagoon Cell No. 3 – Lagoon Cell No. 3 is non-aerated. Cell No. 3 has a surface area of 0.64 acres and a wastewater volume of 690,000 gallons. Cell No. 3 has 2 ft of freeboard, 8 ft of operating depth and an estimated 1.5 ft of sludge depth as a part of the total operating depth.. This lagoon cell will not be a part of the proposed treatment process for the wastewater facility, will not be authorized to discharge wastewater, and the lagoon will be disconnected after the sludge is removed.

Construction will cover the following items:

- Surface Aeration for Lagoon Cell 1 – A system of air diffuser system units, consisting of a coarse/fine bubble diffuser units, weighted with a ballast, shall be arranged around Lagoon Cell 1. There will be a total of six aeration units that will capable of treating an estimated influent BOD concentration of 204 mg/l to an estimated effluent BOD concentration of 5.9 mg/L in the summer and 11.4 mg/L in the winter to the MBBR, which is below the expected maximum BOD concentration that will be manageable by the MBBR of 25 mg/L.
- MBBR – The lagoon treated effluent will flow by gravity to the MBBR, which is capable of treating a design average flow of 65,000 gpd. The system is composed of two tanks with each approximately 15 ft x 7.5 ft x 10 ft with a total volume of the two tanks is 11,781 gallons. The average flow hydraulic retention time is 4.35 hours and the peak flow hydraulic retention time is 1.13 hours. A floating insulating cover shall be installed in each tank. An immersion tank heater will be installed to maintain a minimum wastewater temperature of 5°C. Each tank shall be filled with high surface area HDPE media to the manufacturer standards. Aeration by means of two tri-lobe positive displacement blowers each capable of supplying 85 scfm with 7.5 HP motors. The effluent from the MBBR will flow by gravity to a clarifier for polishing prior to disinfection and discharge. The clarifier has a sidewater depth of 10 ft. The surface overflow rate of the clarifier is 1,200 gpd/ft². The weir loading rate of 20,000 gpd/lf is attained by using a minimum weir diameter of 2.59 ft.
- 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 250,000 gpd while delivering a minimum UV intensity of 30,000 mW·s/cm² with an expected ultraviolet transmissivity of 40 percent. The single open channel UV system consists of two banks in series with 3 modules per bank

and 5 lamps per module. The disinfected effluent will flow by gravity through flow measurement equipment and to Outfall No. 001.

5. OPERATING PERMIT

Missouri State Operating Permit No. MO-0116076 will require a modification to reflect the construction activities. The modified Leeton WWTF, MO-0116076, was successfully public noticed from April 8, 2022 to May 10, 2022 with no comments received. After construction is complete submit the Statement of Work Completed to the Department in accordance with 10 CSR 20-6.010(5)(N) and request the operating permit modification be issued.

Joshua Brown
Financial Assistance Center
Joshua.Brown@dnr.mo.gov