

**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 Beef Plant, LLC  
7133 NE Business Loop 49  
Butler, MO 64730

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 09, 2021  
Effective Date

  
Edward B. Galbraith, Director, Division of Environmental Quality

February 08, 2023  
Expiration Date

  
Chris Wieberg, Director, Water Protection Program

## **CONSTRUCTION PERMIT**

### **I. CONSTRUCTION DESCRIPTION**

Missouri Beef Plant, LLC is a small meat processing facility in Butler, Missouri, that will be constructing a storage lagoon, grease trap, grinder pump, and approximately 300 feet of 1.25" PVC force main pipe for process wastewater. The lagoon will hold approximately 90,000 cubic feet for 409 days storage. Wastewater will be land applied over a 36 acre field of mixed fodder and row crops. The plant will process 20 beef cows per week.

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 consistent with plans and specifications signed and sealed by Allied Engineering Services, LLC and as described in this permit, including the two-compartment grease trap in place of the originally submitted MIFAB grease interceptor.
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. The wastewater treatment facility shall be located at least 200 feet from any residence and 50 feet to property line per 10 CSR 20-8.140(C)(2)
6. The wastewater treatment facility shall be located above the twenty-five (25)-year flood level.
7. The wastewater facility structures, electrical equipment, and mechanical equipment shall be protected from physical damage by not less than the one hundred- (100-) year flood elevation per 10 CSR 20-8.140(2)(B). The minimum distance between wastewater treatment facilities and all potable water sources shall be at least three hundred feet (300') per 10 CSR 20-8.140(2)(C)1.
8. 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](http://dnr.mo.gov/env/wpp/epermit/help.htm). See [dnr.mo.gov/env/wpp/stormwater/sw-land-disturb-permits.htm](http://dnr.mo.gov/env/wpp/stormwater/sw-land-disturb-permits.htm) for more information.
9. 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/](http://dnr.mo.gov/env/wpp/401/) for more information.
10. All construction must adhere to applicable 10 CSR 20-8 (Chapter 8) requirements listed below.
  - Lagoon berms shall be constructed of relatively impervious material and compacted to at least ninety-five percent (95%) maximum dry density test method to form a stable structure. 10 CSR 20-200(4)(A)1.
  - The minimum berm width shall be eight feet (8') to permit access of maintenance vehicles. 10 CSR 20-8.200 (4) (A) 2.

- Minimum freeboard shall be two feet (2'). 10 CSR 20-8.200 (4) (A) 3.
- An emergency spillway shall be provided that—
  - Prevents the overtopping and cutting of berms; 10 CSR 20-200(4)(A)4.A.
  - Is compacted and vegetated or otherwise constructed to prevent erosion; 10 CSR 20-200(4)(A)4.B. and
  - Has the ability for a representative sample to be collected, if discharging. 10 CSR 20-200(4)(A)4.C.
  - The soil of the lagoon bottom shall be compacted with the moisture content between two percent (2%) below and four percent (4%) above the optimum water content and compacted to at least ninety-five percent (95%) maximum dry density test method. 10 CSR 20-200(4)(B)
- The lagoon shall be sealed to ensure that seepage loss is as low as possible and has a design permeability not exceeding  $1.0 \times 10^{-7}$  cm/sec. 10 CSR 20-200(4)(C)1.
- The minimum thickness of the compacted clay liner must be twelve inches (12"). For permeability coefficients greater than  $1.0 \times 10^{-7}$  cm/sec or for heads over five feet (5') such as an aerated lagoon system, the following formula shall be used to determine minimum seal thickness, Equation 200-1 per 10 CSR 20-200(4)(C)2.:

Equation 200-1

$$t = \frac{H \times K}{5.4 \times 10^{-7} \text{ cm/sec}}$$

where:

K = the permeability coefficient of the soil in question;

H = the head of water in the lagoon; and

t = the thickness of the soil seal.

- Unlined corrugated metal pipe shall not be used for influent lines due to corrosion problems. 10 CSR 20-8.200 (4) (D) 1.
- A manhole shall be installed with its invert at least six inches (6") above the maximum operating level of the lagoon, prior to the entrance into the primary cell, and provide sufficient hydraulic head without surcharging the manhole. 10 CSR 20-8.200 (4) (D) 2.
- The influent line(s) shall be located along the bottom of the lagoon and there shall be an adequate seal below the pipe. 10 CSR 20-8.200 (4) (D) 3.
- The wetted application area of a surface irrigation system must be located
  - Outside of flood-prone areas having a flood frequency greater than once every ten (10) years; 10 CSR 20-8.200 (6) (B) 1.
  - At least one hundred fifty feet (150') from existing dwellings or public use areas, excluding roads or highways; 10 CSR 20-8.200 (6) (B) 2. A.
  - At least fifty feet (50') inside the property line; 10 CSR 20-8.200 (6) (B) 2. B.

- At least three hundred feet (300') from any sinkhole, losing stream, or other structure or physiographic feature that may provide direct connection between the ground water table and the surface; 10 CSR 20-8.200 (6) (B) 2. C.
  - At least three hundred feet (300') from any existing potable water supply well not located on the property. Adequate protection shall be provided for wells located on the application site; 10 CSR 20-8.200 (6) (B) 2. D.
  - One hundred feet (100') to wetlands, ponds, gaining streams (classified or unclassified; perennial or intermittent); 10 CSR 20-8.200 (6) (B) 2. E. and
  - If an established vegetated buffer or the wastewater is disinfected, the setbacks established in subsections (A)–(E) above may be decreased if the applicant demonstrates the risk is mitigated. 10 CSR 20-8.200 (6) (B) 2. F.
- The wetted application area of a surface irrigation system must be Fenced, or if not fenced, provide in the construction permit application or the facility plan, the—
    - Method of disinfection being utilized; 10 CSR 20-8.200 (6) (B) 3. A.
    - Suitable barriers in place, 10 CSR 20-8.200 (6) (B) 3. B. or
    - Details on how public access is limited and not expected to be present. 10 CSR 20-8.200 (6) (B) 3. C.
  - At a minimum, treatment prior to irrigation shall provide performance equivalent to that obtained from a primary wastewater lagoon cell and include 90 days wastewater storage in addition to the primary volume. 10 CSR 20-8.200 (6) (C)
  - An automatic notification alarm system shall be installed on the pressure monitoring system, on each pivot and pump system, and be capable of notifying an on-call operator when a fault occurs in the system. 10 CSR 20-8.200 (6) (G)

11. Upon completion of construction:

- A. Missouri Beef Plant, LLC will become the continuing authority for operation and maintenance of these facilities;
- B. Submit an electronic copy of the as built 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)(N).

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

##### **1. CONSTRUCTION PURPOSE**

This project will handle wastewater from a new small meat processing facility.

## **2. FACILITY DESCRIPTION**

Missouri Beef Plant, LLC is a new facility. It will process 20 beef cattle per week. The lagoon is located at 322 NW State Route F, Butler, in Bates County, Missouri. It has a total storage volume below freeboard of 89,803 cubic feet, and a storage volume between the freeboard and lower safety volume of 64,188 cubic feet which provides 409 days of storage for the expected design flow of 1,775 gpd.

## **3. COMPLIANCE PARAMETERS**

The proposed project is required to meet the requirements of MOG822290 with an expiration date of May 22, 2022.

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

This is a proposed operation which will have a meat processing building, a wastewater storage pond, a grease interceptor and a grinder pump along with approximately 300 feet of 1.25" PVC force main pipe. The facility will process 20 beef cows per week.

- Storage Lagoon - A wastewater storage pond with a surface area of approximately 16,384 sf and a total storage volume of 89,803 cubic feet, with a 409 day (average design flow) storage period and 279 day (including 1-in-10 year rainfall minus evaporation) storage period will be constructed to collect and store the processed wastewater. The pond will have 2.0 ft of freeboard, 1.0 ft of safety volume, 9.0 ft of storage depth, and 2.0 ft of permanent volume depth. The storage pond design is summarized in a spreadsheet printout. The two feet of permanent volume was added at the bottom of the pond to protect the liner from drying and cracking. The pond will be 14 ft deep from berm top to floor.

A test pit was dug near the southwest corner of the proposed lagoon floor to a depth of 11 ft (elevation 851). Soils were found to have a heavy clay content and are expected to work well for lagoon construction. A bulk sample of light brown fat clay (CH) soil was taken from 7 ft to 11 ft in depth and tested in the laboratory by Geotechnics to attain the coefficient of vertical permeability. The permeability was found to be  $4.53 \times 10^{-9}$  cm/sec. From this the following calculation was made to determine the liner thickness:

$$T = HK/5.4 \times 10^{-7} \text{ cm/sec}$$
$$T = 12' (4.53 \times 10^{-9} \text{ cm/sec}) / 5.4 \times 10^{-7} \text{ cm/sec} = .09' \text{ (Use 1.0')}$$

The default minimum 1.0' thick liner will be used for the storage lagoon.

The average annual pumpdown from this pond will be 428,378 gallons which consist of the process water from the facility and the average rainfall minus evaporation.

- Land Application Site - Temporary surface irrigation hose, a traveling gun irrigation system and irrigation pump to apply wastewater to the nearby 35.9 acre field for nutrient utilization. The land application area will be maintained in row crop and grass. The maximum annual application rate will not exceed 1.0 inches per acre and at this rate requires 26 acres of the 35.9 available acres to pump on. This site is fenced around the perimeter. Proposed application rates are 0.2 inches/ hour, 0.5 inch/day, 1.0 inches/week, and 1.0 inches/year. The wastewater will be applied at a rate of 1.0 inches per acre until the pumpdown is completed. The acreage used annually will depend on the amount of wastewater in the lagoon (annual rainfall dependent).

A custom applicator will be hired to land apply wastewater annually. It is expected the applicator will have a pump and traveling gun similar to those outlined below:

- Land Application J1Tigation Pump - The pump will be similar to a Kifco model KFNG2.5B-G23S (23 HP) with the ability to transfer wastewater from the lagoon to the irrigation fields at a variable rate from 50 gpm at 110 psi (254' TDH) to 175 gpm at a 90 psi (208' TDH).
- Wastewater Irrigation- Traveling Gun - Wastewater irrigation will be completed with a system similar to a Kifco model T25x750 water-Reel traveling gun system or similar model that has the capacity to irrigate from 50 gpm (3,000gph) to 175 gpm (10,500) and has an irrigated width of 154' to 207' and a pull length up to 831' allowing it to irrigate from less than one acre up to 3.9 acres per set. The irrigation line from the storage basin to the traveling gun connection valves is approximately 500 lf of temporary surface irrigation pipe or hose. The land application rate will be based on hydraulic loading.
- Solids/Grease Interceptor-A MIFAB Big-SHOPE Solids Interceptor will be placed in series with a MIFAB Big Max 100 Grease Interceptor to remove solids and grease from the waste stream. The Solids Interceptor will remove sediment and debris which could possibly clog the grease interceptor. The Grease Interceptor has a capacity to handle up to 100 gpm with a grease design capacity of 1,556 lbs. These interceptors will be cleaned regularly and the solids will be removed and taken to a state approved receiver.

The specifications for both the MIFAB Big-S HOPE Solids Interceptor and MIFAB Big Max 100 Grease Interceptor are on the attached cut sheets for each product.

Grinder Pump - The grinder pump will be a E/ONE Extreme DH 152 duplex pump station. The station will have an E/One Sentry alarm system.

## **5. OPERATING PERMIT**

After completion of construction project submit: Statement of Work Completed, as-built if the project was not constructed in accordance with previously submitted

plans and specifications, and ensure that Application Form B, and fee has been submitted. Missouri State Operating Permit, General Permit MOG822290, will be issued after receipt of the above documents.

## **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>

Bern Johnson, EI  
Engineering Section  
[bern.johnson@dnr.mo.gov](mailto:bern.johnson@dnr.mo.gov)

Cailie Carlile, P.E., Construction Permit Unit Chief  
Engineering Section  
[cailie.carlile@dnr.mo.gov](mailto:cailie.carlile@dnr.mo.gov)





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 \$1000.00	CHECK NO. 2888
DATE RECEIVED 12-21-20	

**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 Private no-discharge facility
- 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 Missouri Beef Plant, LLC	2.2 ESTIMATED PROJECT CONSTRUCTION COST \$
2.3 PROJECT DESCRIPTION Small meat processing plant with earthen storage lagoon and land application.	
2.4 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION Land application.	
2.5 DESIGN INFORMATION A. Current population: <u>n/a</u> ; Design population: <u>n/a</u> B. Actual Flow: <u>1174</u> gpd; Design Average Flow: <u>1933</u> gpd; Actual Peak Daily Flow: <u>1933</u> gpd; Design Maximum Daily Flow: <u>1933</u> gpd; Design Wet Weather Event: _____	
2.6 ADDITIONAL INFORMATION A. Is a topographic map attached? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO B. Is a process flow diagram attached? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	

3.0 WASTEWATER TREATMENT FACILITY					
NAME Missouri Beef Plant, LLC		TELEPHONE NUMBER WITH AREA CODE (816)813-1767		E-MAIL ADDRESS hertzog.todd@gmail.com	
ADDRESS (PHYSICAL) 322 NW State Rt. F		CITY Butler	STATE MO	ZIP CODE 64730	COUNTY Bates
Wastewater Treatment Facility: Mo- (Outfall 1 Of 1 )					
3.1 Legal Description: SW ¼, SE ¼, SE ¼, Sec. 28, T 41N, R 31W (Use additional pages if construction of more than one outfall is proposed.)					
3.2 UTM Coordinates Easting (X): _____ Northing (Y): _____ <i>For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)</i>					
3.3 Name of receiving streams: <u>Bones Branch-Miami Creek</u>					
4.0 PROJECT OWNER					
NAME Missouri Beef Plant, LLC		TELEPHONE NUMBER WITH AREA CODE (816)813-1767		E-MAIL ADDRESS hertzog.todd@gmail.com	
ADDRESS 7133 NE Business Loop 49		CITY Butler	STATE MO	ZIP CODE 64730	
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 Same		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 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 Jeff E. Browning, PE		TELEPHONE NUMBER WITH AREA CODE (573)470-7447		E-MAIL ADDRESS jeff@alliedengineering.us	
ADDRESS P.O. Box 22		CITY Silex	STATE MO	ZIP CODE 63377	
7.0 APPLICATION FEE					
<input checked="" type="checkbox"/> CHECK NUMBER			<input type="checkbox"/> JETPAY CONFIRMATION NUMBER		
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 Todd Hertzog				DATE 12/11/20	
TITLE OR CORPORATE POSITION Member		TELEPHONE NUMBER WITH AREA CODE (816)813-1767		E-MAIL ADDRESS hertzog.todd@gmail.com	
Mail completed copy to: MISSOURI DEPARTMENT OF NATURAL RESOURCES WATER PROTECTION PROGRAM P.O. BOX 176 JEFFERSON CITY, MO 65102-0176					
<b>END OF PART A.</b>					
<b>REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHETHER PART B NEEDS TO BE COMPLETE.</b>					