

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



CONSTRUCTION PERMIT

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

Mr. Noah Gingerich
Gingerich Processing
6531 Audrain Rd 217
Centralia, MO 65240

for the construction of (described facilities):

See attached.

Permit Conditions:

See attached.

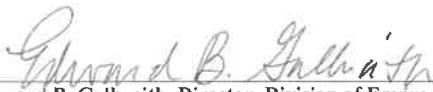
Construction of such proposed facilities shall be in accordance with the provisions of the Missouri Clean Water Law, Chapter 644, RSMo, and regulation promulgated thereunder, or this permit may be revoked by the Department of Natural Resources (Department).

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.

January 17, 2020
Effective Date


Edward B. Galbraith, Director, Division of Environmental Quality

January 16, 2022
Expiration Date


Chris Wieberg, Director, Water Protection Program

CONSTRUCTION PERMIT

I. CONSTRUCTION DESCRIPTION

Gingerich Processing wastewater treatment facility is designed to provide primary settling, coarse filtration, and land application.

Description of construction activities including sludge removal plans for lagoons during construction. Gingerich Processing will be No-Discharge utilizing land application per MO-G822 General Operating Permit to serve a deer processing and livestock slaughtering operation. The design is to provide primary settling, coarse filtration, and land application. The facility will operate from November 1 to April 1. The installation is designed to process 20 deer and 10 swine per week or approximately 5,600 pounds of live weight. The estimated flow from the cleanup area is 260 gpd. The facility includes 1,000 gallon septic tank to serve as a grease trap and settling tank with wastewater stored in an earthen basin designed for 120 days of the wastewater plus rainfall storage.

The wastewater land application rate will not exceed 0.5 inch per day. The land application area is 15.7 acres of permanent vegetation, including cool season grass Kentucky 31 or equivalent. There are movable impact sprinklers that will be used for the irrigation systems. The offal and solids will be composted with crop residue at a close location and utilized as a soil amendment.

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 Mr. Troy Chockley, with USDA NRCS 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 Northeast Regional Office per 10 CSR 20-7.015(9)(G).
5. Lagoons shall be located at least two hundred feet (200') from any dwelling or establishment.
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. See 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/ for more information.

10. All construction must adhere to applicable 10 CSR 20-8 (Chapter 8) requirements listed below.
- A septic tank must have a minimum capacity of at least one thousand (1,000) gallons. 10 CSR 20-8.180 (2) (A)
 - The septic tank shall be baffled. 10 CSR 20-8.180 (2) (B)
 - 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. 10 CSR 20-8.200 (4) (A) 4.
 - An emergency spillway must have the ability for a representative sample to be collected if a discharge occurs. 10 CSR 20-8.200 (4) (A) 4. C.
 - Unlined corrugated metal pipe shall not be used for influent lines due to corrosion problems. 10 CSR 20-8.200 (4) (D) 1.
 - The influent line(s) shall be located along the bottom of the lagoon so that the top of the pipe is just below the average elevation of the lagoon seal; however, 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 120 days wastewater storage in addition to the primary volume. 10 CSR 20-8.200 (6) (C)
 - The public shall not be allowed into an area when irrigation is being conducted; 10 CSR 20-8.200 (6) (F) 2. and
 - All network piping and low pressure distribution piping and fittings with polyvinyl chloride (PVC) shall meet ASTM Standard D 1785 *Standard Specification for Poly Vinyl Chloride (PVC) Plastic Pipe, Schedules 40, 80, or 120* as approved and published August 1, 2015, or equivalent rated to meet or exceed ASTM D2466 *Standard Specification for Poly Vinyl Chloride (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings* as approved and published August 1, 2017. These standards shall hereby be incorporated by reference into this rule, as published by ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959. This rule does not incorporate any subsequent amendments or additions. 10 CSR 20-8.200 (8) (A) 2.
11. Upon completion of construction:
- A. Mr. Noah Gingerich 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 enclosed form Statement of Work Completed to the Department in accordance with 10 CSR 20-6.010(5)(N) and submit a request for the operating permit to be issued.

IV. REVIEW SUMMARY

1. CONSTRUCTION PURPOSE

Meat processing facility that operates seasonally. The wastewater will be generated from the cleanup of the processing area. The facility is a land application with spray distribution system. The operation is a general permit MO-G822259 for Land Application of Food Processing Wastewater.

2. FACILITY DESCRIPTION

This new facility will custom for meat processing seasonally. The Gingerich Processing Facility is located at 5531 Audrain Road 217, Centralia, in Audrain County, Missouri. The facility has a design average flow of 260 gpd.

Gingerich Processing will be No-Discharge lagoon utilizing land application per MO-G822 General Operating Permit to serve a deer processing and livestock slaughtering operation. The design is to provide primary settling, coarse filtration, and land application. The facility will operate from November 1 to April 1. The installation is designed to process 20 deer and 10 swine per week or approximately 5,600 pounds of live weight. The estimated flow from the cleanup area is 260 gpd. The wastewater land application rate will not exceed 0.5 inch per day. The land application area is 15.7 acres of permanent vegetation, including cool season grass Kentucky 31 or equivalent. Movable impact sprinklers will be used for the irrigation system. The offal and solids will be composted with crop residue at a close location and utilized as a soil amendment.

3. COMPLIANCE PARAMETERS

The proposed project is required to meet the requirements of MOG822 with an expiration date of May 22, 2022. The facility will be required to monitor storage basin freeboard, daily precipitation, daily volume land applied, application area and application rate. The general permit requires the annual monitoring of the following parameters for facilities under the SIC group 20xx.

Parameter	Units	Monthly average limit
Total Kjeldahl Nitrogen	mg/L	*
Total Phosphorus as P	mg/L	*
Total Sodium	mg/L	*
Total Chloride as Cl	mg/L	*
pH	SU	6.0-9.0
Oil and Grease	mg/L	*

* Monitoring requirement only.

4. REVIEW of MAJOR TREATMENT DESIGN CRITERIA

- Gravity Sewer Line – Approximately 340 lf of 4 inch PVC pipe will be installed to connect the building to the grease interceptor and then to the storage lagoon.
- Grease Interceptor – A grease interceptor is utilized to intercept and collect grease from raw wastewater and prevents grease from clogging downstream components with an actual effective volume of 1,000 gallons. The wastewater shall flow by gravity into the lagoon. Settled solids in the tank shall be removed by a contract hauler.
- Lagoon Cell – The cell will be constructed and sealed with the clay rich soils at the basin site. The basin will have 3:1 sloping walls, the depth from the top of the berms to the lagoon floor will be 8 ft, 2 ft will serve as sludge and clay liner protection depth, and 2 ft. of freeboard plus 1 ft above emergency spillway

provides an operating depth of 3 ft. The basin is non-aerated and has a surface area of 0.186 acres and a wastewater volume of 484,737 gallons 90 ft. x 90 ft. x 8 ft deep. The estimated organic loading rate to the basin is 1,200 mg/l BOD₅.

Operating from November 1 to April 1 is approximately 151 days and using the assumption that the facility only operates five days a week, the design average dry weather flow is (1680 gallons /5 days= 336 gallons per day) during the operational period. The lagoon provides (90 ft x 90 ft x 8 ft x 7.48 gallons /336 gpd= 1442 days of storage at the dry weather flow.

The wet weather 25 year, 24 hour storm event is 5.8 inches, which translates into 3,900 cubic feet or 29,176 gallons into the lagoon. The rainfall volume (29,176 gallons /151 days= 193 gpd) in addition to the 336 gpd from the operation wastewater, makes the total inflow to the facility 529 gpd (193 gpd+ 336 gpd). At the 25 year, 24 hour storm event, the lagoon has 915 days of storage. The berm width will be 8 ft.

- Land Application Pump – A fuel engine pump will transfer treated wastewater from the lagoon to the land application site through a movable pipe. The pump is capable of operating at 40 gpm at 70 feet of TDH.
- Land Application Site – Construction of approximately 1,000 lf of 2-inch HDPE force main with cleanouts to transfer wastewater from the land application pump station to the land application site. The land application site is in the vicinity of 6531 Audrain Rd 217, Centralia City, Audrain County. The purchased land application site is approximately 15.7 acres with row crops such as cool season Kentucky 31 grass or equivalent. Maximum application rates are 0.2 inches/hour, 0.5inch/day, 1.0 inches/week, and 24 inches/year.
- Wastewater Irrigation Impact Spray Sprinkler – There are 4 movable impact sprinklers that will be utilized for the land application with a maximum spray radius of 50 feet (100 feet diameter) with maximum flow rate of 10 gpm. The typical irrigation nozzle will be mounted on a movable stand. The movable stand is to allow the sprinkler to be moved after an irrigation day of 4 hours. The typical spray pattern for the impact nozzle is a 100-foot diameter circle (7,850 square feet) and 10 gpm or 80 cubic feet per hour. This calculates to 1/8 inch (0.125 inches/hr) of supplied water per hour, which meets the application rate restrictions in MOG822.

The sprinklers will work continuously for a maximum of 4 hours per day to give the application rate (with no reduction factors) of ½ inch. The pump for the sprinklers is powered by a fuel engine.

Rain bird 30 H/30 HW with a 3/16 inch diameter nozzle operating at 40 to 55 psi at the nozzle will deliver 9.3 or 9.9 gpm at 49 or 50 feet radius. The sprinkler will use a 3/16 inch diameter nozzle with a screen with 1/8 inch and have a ¾ pipe thread fitting for connection to the supply line.

If the measured application rate is more than 1/8 inch per hour then the sprinkler nozzle will need to be reduced one size, or the operating pressure reduced in 5 psi increments.

- Cleanouts – 3 cleanouts will be used for the influent pipes. Actual location will be shown on the as-built plans. One cleanout will be placed before entering the earthen basin for maintenance. The other cleanouts will be a part of the septic tank which is a manufactured component that includes cleanout at the entrance and the exist of the tank.

5. OPERATING PERMIT

After completion of construction, submit the statement of work completed and as-builts if the project was not constructed in accordance with previously submitted plans and specifications. The facility already submitted their Form E and the operating permit fee. Upon completion of construction, request that the operating permit be issued. This facility qualifies for coverage under MOG822.

Mohammed Mohammed, M.S.
Engineering Section
Mohammed.Mohammed@dnr.mo.gov

Cindy LePage, P.E.
Engineering Section
cindy.lepage@dnr.mo.gov

APPENDIX A- Process Flow Diagram

