

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



CONSTRUCTION PERMIT

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

Dallen Davies
Missouri Prime Beef Packers WWTF
5305 Highway H
Pleasant Hope, MO 65725

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.

September 24, 2021
Effective Date


Edward B. Galbraith, Director, Division of Environmental Quality

September 23, 2023
Expiration Date


Chris Wieberg, Director, Water Protection Program

CONSTRUCTION PERMIT

I. CONSTRUCTION DESCRIPTION

Phase II will include the construction of a baffled and aerated treatment lagoon cell #4, a discharge storage cell #5, a pump house and supply lines to direct flows to three irrigation fields. Solid set sprinklers will be used to disperse the wastewater.

A closure plan will need to be submitted to the Southwest Regional Office for review and approval prior to and closure activities.

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 Brian S. Gentges P.E., with Cochran Engineering 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 Southwest Regional Office per 10 CSR 20-7.015(9)(G).
5. The completed project shall be field tested to verify actual pumped volume of each dose. The timer controls shall be set to ensure a dosing rate not to exceed the allowable rate of 0.20 gallons per square foot per day.
6. The wastewater treatment facility shall be located at least fifty feet (200') from any dwelling or establishment and fifty feet (50') from property lines.
7. The wastewater treatment facility shall be located above the twenty-five (25)-year flood level.
8. 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.
9. 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.
10. A United States Army Corps of Engineers (USACE) Clean Water Act Section 404 Department of the Army permit and a Section 401 Water Quality Certification issued by the Department may be required for the activities described in this permit. This permit is not valid until these requirements are satisfied or notification is provided that no Section 404 permit is required by the USACE. You must contact your local USACE district since they determine what waters are jurisdictional and which permitting requirements may apply. You may call the Department's Water Protection Program, Operating Permits Section at 573-522-4502 for more information. See dnr.mo.gov/env/wpp/401/ for more information.
11. In accordance with 10 CSR 20-6.010(12), a full closure plan shall be submitted to the Department's South West Regional Office for review and approval of any permitted wastewater treatment system being replaced. The closure plan must meet the requirements outlined in Standard Conditions Part III of the Missouri State Operating Permit No. MO-0113204. Closure shall not commence until the submitted closure plan is approved by the Department. Form J – *Request for Termination of a State Operating Permit*, shall be submitted to the Water Protection Program for termination of any

existing Missouri state operating permit, once closure is completed in accordance with the approved closure plan.

12. All construction must adhere to applicable 10 CSR 20-8 (Chapter 8) requirements listed below.

10 SR 20-8.130 Pumping Stations.

- Flood protection shall apply to new construction and to existing facilities undergoing major modification. 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. CSR 20-8.140(2)(B). 10 CSR 20-8.130 (2) (A)
- Facilities shall be readily accessible by authorized personnel from a public right-of-way at all times. 10 CSR 20-8.140 (2) (D). 10 CSR 20-8.130 (2) (B)
- Adequate provisions shall be made to effectively protect facility personnel and visitors from hazards. The following shall be provided to fulfill the particular needs of each wastewater treatment facility: 10 CSR 20-8.130 (2) (C)
- The distance between wastewater pumping stations and all potable water sources shall be at least fifty feet (50') in accordance with 10 CSR 23-3.010(1)(B). 10 CSR 20-8.130 (2) (D)
- Dry wells, including their superstructure, shall be completely separated from the wet well with gas tight common walls. 10 CSR 20-8.130 (3) (A) 1.
- Suitable and safe means of access to dry wells and to wet wells shall be provided to persons wearing self-contained breathing apparatus. 10 CSR 20-8.130 (3) (A) 2.
- Multiple pumps shall be provided except for design average flows of less than fifteen hundred (1,500) gallons per day. 10 CSR 20-8.130 (3) (B) 1.
- Electrical equipment. Electrical equipment shall be provided with the following requirements:
 - 10 CSR 20-8.130 (3) (B) 2. A. Electrical equipment must comply with 10 CSR 20-8.140(7)(B);
 - Provide a watertight seal and separate strain relief for all flexible cable; 10 CSR 20-8.130 (3) (B) 2. C.
 - Install a fused disconnect switch located above ground for the main power feed for all pumping stations. 10 CSR 20-8.130 (3) (B) 2. D.
 - When such equipment is exposed to weather, it shall comply with the requirements of weather proof equipment; enclosure NEMA 4; NEMA 4X where necessary; and *NEMA Standard 250-2014*, published December 15, 2014. 10 CSR 20-8.130 (3) (B) 2. E.
 - Install lightning and surge protection systems; 10 CSR 20-8.130 (3) (B) 2. F.

- Install a one hundred ten volt (110 V) power receptacle inside the control panel located outdoors to facilitate maintenance; 10 CSR 20-8.130 (3) (B) 2. G.
- Provide Ground Fault Circuit Interruption (GFCI) protection for all outdoor receptacles. 10 CSR 20-8.130 (3) (B) 2. H.
- There shall be no physical connection between any potable water supply and a wastewater pumping station, which under any conditions, might cause contamination of the potable water supply. If a potable water supply is brought to the station, No piping or other connections shall exist in any part of the wastewater treatment facility that might cause the contamination of a potable water supply. 10 CSR 20-8.130 (3) (G)
 - Hot water for any direct connections shall not be taken directly from a boiler used for supplying hot water to a digester heating unit or heat exchanger. 10 CSR 20-8.140 (7) (D) 2.
 - Where a potable water supply is to be used for any purpose in a wastewater treatment facility other than direct connections, a break tank, pressure pump, and pressure tank or a reduced pressure backflow preventer consistent with the department's Public Drinking Water Branch shall be provided. 10 CSR 20-8.140 (7) (D) 3. A.
 - For indirect connections, a sign shall be permanently posted at every hose bib, faucet, hydrant, or sill cock located on the water system beyond the break tank or backflow preventer to indicate that the water is not safe for drinking. 10 CSR 20-8.140 (7) (D) 3. B.
 - Where a separate non-potable water supply is to be provided, a break tank will not be necessary, but all system outlets shall be posted with a permanent sign indicating the water is not safe for drinking. 10 CSR 20-8.140 (7) (D) 4.
- 10 CSR 20-8.130 (4) (C) Wet well access shall not be through the equipment compartment.
- Facilities shall be readily accessible by authorized personnel from a public right-of-way at all times. 10 CSR 20-8.140 (2) (D). 10 CSR 20-8.130 (2) (B).
- Alarm systems with an uninterrupted power source shall be provided for pumping stations. 10 CSR 20-8.130 (6)
- Where independent substations are used for emergency power, each separate substation and its associated distribution lines shall be capable of starting and operating the pump station at its rated capacity. 10 CSR 20-8.130 (7) (B)
- Force main system shall be designed to withstand all pressures (including water hammer and associated cyclic reversal of stresses), and maintain a velocity of at least two feet (2') per second. 10 CSR 20-8.130 (8) (A)

10 CSR 20-8.140 Wastewater Treatment Facilities

- Flood protection shall apply to new construction and to existing facilities undergoing major modification. 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. 10 CSR 20-8.140 (2) (B)
- Unless another distance is determined by the Missouri Geological Survey or by the department's Public Drinking Water Branch, the minimum distance between wastewater treatment facilities and all potable water sources shall be at least three hundred feet (300'). 10 CSR 20-8.140 (2) (C) 1.
- Facilities shall be readily accessible by authorized personnel from a public right-of-way at all times. 10 CSR 20-8.140 (2) (D)
- All wastewater treatment facilities shall be provided with an alternate source of electric power or pumping capability to allow continuity of operation during power failures. 10 CSR 20-8.140 (7) (A) 1.
- Electrical systems and components in raw wastewater or in enclosed or partially enclosed spaces where hazardous concentrations of flammable gases or vapors that are normally present, shall comply with the NFPA 70 National Electric Code (NEC) (2017 Edition), as approved and published August 24, 2016, requirements for Class I, Division 1, Group D locations. 10 CSR 20-8.140 (7) (B)
- An audiovisual alarm or a more advanced alert system, with a self-contained power supply, capable of monitoring the condition of equipment whose failure could result in a violation of the operating permit, shall be provided for all wastewater treatment facilities. 10 CSR 20-8.140 (7) (C)
- No piping or other connections shall exist in any part of the wastewater treatment facility that might cause the contamination of a potable water supply. 10 CSR 20-8.140 (7) (D) 1.
- Hot water for any direct connections shall not be taken directly from a boiler used for supplying hot water to a digester heating unit or heat exchanger. 10 CSR 20-8.140 (7) (D) 2.
- Where a potable water supply is to be used for any purpose in a wastewater treatment facility other than direct connections, a break tank, pressure pump, and pressure tank or a reduced pressure backflow preventer consistent with the department's Public Drinking Water Branch shall be provided. 10 CSR 20-8.140 (7) (D) 3. A.
- For indirect connections, a sign shall be permanently posted at every hose bib, faucet, hydrant, or sill cock located on the water system beyond the break tank or backflow preventer to indicate that the water is not safe for drinking. 10 CSR 20-8.140 (7) (D) 3. B.

- Where a separate non-potable water supply is to be provided, a break tank will not be necessary, but all system outlets shall be posted with a permanent sign indicating the water is not safe for drinking. 10 CSR 20-8.140 (7) (D) 4.
- A means of flow measurement shall be provided at all wastewater treatment facilities. 10 CSR 20-8.140 (7) (E)
- Effluent twenty-four (24) hour composite automatic sampling equipment shall be provided at all mechanical wastewater treatment facilities and at other facilities where necessary under provisions of the operating permit. 10 CSR 20-8.140 (7) (F)
- Adequate provisions shall be made to effectively protect facility personnel and visitors from hazards. The following shall be provided to fulfill the particular needs of each wastewater treatment facility, 10 CSR 20-8.140 (8):
- The materials utilized for storage, piping, valves, pumping, metering, and splash guards, etc., for chemical handling, shall be specially selected considering the physical and chemical characteristics of each hazardous or corrosive chemical. 10 CSR 20-8.140 (9) (A) 1.

10 CSR 20-8.200 Wastewater Treatment Lagoons and Wastewater Irrigation Alternatives.

- 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 20-8.200(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 20-8.200(4)(A)4.A.
 - Is compacted and vegetated or otherwise constructed to prevent erosion; 10 CSR 20-8.200(4)(A)4.B. and
 - Has the ability for a representative sample to be collected, if discharging. 10 CSR 20-8.200(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 20-8.200(4)(B)
- The lagoon shall be sealed to ensure that seepage loss is as low as possible and has a design permeability not exceeding 1.0×10^{-7} cm/sec. 10 CSR 20-8.200(4)(C)1.

- The minimum thickness of the compacted clay liner must be twelve inches (12"). For permeability coefficients greater than 1.0×10^{-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 20-8.200(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.

- Synthetic seals thickness may vary due to liner material but the liner thickness shall be no less than two-hundredths inch (.02") or twenty (20) mil and be the appropriate material to perform under existing conditions. 10 CSR 20-8.200(4)(C)3.
- Seep collars shall be provided on drainpipes where they pass through the lagoon seal. 10 CSR 20-8.200(4)(C)4.
- 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 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 90 days wastewater storage in addition to the primary volume. 10 CSR 20-8.200 (6) (C)
- Public Access Areas. Wastewater shall be disinfected prior to irrigation (not storage) in accordance with 10 CSR 20-8.190. 10 CSR 20-8.200 (6) (F)
- The public shall not be allowed into an area when irrigation is being conducted; 10 CSR 20-8.200 (6) (F) 2. and
- 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)

13. Upon completion of construction:

- A. The Missouri Prime Beef Packers, LLC, charter #FL1433370, 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; and
- C. Submit the enclosed form Statement of Work Completed to the Department in accordance with 10 CSR 20-6.010(5)(N). When the facility applies for their next operating permit renewal or modification, 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 provide treatment for expanded flows from the meat processing plant. The design flow will increase from 106,000 gpd to 350,000 gpd generated from processing 500 head of cattle per day.

2. FACILITY DESCRIPTION

Existing infrastructure include storage basin cells #1, #2, and #3 as well as previously permitted land application fields. Following construction associated with this permit the facility will also include an aerated and baffled treatment lagoon cell #4, storage/discharge basin cell #5 and three irrigation fields.

The Missouri Prime Beef Packers WWTF is located at 5305 Highway H, City of Pleasant Hope, in Polk County, Missouri. The facility has a design average flow of 350,000 gpd and serves a hydraulic population equivalent of approximately 9,076.

3. COMPLIANCE PARAMETERS

The proposed project is required to meet effluent limitations and monitoring requirements as established in Operating Permit MO-0113204 modification that was public noticed August 13, 2021 through September 20, 2021.

4. REVIEW of MAJOR TREATMENT DESIGN CRITERIA

Existing infrastructure:

- Lagoon Cell No. 1 – Lagoon Cell No. 1 is non-aerated and has a surface area of 2.44 acres and a wastewater volume of 3,908,335 gallons. This cell has 1 ft. of freeboard, 9.2 ft. of operating depth, and average 0.79 ft. of sludge depth, and a clay liner.
- Lagoon Cell No. 2 – Lagoon Cell No. 2 is non-aerated and has a surface area of 2.21 acres and a wastewater volume of 3,160,346 gallons. This cell has 1 ft. of freeboard, 9.2 ft. of operating depth, and average 0.59 ft. of sludge depth, and a clay liner.

Existing cells 1 and 2 have approximately 7,068,681 gallons of storage as designed.

Infrastructure Permitted February 1, 2021 per CP0002194:

- Storage Basin #3 (SB3) – The Earthen Basin will be constructed and sealed with a clay liner. A Geohydrologic Evaluation was conducted on November 5, 2020 for the proposed basin location and received moderate collapse potential and overall geologic limitations ratings. The basin will have 3:1 side slopes, a depth from the top of the berm to the lagoon floor of 18 ft., with 1 ft. for sludge depth, and 2 ft. of freeboard plus 1 feet above emergency spillway. The usable storage depth is 15 ft. The basin has a surface area of approximately 4.26 acres, and a volume of 15,727,741 gallons. The basin soil seal thickness will be constructed in accordance with 10 CSR 20-200(4)(C)2.

- Flows from existing lagoon cells 1 and 2 flow by gravity to SB3 through approximately 551 lf of 8-in. PVC SDR-35 and 111 ft. of 8 in. ductile iron pipe. One manhole, two cleanouts, and one valve vault will be included in the transfer piping layout between existing lagoon 1 and SB3. The ductile iron pipe will pass through the berm of SB3 from a valve vault just outside the berm to the pipe outlet along the floor elevation of SB3. Piping will be buried minimum of 36 in. below ground surface.
- The current permit lists 4 monitoring wells on site. Monitoring wells to be decommissioned will be done so in accordance with the Missouri Geological Survey policies.

Treatment components reviewed and approved by this construction permit:

- Lagoon Cell No. 4 – Lagoon Cell No. 4 will be constructed and sealed with clay rich soils at the basin site as well as the addition of 4 lbs/ft² of bentonite to ensure regulatory permeability requirements for the seal. The basin will have 3:1 sloping walls, the depth from the top of the berms to the lagoon floor will be 17 ft., 2 ft. will serve as sludge and clay liner depth, and 2 ft. of freeboard plus 1 feet above emergency spillway provides an operating depth of 12 ft. The basin is baffled into 3 subcells. A Bioworks Oxiworks High Efficiency Fine Bubble Diffuser System will be implemented in subcells 1 and 2. All diffusers shall be fine bubble and provide an airflow rate of 2,800 SCFM to the complete mix cell 1 and 80 SCFM in the partial mix cell 2. Air supply for the fine bubble diffusers in subcells 1 and 2 is provided by 3 rotary lobe blowers house on a pad located on the berm near the influent pipe to the lagoon. The lagoon has an approximate length at the top of the berm is 624 ft. and a width of approximately 207 ft. The approximate surface area of the lagoon at the berm is 3.0 acres. The lagoon will have a hydraulic retention time of 30 days and is controlled by curtain windows in the baffles.
 - Cell 1 is designed to be a complete mix aerated cell. From the inside top of berm to the first baffle and has a surface area of approximately 1.1 The cell is fitted with 10 floating laterals and 10 submerged diffuser assemblies per lateral. The oxiworks diffusers will contain 4 membranes.
 - Cell 2 is designed to be a partial mix aerated cell. From the inside top of berm to the first first baffle and has a surface area of approximately 1.1 acres. The cell is fitted with 6 floating laterals and 9 submerged diffuser assemblies per lateral. The Oxiwork diffusers will contain two membranes.
 - Cell 3 is designed to provide anoxic conditions. From the inside top of berm to the first first baffle and has a surface area of approximately 0.8 acres. The emergency spillway for the full treatment lagoon as located at the transition point between the treatment lagoon and cell 5.
- Transfer Pipes-
 - Cell 4 to Cell 5: flows from Cell 4 will be transmitted to Cell 5 via approximately 29 ft. of 8 in. ductile iron pipe. The pipe will be set at the max. operating level of 1085 ft. in Cell 4 and enter Cell 5 at elevation of 1084 ft. An 8 in. M.J. gate valve will be installed in-line.

- Cell 5 to Pump House: 135 ft. of 12 in. ductile iron pipe will transfer flows to the pump house. The pipe will exit Cell 5 at an elevation of 1,070 ft. and be set on a grade of 6.7%. A 12 in. M.J. gate valve will be placed on the pipe at the entrance to the pump house.
 - Pump House to Storage Basin 3 (SB3): Class 200 PVC, SDR-21, 4 in. diameter forcemain. This forcemain will be constructed to pump flows of treated wastewater that have passed through Aerated Lagoon Cell 4 back to SB3 during winter months when freeze conditions do not allow for land application. When conditions are suitable for land application, the treated wastewater stored in SB3 will be transported back to Cell 5 by an existing 124 ft., 12 in. ductile iron pipe, fitted with a 12 in. M.J. gate valve.
 - Trash Pump: During the first year of operation, the separately permitted SB3, will receive flows from the plant to store until the treatment lagoon cell 4 and land application systems are constructed in accordance with this construction permit. Once the treatment components subject to this permit have been constructed and the associated operating permit modification.
- Storage Basin Cell No. 5 - Cell No. 4 will be constructed and sealed with clay rich soils at the basin site as well as the addition of 4 lbs/ft² of bentonite to ensure regulatory permeability requirements for the seal. The basin will have 3:1 sloping walls, the depth from the top of the berms to the lagoon floor will be 19 ft, 1 ft will serve as sludge and clay liner depth, and 2 ft of freeboard plus 1 feet above emergency spillway provides an operating depth of 15 ft. The basin is non-aerated and has a surface area of 1.67 acres and a wastewater storage volume of 4,746,629 gallons. The berm width will be 8 ft. A transfer pipe from Cell #5 to the pump house will be 135 ft. of 12 in. DIP and on a slope of approximately 6.7%.
 - Land Application Pump House – Construction of a triplex pump station to transfer treated wastewater from storage basin cell #5 to the land application site as well as returning treated effluent from cell #4 to storage basin cell #3 during periods when land application is not permissible. Flows from cell #5 enter the pump house via 12 in. DIP. A 12 in. MJ gate valve will be placed on the line. Following the gate valve the influent line will be split by a MJ cross tee reducing to 3 separate 6 in. diameter DIP connected to three Flowserve pumps, model 4LR-11A, 8.5 in diameter impeller. The influent end of each pump will be fitted with a 6 in. diameter gate valve. Each pump has a capacity of 750 gmp at a head of 260 ft. The pumps are rated for 100 hp.
 - A pressure switch will be mounted on the effluent side of each pump for monitoring purposes. Piping on the effluent side of the pumps will be 4 in. diameter DIP and each effluent pump line will be split into 4 supply lines; one pressure line providing flow return capacity to SB#3 when irrigation is not allowed and 3 separate lines providing flow diversion to the three separate land application areas. Each of the supply line leaving each pump will be fitted with a 4 in. gate valve to divert flows as necessary. A 4 in. to 8 in. reducer will be placed on each line feeding the 3 application fields and return line to the SB#3.

- Land Application Site – Construction of 3 land application irrigation fields with solid set sprinklers. The distribution piping will be 4-inch PVC, class 200, SDR-21 force main with cleanouts and air release valves to transfer wastewater from the land application pump station to the land application site. A total of 109 acres divided into 3 zones will be utilized for irrigation of wastewater. The sprinklers will be set with a height 5 ft above existing grade. This site is unfenced. Maximum application rates are 0.20 gpd/ft², 1.33 inch/day, 3 inches/week, and 32 inches/year. The irrigation field soils were evaluated by Tom DeWitt with Soil Management Services to establish the appropriate loading rates and available land area for application.
 - Application Field A – approximately 42.5 acres located north of the lagoon system with approximate UTM coordinates: 476235 easting, 4148604 northing. Approximately 8,800 lf of 4 in. diameter PVC forcemain lateral lines will direct flows to 48 New Nelson Big Gun 75-Seriex fixed irrigation heads.
 - Application Field B – approximately 42.7 acres located north of the lagoon system with approximate UTM coordinates: 476141 easting, 4148209 northing. Approximately 9,600 lf of 4 in. diameter PVC forcemain lateral lines will direct flows to 55 New Nelson Big Gun 75-Seriex fixed irrigation heads.
 - Application Field C – approximately 23.5 acres located north of the lagoon system with approximate UTM coordinates: 475962 easting, 4147614 northing. Approximately 2,900 lf of 4 in. diameter PVC forcemain lateral lines will direct flows to 16 New Nelson Big Gun 75-Seriex fixed irrigation heads.

5. OPERATING PERMIT

Operating permit MO-0113204 will require a modification to reflect the construction activities. The modified Missouri Prime Beef Packers WWTF, MO-0113204, was successfully public noticed from August 13, 2021 to September 20, 2021 with no comments received. 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.

V. NOTICE OF RIGHT TO APPEAL

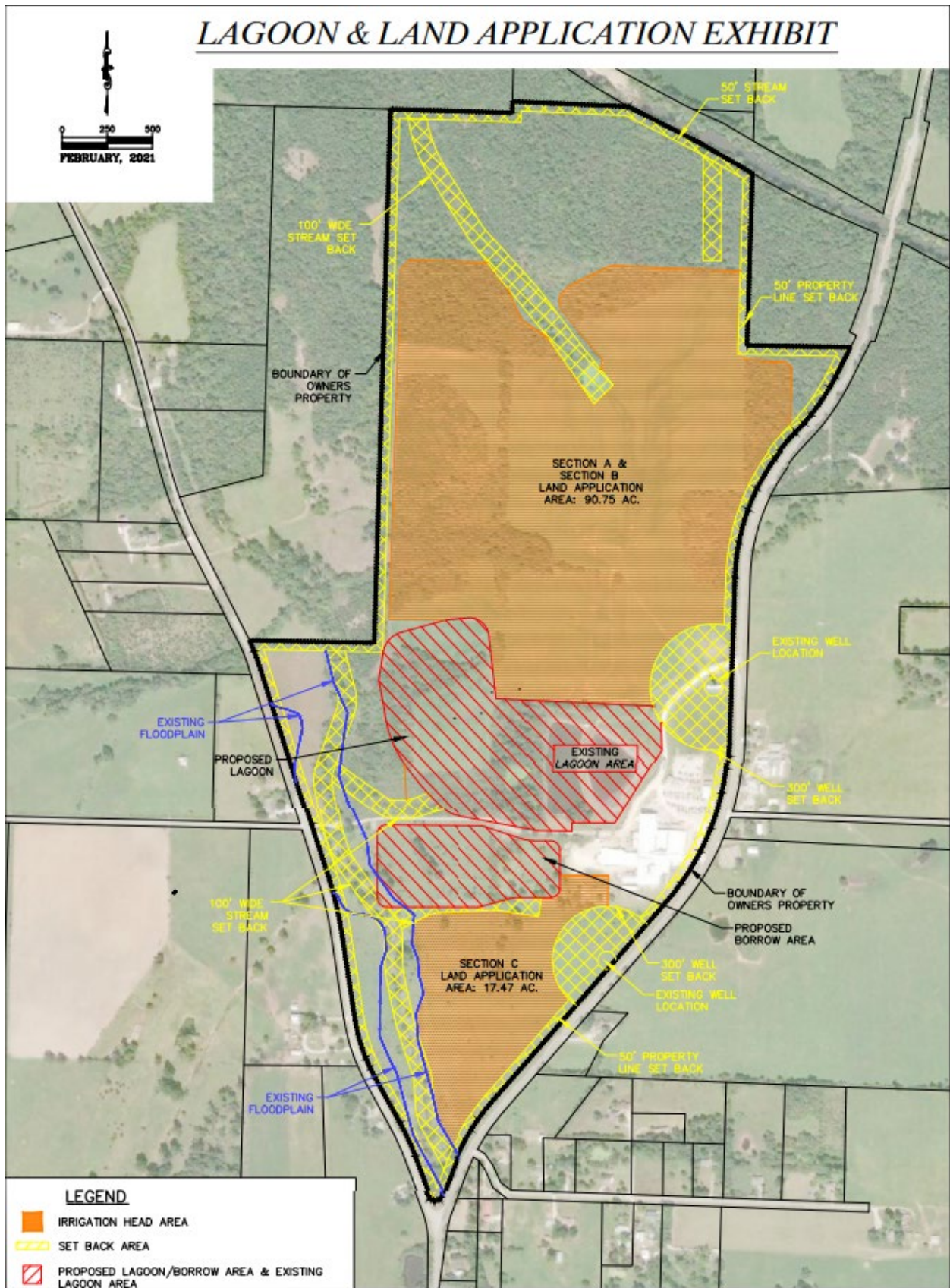
If you were adversely affected by this decision, you may be entitled to an appeal before the Administrative Hearing Commission (AHC) pursuant to Section 621.250 RSMo. To appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, 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:

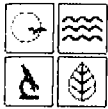
Administrative Hearing Commission
U.S. Post Office Building, Third Floor
131 West High Street, P.O. Box 1557
Jefferson City, MO 65102-1557
Phone: 573-751-2422
Fax: 573-751-5018
Website: <https://ahc.mo.gov>

Aaron Sawyer
Engineering Section
aaron.sawyer@dnr.mo.gov

Cailie Carlile, P.E.
Engineering Section
cailie.carlile@dnr.mo.gov

Appendix A: Site Map and Process Flow Diagram





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	CHECK NO.
DATE RECEIVED	

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 _____
- 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: MO-113204
 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 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 Prime Beef Packers	2.2 ESTIMATED PROJECT CONSTRUCTION COST \$ 2,350,000
--	---

2.3 PROJECT DESCRIPTION
 A new treatment lagoon and discharge/storage basin will be built to treat the waste water coming from the plant. A new spray irrigation system will be installed to distribute the water. For more information, please see "Description of Need" in the Facility Plan.

2.4 SLUDGE HANDLING USE AND DISPOSAL DESCRIPTION
 Sludge will be stored in the new treatment lagoon. The sludge will be disposed of by contract hauler once 12"-24" has accumulated.

2.5 DESIGN INFORMATION
 A. Current population: None; Design population: None
 B. Actual Flow: None gpd; Design Average Flow: 350k gpd;
 Actual Peak Daily Flow: None gpd; Design Maximum Daily Flow: 350k gpd; Design Wet Weather Event: 10yr

2.6 ADDITIONAL INFORMATION
 A. Is a topographic map attached? YES NO
 B. Is a process flow diagram attached? YES NO

3.0 WASTEWATER TREATMENT FACILITY

NAME Missouri Prime Beef Packers		TELEPHONE NUMBER WITH AREA CODE 541-390-7034	E-MAIL ADDRESS ddavies@mpbeef.com	
ADDRESS (PHYSICAL) 5305 Highway H	CITY Pleasant Hope	STATE MO	ZIP CODE 65725	COUNTY Polk
Wastewater Treatment Facility: Mo- 0113204 (Outfall 1 Of 1)				
3.1 Legal Description: <u>SW ¼, SW ¼, SW ¼, Sec. 20, T 32N, R 21W</u> (Use additional pages if construction of more than one outfall is proposed.)				
3.2 UTM Coordinates Easting (X): <u>476096</u> Northing (Y): <u>4147935</u> For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)				
3.3 Name of receiving streams: <u>Tributary to Pomme de Terre River</u>				

4.0 PROJECT OWNER

NAME Missouri Prime Beef Packers		TELEPHONE NUMBER WITH AREA CODE 541-390-7034	E-MAIL ADDRESS ddavies@mpbeef.com	
ADDRESS 5305 Highway H	CITY Pleasant Hope	STATE MO	ZIP CODE 65725	

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 Missouri Prime Beef Packers		TELEPHONE NUMBER WITH AREA CODE 541-390-7034	E-MAIL ADDRESS ddavies@mpbeef.com	
ADDRESS 5305 Highway H	CITY Pleasant Hope	STATE MO	ZIP CODE 65725	

5.1 A letter from the continuing authority, if different than the owner, is included with this application. YES NO 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? YES 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? YES 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? YES 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? YES NO

D. Is a copy of the Missouri Secretary of State's nonprofit corporation certificate included with this application? YES NO

6.0 ENGINEER

ENGINEER NAME / COMPANY NAME Cochran Engineering		TELEPHONE NUMBER WITH AREA CODE 636-584-0540	E-MAIL ADDRESS dvanleer@cochraneng.com	
ADDRESS 530A East Independence Drive	CITY Union	STATE MO	ZIP CODE 63084	

7.0 APPLICATION FEE

CHECK NUMBER

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
Dallen Davies

DATE
03-22-2021

TITLE OR CORPORATE POSITION Owner	TELEPHONE NUMBER WITH AREA CODE 541-390-7034	E-MAIL ADDRESS ddavies@mpbeef.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.