

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. Dennis Barry
Facility Maintenance Supervisor
Lonedell R-14 School District
7466 Highway FF
Lonedell, MO 63060

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.

July 02, 2019
Effective Date


Edward B. Galbraith, Director, Division of Environmental Quality

July 1, 2021
Expiration Date


Chris Wieberg, Director, Water Protection Program

CONSTRUCTION PERMIT

I. CONSTRUCTION DESCRIPTION

The proposal includes the closure of the existing two-cell lagoon and the installation of a subsurface drip dispersal treatment system. The existing two (2) septic tanks will be used for pretreatment. Construction will include four (4) aerated treatment tanks, three (3) pump tanks, and the drip dispersal field.

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

While this facility is a publically-owned treatment works, the Department is not required to complete a cost analysis for compliance because the permittee accomplishes capital improvements through an established budget for operation and maintenance and not through the issuance of utility bills to customers for sewer services.

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 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 St. Louis 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 0.1 gallons per square foot per day.
6. The wastewater treatment facility shall be located at least fifty feet (50') from any dwelling or establishment.
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 (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.
11. In accordance with 10 CSR 20-6.010(12), a full closure plan shall be submitted to the Department's St. Louis 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-0037087. Closure shall not commence until the submitted closure plan is approved by the Department.

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

- Subsurface systems shall—
 - Exclude unstabilized fill and soils that have been highly compacted and/or disturbed, such as old road beds, foundations, or similar things; 10 CSR 20-8.200 (7) (A) 1. A.
 - Provide adequate surface drainage where slopes are less than two percent (2%); 10 CSR 20-8.200 (7) (A) 1. B.
 - Provide surface and subsurface water diversion where necessary, such as a curtain or perimeter drain; 10 CSR 20-8.200 (7) (A) 1. C. and
 - Have a ten foot (10') buffer from the property line. 10 CSR 20-8.200 (7) (A) 1. D.
- The vertical separation between the bottom of the drip lines and/or the trench and a limiting layer, including but not limited to, bedrock; restrictive horizon; or seasonal high water table, shall be no less than:
 - Twenty-four inches (24"); 10 CSR 20-8.200 (7) (A) 2. A. or
 - Twelve inches (12") for systems dispersing secondary or higher quality effluent; 10 CSR 20-8.200 (7) (A) 2. B. or
 - Forty-eight inches (48") where karst features are present unless the site can be reclassified. 10 CSR 20-8.200 (7) (A) 2. C.
- Subsurface systems shall be, at a minimum, preceded by preliminary treatment. 10 CSR 20-8.200 (7) (B)
- Loading rates shall not exceed the values assigned by the site and soil evaluation. 10 CSR 20-8.200 (7) (C)
- The location and size of the drains and buffers must be factored into the total area required for the drip dispersal system. 10 CSR 20-8.200 (9) (A) 1.
- The drip dispersal lines shall be placed at a minimum depth of six inches (6") below the surface. 10 CSR 20-8.200 (9) (B) 1.
- Emitters and drip dispersal lines shall be placed at a minimum on a two foot (2') spacing to achieve even distribution of the wastewater and maximum utilization of the soil. 10 CSR 20-8.200 (9) (B) 2.

13. Upon completion of construction:

- A. The Lonedell R-14 School District 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) with a letter requesting that the modified operating permit be issued.

IV. REVIEW SUMMARY

1. CONSTRUCTION PURPOSE

The purpose of the construction project is to comply with final effluent limitations for Ammonia and *E. coli* as established in Operating Permit MO-0037087, which are scheduled to become effective on August 1, 2020. Upon issuance of the modified operating permit, these requirements will be removed as they are not applicable to the proposed no-discharge treatment system.

2. FACILITY DESCRIPTION

The Lonedell R-14 School District WWTF is located at 7466 Highway FF, Lonedell City, in Franklin County, Missouri. The facility has a design average flow of 5,400 gallons per day (gpd) and serves a hydraulic population equivalent of approximately 130 people. The existing facility consists of two (2) septic tanks and a two-cell facultative lagoon. The proposed construction involves the closure of the existing two-cell lagoon and the construction of a subsurface drip irrigation system. The design flow will remain 5,400 gpd. The two (2) existing septic tanks will remain in use for pretreatment. Following pretreatment, the flow will be sent to four (4) new individual aerated treatment tanks. The treated effluent will then flow from each aerated tank to three (3) new pump tanks, which will contain a total of four (4) pumps for dispersal to the new drip irrigation field. The drip irrigation field will consist of twelve (12) 4,500 square foot zones for a total treatment area of 54,000 square feet. The existing two-cell lagoon will be closed.

3. COMPLIANCE PARAMETERS

The proposed project is required to meet the conditions established in Operating Permit MO-0037087 public noticed from May 24, 2019 to June 24, 2019.

4. REVIEW of MAJOR TREATMENT DESIGN CRITERIA

- Septic Tanks – A septic tank provides passive primary treatment as the settleable solids in raw wastewater settle onto the bottom of the tank. Raw wastewater will flow by gravity to the two (2) existing septic tanks. One tank has a volume of 13,000 gallons and the other has a volume of 1,500 gallons, for a total capacity of 14,500 gallons. Settled solids in the septic tanks shall be removed by a contract hauler.
- Aerated Tanks – Four (4) new 1,500 gallons per day rated Class 1 aerated tanks will be installed behind a distribution box. The pretreated domestic waste will flow from a distribution box into each reinforced pre-cast concrete tank with an inlet tee. Each of the four tanks will include one of the following aeration devices: JET J-1,500 with two (2) aerators, Norweco Singulair Model 960, or approved equivalent.

- Pump Tanks – Two (2) new pre-cast concrete 3,500 gallon pump tanks each containing two (2) pumps and one (1) additional 3,500 gallon storage tank for a total storage capacity of 10,500 gallons. Pump sizing is based on 21 gpm at 127.5 feet of Total Dynamic Head. Under normal operating conditions, the pumps shall operate on timed dosing. A system of at least three (3) floats shall be included, providing controls for high and low usage conditions. An alarm system consisting of a bell and a light mounted on the structure shall be included.
- Headworks – Four (4) new filter system valve headworks will follow the pump tanks. The WASTEFLOW Headworks section is a pre-assembled unit including the BioDisc Filter-WHWS-15F-A2, valves, and pressure gauge in a box, supplied by Geoflow, Inc. The units shall be insulated to prevent freezing. Four new die-cast metal 3-way zone valves, K-Rain Model No. 6403, will be installed downstream of each of the headworks to serve three (3) separate zones. The valves shall be installed in a 20-inch diameter PVC pit with a lid above grade to prevent infiltration of overland flow.
- Subsurface Soil Dispersal System – The soils at this site are rated for 0.1 gpd/sf. Soil morphology review was conducted during the facility plan application review and on site soils were determined to be acceptable for this system. The soil investigation was completed by Chris Chapman, Certified Soil Scientist with Show Me Soils on November 8, 2018.
 - Soils Report. In the soils investigation, there were six pits dug over the proposed site. All six sites were determined to be provisionally suitable to an alternative onsite wastewater system with the installation of a swale and curtain drain upslope of the drain field a minimum of 10 feet at a depth of 36 inches.
 - Letter From Soil Scientist. The drip dispersal site was excavated and cleared prior to installation of the drip dispersal system with approval from the Certified Soil Scientist, Chris Chapman. The clearing of the site did not alter the application rate of 0.1 gpd/sf (see Appendix).
- Drip – The facility has selected the Geoflow subsurface drip dispersal system. The system will dose 12 zones at 0.1 gpd/sq. ft, which provides two (2) dosings per day per zone. Each zone is 0.103 acres, for a total of 1.24 acres. Each of the four (4) pumps will dose three (3) zones, one (1) zone at a time, and will alternate dosing throughout a 24-hour period. Combo air/vacuum release valves will be installed on the high point of each zone. Driplines shall consist of WFPC 16-2-24 Wasteflow PC pipe.

The drip field area is 54,000 square feet and contains 27,000 linear feet of 0.5 inch low density polyethylene tubing fitted with emitters every 2 ft and capable of a loading at peak flow of less than 0.1 gallons per sq. foot per day.

5. OPERATING PERMIT

Operating permit MO-0037087 will require a modification to reflect the construction activities. The modified Lonedell R-14 School District WWTF, MO-0037087, was successfully public noticed from May 24, 2019 to June 24, 2019 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.

Ellen Modglin, E.I.
Engineering Section
Ellen.Modglin@dnr.mo.gov

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

APPENDIX (Letter From Soil Scientist)

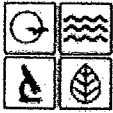


Lonedell R-14 School

- **This letter is to inform all concerned parties that the excavation and clearing of the proposed drain field area did not alter the application rate of 0.1. The clearing was done in a more than professional way leaving all of the top soil in place and little to no mixing of the soil horizons occurred. I have no issues with the clearing that was done and believe it to have been the best action that could have been taken prior the drain field being installed.**

Chris Chapman (Owner)
Licensed OWTS OSE #10099





MISSOURI DEPARTMENT OF NATURAL RESOURCES
 WATER PROTECTION PROGRAM
APPLICATION FOR CONSTRUCTION PERMIT - 7 2019
WASTEWATER TREATMENT FACILITY

Water Protection Program

FOR DEPARTMENT USE ONLY	
APP NO. 32415	CP NO. CP0002070
LETT \$1000.00	CHECK NO. 43041
DATE RECEIVED 5-7-19	

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: 3-29-19 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: 4-18-19
 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 Sanitary Treatment Plans for Lonedell R-14 School, Franklin County, MO	2.2 ESTIMATED PROJECT CONSTRUCTION COST \$ 225,000.00
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2.3 PROJECT DESCRIPTION
An on-site soil absorption septic system (drip irrigation) for a school with design flow of 5,400 GPD, and an actual flow of 3,500 GPD.

2.4 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION
Sludge will be stored in (2) pretreatment tanks, with periodic disposal by a DNR permitted hauler to a permitted disposal site.

2.5 DESIGN INFORMATION
 A. Current population: _____; Design population: 130
 B. Actual Flow: 3500 gpd; Design Average Flow: 5400 gpd;
 Actual Peak Daily Flow: _____ gpd; Design Maximum Daily Flow: _____ gpd; Design Wet Weather Event: _____

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 Lonedell R-14 School District		TELEPHONE NUMBER WITH AREA CODE 636-629-0401	E-MAIL ADDRESS dbarry@lonedell.org	
ADDRESS (PHYSICAL) 7466 Highway FF	CITY Lonedell	STATE MO	ZIP CODE 63060	COUNTY Franklin
Wastewater Treatment Facility: Mo- 0037087 (Outfall 001 Of 1)				
3.1 Legal Description: <u> </u> ¼, <u>NE</u> ¼, <u>SE</u> ¼, Sec. <u>17</u> , T <u>41N</u> , R <u>2E</u> (Use additional pages if construction of more than one outfall is proposed.)				
3.2 UTM Coordinates Easting (X): <u>690705</u> Northing (Y): <u>4240303</u> For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)				
3.3 Name of receiving streams: <u> </u>				

4.0 PROJECT OWNER

NAME Lonedell R-14 School District		TELEPHONE NUMBER WITH AREA CODE 636-629-0401	E-MAIL ADDRESS dbarry@lonedell.org	
ADDRESS 7466 Highway FF	CITY Lonedell	STATE MO	ZIP CODE 63060	

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 Lonedell R-14 School District		TELEPHONE NUMBER WITH AREA CODE 636-629-0401	E-MAIL ADDRESS dbarry@lonedell.org	
ADDRESS 7466 Highway FF	CITY Lonedell	STATE Mo	ZIP CODE 63060	

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 David Van Leer, P.E. /Cochran		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
Dennis Barry

DATE
4-29-2019

TITLE OR CORPORATE POSITION Facility Maintenance Supervisor	TELEPHONE NUMBER WITH AREA CODE 636-629-0401	E-MAIL ADDRESS dbarry@lonedell.org
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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.