

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



CONSTRUCTION PERMIT

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

Doe Run Brushy Creek Mine & Mill
10827 Highway KK
Bunker, MO 63629

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.

June 22, 2017
Effective Date


Edward B. Galbraith, Director, Division of Environmental Quality

June 21, 2032
Expiration Date


David J. Lamb, Acting Director, Water Protection Program

CONSTRUCTION PERMIT

I. CONSTRUCTION DESCRIPTION

Doe Run is constructing a new impoundment and dam at the Brushy Creek Mine and Mill to store mine tailings. The basin will be 154 acres on the Lick Creek watershed. The stability and geotechnics of the dam are being evaluated by the Department's Water Resources Dam Safety Program, and Doe Run cannot start construction until Dam Safety issues a permit to allow the construction of the dam. The Dam Safety program evaluated the design storm event of 0.75 PMP and amount of freeboard expected in the new impoundment. The Department's Environmental Geology Section completed a geohydrological evaluation of the impoundment site and gave the site a moderate rating for overall geologic limitations. The basin is not over underground mining operations.

The new impoundment will operate as no-discharge, with water being pumped to the existing tailings impoundment and then to the CoMag treatment facility before ultimate discharge through Outfall No. 001. The facility is constructing a new spillway to handle flows from extreme weather events (Outfall No. 005).

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 in accordance with the plans and specifications submitted by Golder & Associates on February 14, 2017.
3. The department must be contacted in writing prior to making any changes to the approved plans and specifications that would directly or indirectly have an impact on the capacity, flow, system layout, or reliability of the proposed wastewater treatment facilities or any design parameter that is addressed by 10 CSR 20-8, in accordance with 10 CSR 20-8.110(8).

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 Southeast Regional Office per 10 CSR 20-7.015(9)(E)2.
5. This construction permit is invalid for projects required to comply with the requirements contained in 10 CSR 20-4, "Grants and Loans"
6. Protection of drinking water supplies shall be in accordance with 10 CSR 20-8.120(10). "There shall be no physical connections between a public or private potable water supply system and a sewer, or appurtenance thereto which would permit the passage of any wastewater or polluted water into the potable supply. No water pipe shall pass through or come in contact with any part of a sewer manhole."
7. Sewers in relation to water works structures shall meet the requirements of 10 CSR 23-3.010 with respect to minimum distances from public water supply wells or other water supply sources and structures.
 - A. Sewer mains shall be laid at least 10 feet horizontally from any existing or proposed water main. The distances shall be measured edge-to-edge. In cases where it is not practical to maintain a 10 foot separation, the department may allow a deviation on a case-by-case basis, if supported by data from the design engineer. Such a deviation may allow installation of the sewer closer to a water main, provided that the water main is in a separate trench or on an undisturbed earth shelf located on either side of the sewer and at an elevation so the bottom of the water main is at least 18 inches above the top of the sewer. If it is impossible to obtain proper horizontal and vertical separation as described above for sewers, the sewer must be constructed of slip-on or mechanical joint pipe or continuously encased and be pressure tested to 150 pounds per square inch to assure water tightness.
 - B. Manholes should be located at least 10 feet horizontally from any existing or proposed water main.
 - C. Manholes shall be located with the top access at or above grade level.
 - D. Sewers crossing water mains shall be laid to provide a minimum vertical distance of 18 inches between the outside of the water main and the outside of the sewer. This shall be the case where the water main is either above or below the sewer. The crossing shall be arranged so that the sewer joints will be equidistant and as far as possible from the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer to maintain line and grade. When it is impossible to obtain proper vertical separation as stipulated above, one of the following methods must be specified:
 - a. The sewer shall be designed and constructed equal to the water pipe and shall be pressure tested to assure water tightness prior to backfilling; or
 - b. Either the water main or sewer line may be continuously encased or enclosed in a watertight carrier pipe which extends 10 feet on both sides of the crossing, measured perpendicular to the water main. The carrier pipe shall be of materials approved by the department for use in water main construction.

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 www.dnr.mo.gov/env/wpp/epermit/help.htm. See www.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. The facility shall not initiate construction activities covered in this permit 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 www.dnr.mo.gov/env/wpp/401/ for more information.
10. Upon completion of construction:
 - A. Doe Run will become the continuing authority for operation, maintenance, and modernization of these facilities;
 - B. Submit the enclosed form Statement of Work Completed to the department in accordance with 10 CSR 20-6.010(5)(D); and
 - C. Submit an electronic copy of the as built of the project.

IV. REVIEW SUMMARY

1. CONSTRUCTION PURPOSE

The Brushy Creek Mine & Mill has submitted a construction permit application, CP0001852, for the construction of a new earthen basin to support the mining and milling operations onsite. The proposed earthen basin will be located adjacent to the existing settling basin. The proposed new earthen basin will be 154 acres. The site has received a moderate geohydrological rating from the Missouri Geological Survey. The proposed basin has a design application under review by the Department's Water Resources Dam Safety Program. The proposed basin received its modified Department Water Quality Certification on December 28, 2016. As of May 5, 2017, the facility is still awaiting approval from US Corps of Engineers-Little Rock District. The proposed basin will not be located above any underground mine workings.

The facility received an Antidegradation determination on May 6, 2016 which stated the water collected in the basin will receive treatment through Outfall No. 001 and the emergency spillway will only discharge with extreme weather conditions, Antidegradation was not required.

The new impoundment is planned for construction on Lick Creek upstream of the existing impoundment. The proposed new impoundment will be about 154 acres and will have an emergency spillway, Outfall No. 005. It will be piped to the other impoundment for treatment and ultimate discharge through Outfall No. 001.

2. COMPLIANCE PARAMETERS

The new impoundment will operate as no-discharge, with water being pumped to the existing tailings impoundment and then to the CoMag treatment facility before ultimate discharge through Outfall No. 001. The facility is constructing a new spillway to handle flows from extreme weather events (Outfall No. 005). If it discharges, it will be required to meet the following effluent limits.

PARAMETERS	UNIT	DAILY MAXIMUM	MONTHLY AVERAGE	SAMPLE TYPE
PHYSICAL				
FLOW	MGD	*	*	ESTIMATE
PRECIPITATION	INCHES	*	*	MEASURE
CONVENTIONAL				
pH	SU	6.5-9.0	6.5-9.0	GRAB
TSS	MG/L	30	20	GRAB
METALS				
CADMIUM, TR	µg/L	0.7	0.3	GRAB
COPPER, TR	µg/L	20.8	10.4	GRAB
LEAD, TR	µg/L	10.9	5.4	GRAB
MERCURY, TR	µg/L	2	1	GRAB
ZINC, TR	µg/L	195.0	97.0	GRAB

3. REVIEW of MAJOR TREATMENT DESIGN CRITERIA

Doe Run is constructing a new impoundment and dam at the Brushy Creek Mine and Mill to store water from the mines along with tailings. The basin will be 154 acres on the Lick Creek watershed. The stability and geotechnics of the dam are being evaluated by the department's Water Resources Dam Safety Program, to allow the construction of the dam. The Dam Safety program evaluates the design storm event of 0.75 PMP and amount of freeboard expected in the new impoundment.

The department's Environmental Geology Section completed a geohydrological evaluation of the impoundment site and gave the site a moderate rating for overall geologic limitations. The basin is not over underground mining operations.

The compacted soil liner will be compacted in 9 inch lifts until the 36 inch (3 ft) thickness is achieved. The compacted soil permeability will meet the requirements of 10 CSR 20-8.200(C)(1) of 1×10^{-7} cm/sec, according to the borings and test pits that Doe Run collected to support the construction of the basin. Doe Run collected 50 borings to characterize the soil, which had the 3 main soil characteristics of predominately gravelly clay (CH), predominately silty gravelly clay (CH), and coarse-grained gravel and sand (GM/SM). 17 test pits were collected in August and September 2016 for visual analysis and characterization, determining remodeled permeability (ASTM D5084), standard proctor (ASTM D698), and modified proctor (ASTM D1557). The predominately gravelly clay and predominately silty gravelly clay will comprise the compacted soil liner. The borrow source for the soils is the area surrounding the new impoundment, which is an estimated quantity of 450,000 cubic yards.

The Acceptable Permeability Zone approach was utilized to calculate the target compaction criteria based on the Proctor density and the hydraulic conductivity testing of the borrow materials. The compacted samples were tested at approximately 95% maximum dry unit weight and wet of optimum moisture content. From there Golder developed a chart to encompass moisture-density points where the compaction met the hydraulic conductivity. The chart developed the target compaction criteria to meet the permeability of 1×10^{-7} cm/sec. To meet the hydraulic conductivity of 1×10^{-7} cm/sec, utilizing the Acceptable Permeability Zone, the moisture content vs. dry unit weight needs to follow in the set zone of:

- At moisture content at 15%, the dry unit weight needs to be 115 pcf ;
- At moisture content at 20%, the dry unit weight needs to be 100 pcf to 108 pcf;
- At moisture content at 25%, the dry unit weight needs to be 92 pcf to 98 pcf;
- At moisture content at 30%, the dry unit weight needs to be 85 pcf to 92 pcf; and
- At moisture content at 35%, the dry unit weight needs to be 85 pcf.

Moisture contents below 15% and above 40% and dry unit weights below 80 pcf are not in the Acceptable Permeability Zone.

The specifications submitted require that every 10,000 cubic yards placed have a soil sample collected and tested for Atterberg limits, grain size analysis, soil classification, and natural moisture content. For every 20,000 cubic yards placed, an undisturbed sample of compacted soil must be collected and have hydraulic conductivity testing conducted. In place moisture content and dry density of soil liner must be performed on a 400 ft grid to verify results. The testing frequencies designated in the specifications do deviate from the recommended minimums established by Daniel and Koerner (1995); however their method testing frequencies are just recommendations and not requirements.

The new basin will be constructed with 2.5:1 slopes, which is a granted deviation from 10 CSR 20-8.200(6)(A)3 requirement of 3:1 slopes.

The construction of the basin will only be one unit and is not uniform in shape. As the purpose of the basin is to facilitate settling, not BOD removal and the shape is to fit the existing landscape and minimize construction along Lick Creek, deviations were granted from 10 CSR 20-8.200(5)(E) requirement of cells should be less than 40 acres and 10 CSR 20-8.200(5) (F) requirement of the shape of the basin.

As the basin will be 154 acres and take time to fill with slurried tailings and water, the facility will be placing 6 inches of soil on top of the compacted soil liner to prevent the drying out of the liner. Also, the facility is planning to put a layer of tailings in the basin. This is to meet the requirements of 10 CSR 20-8.200(C)3 to maintain the moisture content of the seal and to protect the liner.

Fencing is not required around the basin as it is located on Doe Run's property and access to the basin is restricted, thus a deviation from 10 CSR 20-8.200(8)(A) is granted.

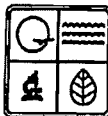
Water will be pumped from the new impoundment to the existing impoundment and on to the CoMag treatment plant and ultimate discharge through Outfall No. 001. The existing impoundment was constructed in 1970's and has groundwater monitoring around it through the Department's Land Reclamation Program. The construction of the CoMag treatment plant was covered under CP0001413 and has been in operation since October 2014.

Doe Run provided the following schedule for construction to request a fifteen year construction permit, as the construction will be phased. 10 CSR 20-6.010(4)(G) provides the reopener if there is a change in circumstances or conditions.

- Clearing of construction area: November 1, 2017-March 1, 2018
- Obtain remainder of applicable permits: by March 1, 2018
- Construction of the soil liner: estimated completion March 2020
- Construction of starter dam: estimated completion 2022
- Placement of tailings in starter phase: estimated completion 2024
- Dam Raise 1: 2024-2027 dam construction, upper basin grading, and tailings placement
- Dam Raise 2: 2027-2032 dam construction, upper basin grading, and tailings placement

4. OPERATING PERMIT

The operating permit renewal, MO-0001848, was public noticed March 30-May 1, 2017 and republic noticed in June 2017. The public noticed renewal included the construction activities. As the basin will be operated as no-discharge and will only discharge during extreme weather events, the operating permit renewal will be issued with the basin and new outfall, Outfall No. 005. When construction is complete, the facility will submit a statement of work completed.



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: May6
- 1.3 Has the department approved the proposed project's facility plan*?
 YES Date of Approval: _____ NO N/A (if Not Applicable, complete No. 1.4.)
- 1.4 [Complete only if answered Not Applicable on No. 1.3.] Is a copy of the engineering report* for wastewater treatment facilities with a design flow less than 22,500 gpd included with this application?
 YES NO
- 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 submittal. Denote which form: A B B2
 N/A Please explain: _____
- 1.8 Is the facility currently under enforcement with the department or the Environmental Protection Agency? YES NO
- 1.9 Is the appropriate fee included with this application? YES NO (See instructions for appropriate fee.)

* Must be affixed with a Missouri registered professional engineer's seal, signature and date.

2.0 PROJECT INFORMATION

2.1 NAME OF PROJECT

The Doe Run Company Tailings Impoundment Expansion at the Brushy Creek Mine and Mill

2.2 PROJECT DESCRIPTION

This project will consist of construction of a tailings dam (a dam constructed of tailings) upstream of the existing Brushy Creek dam (Dam Safety permit MO 30330).

2.3 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION

Area will be used for tailings storage, slurried tailings will be pumped to the areas and after settling of solids, water will be returned/recycled to the process.

2.4 DESIGN INFORMATION

- A. Current population: N/A; Design population: N/A
- B. Actual Flow: 0 gpd; Design Average Flow: 0 gpd;
Actual Peak Daily Flow: _____ gpd; Design Maximum Daily Flow: _____ gpd; Design Wet Weather Event: 0.75 PMP

2.5 ADDITIONAL INFORMATION

- A. Is a topographic map attached? YES NO
- B. Is a process flow diagram attached? YES NO

THIS MULTITONE AREA OF THE DOCUMENT CHANGES COLOR RANDOMLY AND IS NOT TO BE REPRODUCED OR COPIED. WORKER AREAS BOTH TOP AND BOTTOM.

**THE
DOE RUN
COMPANY**

Suite 300
1801 Park 270 Drive
St. Louis, MO 63146-4020

Wachovia Bank, National Association

DATE: 06/15/2016

736297

66-156
531

PAY TO THE ORDER OF: STATE OF MISSOURI

\$ 4,250.00***

****FOUR THOUSAND TWO HUNDRED AND FIFTY AND XX / 100 DOLLAR****

STATE OF MISSOURI
WATER PROTECTION PROGRAM
P O BOX 176
JEFFERSON CITY, MO 65102-0176



Authorized Signature

⑈ 736297⑈ ⑆053101561⑆ 2079900544970⑈

3.0 WASTEWATER TREATMENT FACILITY				
NAME The Doe Run Company, Brushy Creek Mine/Mill		TELEPHONE NUMBER WITH AREA CODE 573-689-2228		E-MAIL ADDRESS dbuxton@doerun.com
ADDRESS (PHYSICAL) 10827 Highway KK		CITY Boss	STATE MO	ZIP CODE 65440
COUNTY Reynolds				
Wastewater Treatment Facility: Mo- (Outfall Of)				
3.1 Legal Description: _____ 1/4, _____ 1/4, _____ 1/4, Sec. 23, T 33, R W (Use additional pages if construction of more than one outfall is proposed.)				
3.2 UTM Coordinates Easting (X): 665,400 Northing (Y): 4,155,500 For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)				
3.3 Name of receiving streams: Bills Creek				
4.0 PROJECT OWNER				
NAME The Doe Run Resources Corporation d/b/a (see letter)		TELEPHONE NUMBER WITH AREA CODE (573) 244-5261		E-MAIL ADDRESS dbuxton@doerun.com
ADDRESS P.O. Box 500, 35 County Road #1		CITY Viburnum	STATE MO	ZIP CODE 65566
5.0 CONTINUING AUTHORITY: Permanent organization that will serve as the continuing authority for the operation, maintenance and modernization of the wastewater collection system.				
NAME Same as Owner		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 Daniel G. Buxton		TELEPHONE NUMBER WITH AREA CODE (573) 244-8142		E-MAIL ADDRESS dbuxton@doerun.com
ADDRESS P.O. Box 500, 35 County Road #1		CITY Viburnum	STATE MO	ZIP CODE 65566
7.0 PROJECT OWNER: I hereby certify that I am familiar with the information contained in this application and to the best of my knowledge and belief such information is true, complete, and accurate, and if granted this permit, I agree to abide by the Missouri Clean Water Law and all rules, regulations, orders, and decisions, subject to any legitimate appeal available to applicant under Missouri Clean Water Law. I also understand the issuance of the construction permit does not guarantee the proposed wastewater treatment will meet the required effluent limitations of the issued Missouri State Operating Permit for this facility.				
PROJECT OWNER SIGNATURE <i>Mark R. Yingling</i>				
PRINTED NAME Mark Yingling			DATE 6-9-16	
TITLE OR CORPORATE POSITION V.P., Environmental, Safety and Health		TELEPHONE NUMBER WITH AREA CODE (314) 453-7658		E-MAIL ADDRESS myingling@doerun.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.				

PART B – LAND APPLICATION ONLY

(Submit only if the proposed construction project includes land application of wastewater.)

8.0 FACILITY INFORMATION

8.1 Type of wastewater to be irrigated: Domestic State/National Park Seasonal business
 Municipal Municipal with a pretreatment program or significant industrial users
 Other (explain) _____

8.2 Months when the business or enterprise will operate or generate wastewater:
 12 months per year Part of the year (list months): _____

8.3 This system is designed for:
 No-discharge.
 Partial irrigation when feasible and discharge rest of time.
 Irrigation during recreational season, April – October, and discharge during November – March.
 Other (explain) _____.

9.0 STORAGE BASINS

9.1 Number of storage basins: _____ (Use additional pages if greater than three basins.)

9.2 Type of basins: Steel Concrete Fiberglass Earthen Earthen with membrane liner

9.3 Storage basin dimensions at inside top of berm (feet). Report freeboard as feet from top of berm to emergency spillway or overflow pipe.

Basin #1:	Length _____	Width _____	Depth _____	Freeboard _____	Depth _____	Safety _____	% Slope _____
Basin #2:	Length _____	Width _____	Depth _____	Freeboard _____	Depth _____	Safety _____	% Slope _____
Basin #3:	Length _____	Width _____	Depth _____	Freeboard _____	Depth _____	Safety _____	% Slope _____

9.4 Storage Basin operating levels (report as feet below emergency overflow level).

Basin #1:	Maximum operating water level _____ ft	Minimum operating water level _____ ft
Basin #2:	Maximum operating water level _____ ft	Minimum operating water level _____ ft
Basin #3:	Maximum operating water level _____ ft	Minimum operating water level _____ ft

9.5 Design depth of sludge in storage basins.

Basin #1: _____ ft Basin #2: _____ ft Basin #3: _____ ft

9.6 Existing sludge depth, if the basins are currently in operation.

Basin #1: _____ ft Basin #2: _____ ft Basin #3: _____ ft

9.7 Total design sludge storage: _____ dry tons and _____ cubic feet

10.0 LAND APPLICATION SYSTEM

10.1 Number of irrigation sites _____ Total Acres _____ Maximum % field slopes _____
Location: _____ ¼, _____ ¼, _____ ¼, _____ Sec. _____ T _____ R _____ County _____ Acres
Location: _____ ¼, _____ ¼, _____ ¼, _____ Sec. _____ T _____ R _____ County _____ Acres
Location: _____ ¼, _____ ¼, _____ ¼, _____ Sec. _____ T _____ R _____ County _____ Acres
(Use additional pages if greater than three irrigation sites.)

10.2 Type of vegetation: Grass hay Pasture Timber Row crops
 Other (describe) _____

10.3 Wastewater flow (dry weather) gallons per day: Average annual _____ Seasonal _____ Off-season _____

10.4 Land application rate (design flow including 1-in-10 year storm water flows):

Design:	_____ inches/year	_____ inches/hour	_____ inches/day	_____ inches/week
Actual:	_____ inches/year	_____ inches/hour	_____ inches/day	_____ inches/week

10.5 Total irrigation per year (gallons): Design: _____ gal Actual: _____ gal

10.6 Actual months used for irrigation (check all that apply):

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

10.7 Land application rate is based on:

Hydraulic Loading Other (describe) _____
 Nutrient Management Plan (N&P) If N&P is selected, is the plan included? YES NO

INSTRUCTIONS FOR COMPLETING APPLICATION FOR CONSTRUCTION PERMIT – WASTEWATER TREATMENT FACILITIES

All blanks must be filled in when the application is submitted to the Missouri Department of Natural Resources. This includes the **required signature**.

Note: Use the form Application for Construction Permit – Sewer Extension, MO 780-1632, if only collection system component(s) are to be constructed. This form is available at dnr.mo.gov/forms/780-1632-f.pdf.

A land disturbance permit is required if construction will result in the disturbance of one or more acres of land. A land disturbance permit is available through the department's ePermitting system at dnr.mo.gov/env/wpp/epermit/help.htm. A permit fee in accordance with 10 CSR 20-6.011(2)(F)1. is required.

After receiving a complete application, the Department enters the application information into the Missouri Clean Water Information System. You may search for the status of a construction permit online at dnr.mo.gov/mocwis_public/applicationInprocessSearch.do.

Part A – Basic Application Information

- 1.0 If any of the questions in this section are answered no, this application may be considered incomplete and returned to the applicant.
- 1.1 Check the appropriate box. If the project is funded with federal or state monies, supply the funding agency name and project number.
- 1.2 Check the appropriate box. Provide the date of department approval for the antidegradation report. Include a copy of the approved *Water Quality and Antidegradation Review* with this application. Not every construction project may require an antidegradation review. For more information, guidance documents and forms concerning antidegradation visit dnr.mo.gov/env/wpp/permits/antideq-implementation.htm.
- 1.3 Check the appropriate box and provide the date of department approval. Per 10 CSR 20-8.110(3)(C), facility plans must be approved by the department prior to the submittal of plans and specifications and a construction permit application. "Facility plans must be completed for projects involving wastewater treatment facility projects and projects receiving funding through the grant and loan programs under 10 CSR 20-4" in accordance with 10 CSR 20-8.110(4)(A)4. The department has developed a fact sheet to aid in the development of an approvable facility plan. This document is available online at dnr.mo.gov/pubs/pub2416.htm.
- 1.4 Complete only if No. 1.3 is answered Not Applicable. Check the appropriate box. For wastewater treatment facilities with a design flow under 22,500 gallons per day, or gpd, an engineering report may be required by the department in accordance with 10 CSR 20-6.010(4)(D)1 and 10 CSR 20-8.020(3). The department will require an engineering report for any new wastewater treatment facilities and for any major modifications to an existing wastewater treatment facility.
- 1.5 Check the appropriate box. Provide a copy of the appropriate plans and specifications for department review when applying for a construction permit per 10 CSR 20-8.110(3)(C), 10 CSR 20-8.020(5) and 10 CSR 20-8.020(6). A Missouri registered professional engineering seal, signature and date is required on each sheet of the plans and the cover of the technical specifications.

The department will accept plans and specifications in electronic form on a CD and in the Adobe[®] PDF searchable format. If the plans are scanned, set the resolution to a minimum of 200 dpi at 17 by 22 inches.

Note: Additional sets of plans and specifications may be required by the department for final approval and issuance of the construction permit. See 10 CSR 20-8.110(6)(A)1.

- 1.6 Check the appropriate box. A summary of design shall accompany the plans and specifications when applying for a construction permit per 10 CSR 20-8.110(5) and 10 CSR 20-8.020(7). The department has developed a fact sheet to aid in the development of an acceptable summary of design. This document is available online at dnr.mo.gov/pubs/pub2417.htm. For wastewater treatment facilities with a design flow under 22,500 gpd, a summary of design may not be required by the department.
- 1.7 Check the appropriate box. Include the applicable operating permit application.
 - Form A is available online at dnr.mo.gov/forms/780-1479-f.pdf.
 - Form B is available online at dnr.mo.gov/forms/780-1512-f.pdf.
 - Form B2 is available online at dnr.mo.gov/forms/780-1805-f.pdf.
 - Form E is available online at dnr.mo.gov/forms/780-0795-f.pdf.

1.8 Check the appropriate box. More information about the Compliance and Enforcement Water Protection Program is available online at dnr.mo.gov/env/wpp/enff/index.html.

1.9 Check the appropriate box. Include the fee with your application.

\$1,000 for a wastewater treatment facility with a design flow of less than 500,000 gpd per 10 CSR 20-6.011(2)(K)1.

\$3,000 for a wastewater treatment facility with a design flow of 500,000 gpd or greater per 10 CSR 20-6.011(2)(K)2.

Add \$200 for modifications to a Publicly Owned Treatment Works (POTW) operating permit accompanied by the appropriate operating permit form per 10 CSR 20-6.011(2)(H), if applicable.

Add \$100 for modifications of name changes, address changes, or other non-substantive changes for a general permit accompanied by the appropriate general permit form per 10 CSR 20-6.011(2)(H)1., if applicable.

Add 25% Annual Operating Fee for modifications to a Non-POTW operating permit accompanied by the appropriate operating permit form per 10 CSR 20-6.011(2)(H)2., if applicable.

Add Annual Operating Fee for issuing a new Non-POTW operating permit accompanied by the appropriate operating permit form, if applicable.

Note: Incomplete permit applications or related engineering documents will be returned by the department if they are not completed in the time frame established by the department in a comment letter to the project owner. Permit fees for returned applications shall be forfeited. See 10 CSR 20-6.010(4)(E). Permit fees for applications being processed by the department that are withdrawn by the applicant shall be forfeited. See 10 CSR 20-6.011(5)(B).

2.1 Provide the name of the proposed construction project.

2.2 Briefly describe the construction project by providing the number and capacity of each new unit.

2.3 Briefly describe the method of sludge handling, use and disposal at the treatment facility.

2.4 Provide the project design information and when required in the units specified.

A. Provide the current population and the design population to be served by the wastewater treatment facility.

B. Provide the estimated design flow information in accordance with 10 CSR 20-8.110(4)(C)4.A.

Design average flow – The design average flow is the average of the daily volumes to be received for a continuous 12 month period expressed as a volume per unit time. However, the design average flow for facilities having critical seasonal high hydraulic loading periods (e.g., recreational areas, campuses and industrial facilities) shall be based on the daily average flow during the seasonal period. (Expected daily average flow the facility is designed to treat.)

Design maximum daily flow – The design maximum daily flow is the largest volume of flow to be received during a continuous 24-hour period expressed as a volume per unit time. (Flow during the peak wet weather event the facility is designed to treat.)

Design Wet Weather Event – The wet weather event chosen for the design.

2.5 Provide the additional project information.

A. Attach a topographic map of the area extending at least one mile beyond the facility property boundaries. This map must show the outline of the facility and the following information. A topographic map is available online at dnr.mo.gov/internetmapviewer or from the Department of Natural Resources' Missouri Geological Survey in Rolla, Mo., at 573-368-2125. (Submittals of more than one map may be necessary to show the entire area.)

1. The area surrounding the wastewater treatment facility, including all unit processes.

2. The major pipes or other structures through which wastewater enters the treatment facility and the pipes or other structures through which treated wastewater is discharged from the treatment facility. Include outfalls from bypass piping, if applicable.

3. The actual point of discharge.

4. Wells, springs, other surface water bodies and drinking water wells that are: 1) within ¼ mile of the property boundaries of the treatment facility and 2) listed in public record or otherwise known to the applicant.

5. Any areas where biosolids produced by the treatment facility are treated, stored, or disposed.

6. If the treatment facility receives waste classified as hazardous under the Resource Conservation and Recovery Act, or RCRA, by truck, rail, or special pipe, show on the map where hazardous waste enters the treatment works and where it is treated, stored or disposed.

7. Outline any wastewater land application sites.

- B. Provide a process flow diagram with the influent and effluent design average flow and peak flow capabilities. Also, depict all of the treatment facility components and the corresponding hydraulic capacities of each component. In addition, include all recycle flows in the diagram. If land application is used, depict all irrigation equipment and application sites.
- 3.0 Complete the Wastewater Treatment Facility information. Include the Missouri State Operation Permit number, outfall number, physical location, and other appropriate contact information.
- 3.1 Provide the project legal description. The department's mapping system is available online at dnr.mo.gov/internetmapviewer.
- 3.2 A Global Positioning System, or GPS, is a satellite-based navigation system. The department prefers that a GPS receiver is used and the displayed coordinates submitted. If access to a GPS receiver is not available, use a mapping system to approximate the coordinates.
- 3.3 Provide the name of the receiving stream(s) to which the discharge is directed and any subsequent tributary until a continuous flowing stream is reached.
- 4.0 Complete Project Owner information. Include the legal name, address, phone number with area code and email address.
- 5.0 Complete Continuing Authority contact information. If same as the Project Owner, write "Same as above". Include the permanent organization that will serve as the continuing authority for the operation, maintenance and modernization of the wastewater collection system. See 10 CSR 20-6.010(3) for the regulatory requirement regarding continuing authority.
- 5.1 Check the appropriate box. Include a letter signed by the continuing authority (if not same as the project owner) stating they will "accept, operate and maintain" the wastewater treatment facility after successful construction. If the continuing authority will not accept and agree to operate and maintain the wastewater treatment facility, this application will be considered incomplete.
- 5.2 Complete if the continuing authority is a Missouri Public Service Commission, or PSC, regulated entity. See 10 CSR 20-6.010(3)(B)3 for more information. This information is not necessary for existing wastewater treatment facilities currently permitted with a PSC entity as owner and continuing authority.
- 5.3 Complete if the continuing authority is a property owners association. See 10 CSR 20-6.010(3) (B)5 for more information. This information is not necessary for existing wastewater treatment facilities currently permitted with the property owners association as owner and continuing authority.
- 6.0 Complete Engineer contact information.
- 7.0 All applications must be signed as follows in accordance with 10 CSR 20-6.010(2)(B) and the signatures must be original:
- For a corporation, by an officer having responsibility for the overall operation of the regulated facility or activity or for environmental matters.
 - For a partnership or sole proprietorship, by a general partner or the proprietor.
 - For a municipal, state, federal or other public facility, by either a principal executive officer or by an individual having overall responsibility for environmental matters at the facility.

Part B – Land Application

Complete Part B only if the proposed construction project includes land application of wastewater from a treatment facility.

- 8.0 Provide the applicable Facility Information land application information. Check the appropriate boxes.
- 9.0 Provide the applicable Storage Basins information. Check the appropriate boxes.
- Freeboard – The depth from the top of the berm to the emergency spillway. Minimum depth • is one foot.
 - Safety Volume – The depth to contain the 25-year, 24-hour storm event. Minimum depth is • one foot.
 - Maximum Operating Water Level – The water level at the bottom of the safety volume. • Minimum depth is two feet below the top of the berm.
 - Minimum Operating Water Level – The water level above the bottom of the lagoon basin for • seal protection. Minimum depth is two feet and may be greater when additional treatment volume is included.
 - Total Depth is from the top of the berm to the bottom of the lagoon basin including freeboard. •
- 10.0 Provide the applicable Land Application System information. Check the appropriate boxes.

10.7 Check the appropriate box. If the land application rate is based on a Nutrient Management Plan, or N and P, include the plan with this application for department review.

Mail the completed form and applicable fee to the department.

If there are any questions concerning this form, please contact the Department of Natural Resources, Water Protection Program at 800-361-4827 or 573-751-1300 or visit dnr.mo.gov/env/wpp.