

**STATE OF MISSOURI**  
**DEPARTMENT OF NATURAL RESOURCES**

MISSOURI CLEAN WATER COMMISSION



**CONSTRUCTION PERMIT**

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

City of Edgar Springs  
P.O. Box 13  
Edgar Springs, MO 65462

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 4, 2015  
Effective Date

  
Sara Parker Pauley, Director, Department of Natural Resources

June, 3, 2017  
Expiration Date

  
John Madras, Director, Water Protection Program

## **CONSTRUCTION PERMIT**

### **I. CONSTRUCTION DESCRIPTION**

Modification and update to an existing extended aeration wastewater treatment facility by the addition of a flow equalization basin; replacement of influent pump station pumps; addition of an in-line flow meter on discharge line from lift station; replacement of two aeration-sedimentation modules; addition of a third blower; replacement of sock filters with disc filters; replacement of ultraviolet disinfection; replacement of flow meter; together with all the necessary appurtenances and existing devices to make the facilities complete and usable. The updated treatment facility will maintain the capacity to treat the waste from a population equivalent of 400 with an average daily discharge of 40,000 gallons. This facility discharges to a tributary to Corn Creek, Phelps County.

### **II. FINDING OF AFFORDABILITY**

Pursuant to Section 644.145, RSMo, the department is required to determine whether a permit or decision is affordable and make a finding of affordability for each permit or decision.

The Finding of Affordability is not applicable. This construction permit does not include new environmental requirements beyond what are already required by the existing Missouri State Operating Permit, MO-0105449.

### **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 Archer-Elgin on May 20, 2015.
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. 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 one 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](http://www.dnr.mo.gov/env/wpp/epermit/help.htm). See [www.dnr.mo.gov/env/wpp/stormwater/sw-land-disturb-permits.htm](http://www.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 [www.dnr.mo.gov/env/wpp/401/](http://www.dnr.mo.gov/env/wpp/401/) for more information.
11. Upon completion of construction;
  - A. Submit the enclosed form Statement of Work Completed to the department in accordance with 10 CSR 20-6.010(5)(D);
  - B. Submit an electronic copy of the as built if the project was not constructed in accordance with previously submitted plans and specifications; and
  - C. When the facility applies for their next operating permit renewal, they will be expected to include an updated facility description on their application. The changes necessary to the facility description are: add "Flow Equalization"; remove "Plate settlers", and; change "Sock filter" to "Disc filter".

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

##### **1. AMMONIA**

The Water Protection Program is providing this notice to inform permittees that EPA's published ammonia criteria for aquatic life protection is lower than the current Missouri criteria. The department has initiated stakeholder discussions on this topic and at this time, there is no firm target date for starting the rulemaking to adopt new standards. More information can be found at <http://dnr.mo.gov/pubs/pub2481.pdf>.

The facility plan acknowledges the potential future ammonia limits. The upgrades include piping modifications that will easily allow an anoxic basin to be established within the treatment process in the future. The existing sock filter basin will be fitted with the proper piping to receive flow but the internal components for the anoxic basin will not be installed.

##### **2. CONSTRUCTION PURPOSE**

The city of Edgar Springs had a Schedule of Compliance, in their operating permit that expired January 29, 2014, to upgrade to meet ammonia limits which became effective in 2012. That schedule is being fulfilled with this project. This project will maximize plant capacity and make operations more reliable by eliminating upsets caused by surges in flow. Additional aeration capacity will enhance the treatment of ammonia. Some of the existing plant components are considered to be near the end of their useful design life and are being replaced and updated.

### **3. FACILITY DESCRIPTION**

The existing facility consists of a manually cleaned bar screen; influent lift station; extended aeration treatment using two Aero-mod aeration-sedimentation modules (tube settlers); sock filters; ultraviolet disinfection; and aerobic sludge digestion.

The future facility will consist of a manually cleaned bar screen; influent lift station; a flow equalization basin with a volume of approximately 200,000 gallons; extended aeration treatment using aeration-sedimentation modules that sit inside the aeration chambers, the new modules will be of the Aero-Mod, Clarator design; cloth disc filters; ultraviolet disinfection; and aerobic sludge digestion.

The treatment facility remains with the same design flow of 40,000 GPD capable of treating a population equivalent of 400. Treatment plant discharge location remains in the SW1/4 of the SE ¼, Section 36, T35N, R9W, Phelps County; receiving stream is a tributary to Corn Creek and is considered losing for discharge purposes.

### **4. COMPLIANCE PARAMETERS**

Ammonia limits became effective on January 30, 2012, and were revised effective February 1, 2014. This project will enable the city of Edgar Springs to consistently meet all current effluent limitations.

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

The lift station will be fitted with two new submersible 3.0 HP pumps, each will have a capacity of 55 GPM (80,000 GPD), the pumps will only pump two times the design flow rate, both pumps will not come on at the same time, all excess flows will flow to the flow equalization basin by gravity. The flow equalization chamber will be lined with concrete and is sized to equalize all expected flows to allow a maximum flow rate into the extended aeration units of two times the design flow rate. The volume is approximately 200,000 gallons plus one extra foot. A new electromagnetic flow meter will be located on the discharge line from the lift station. The aeration basins will remain but the two aeration-sedimentation modules will be replaced, the total clarifier surface area of approximately 180 sq. ft. provides a sedimentation rate of 444 gallons/ sq. ft. at peak design flow which is less than half of the maximum allowable rate of 1000 gpd/sf/day at peak design flow rate. The Clarator design has been in use for over 20 years. There are at least five installations in Missouri with acceptable performance and over 200 installations in North America. One new 4 HP positive displacement blower with a capacity of 130 scfm will be added to the existing two blowers. The new cloth disc filter is designed at the maximum rate of 5 gpm/sf and is sized to handle the peak flow. Only one unit will be provided. The unit has two separate discs. There will be one complete set of replacement media stored on-site for immediate availability. The flow equalization basin provides emergency storage for over five days if the unit needs to be taken down for maintenance or repair. Ultraviolet disinfection is to be replaced with a minimum of two modules in a single channel; each module will have at least two bulbs. Final design may vary depending on the manufacturer; the unit will be capable of disinfection at peak flow. Discharge flow measurement will be replaced with a new weir, ultrasonic level transmitter and recorder.

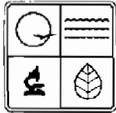
**6. OPERATING PERMIT MODIFICATION**

The operating permit will be updated at the next permit renewal. The current operating permit expires January 31, 2019. The facility owner is expected to include a new facility description in their next operating permit renewal application to reflect the modifications. . The changes necessary to the facility description are: add “Flow Equalization”; remove “Plate settlers”, and; change “Sock filter” to “Disc filter”.

Andrew Appelbaum, P.E.  
Engineering Section  
[andy.appelbaum@dnr.mo.gov](mailto:andy.appelbaum@dnr.mo.gov)

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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: State Project #: \_\_\_\_\_
- 1.2 Has the Missouri Department of Natural Resources approved the proposed project's antidegradation review?  
 YES Date of Approval: \_\_\_\_\_  
 Attached is the No Degradation Evaluation Conclusion of Antidegradation Review form MO-0105449
- 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

Edgar Springs Wastewater Treatment Facility

2.2 PROJECT DESCRIPTION

Project involves the construction of: New 200,000 gallon equalization basin; improvements to the influent pump station and aeration-sedimentation basin; replacement of the existing tertiary filter and UV disinfection process equipment; and all other appurtenant improvements required to conform with new conditions of MSOP.

2.3 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION

Biosolids are land applied

2.4 DESIGN INFORMATION

- A. Current population: 208; Design population: 271
- B. Actual Flow: 23,200 gpd; Design Average Flow: 40,000 gpd;  
 Actual Peak Daily Flow: 64,800 gpd; Design Maximum Daily Flow: 80,000 gpd

2.5 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 City of Edgar Springs WWTF	TELEPHONE NUMBER WITH AREA CODE (573) 435-6334	E-MAIL ADDRESS edgarspringsmo@yahoo.com
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ADDRESS (PHYSICAL) Hwy. 63	CITY Edgar Springs	STATE MO	ZIP CODE 65462	COUNTY Phelps
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Wastewater Treatment Facility: Mo- 0105449 (Outfall 1 Of 1 )

3.1 Legal Description: SW 1/4, SE 1/4, SE 1/4, Sec. 36, T 35N, R 9W  
(Use additional pages if construction of more than one outfall is proposed.)

3.2 UTM Coordinates Easting (X): 599637 Northing (Y): 4173652  
For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

3.3 Name of receiving streams: U

**4.0 PROJECT OWNER**

NAME City of Edgar Springs	TELEPHONE NUMBER WITH AREA CODE (573) 435-6334	E-MAIL ADDRESS edgarspringsmo@yahoo.com
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ADDRESS PO Box 13	CITY Edgar Springs	STATE MO	ZIP CODE 65462
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**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 City of Edgar Springs	TELEPHONE NUMBER WITH AREA CODE (573) 435-6334	E-MAIL ADDRESS edgarspringsmo@yahoo.com
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ADDRESS PO Box 13	CITY Edgar Springs	STATE MO	ZIP CODE 65462
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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 Archer-Elgin Surveying and Engineering LLC	TELEPHONE NUMBER WITH AREA CODE (573) 364-6362	E-MAIL ADDRESS archer-elgin@cmarcher.com
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ADDRESS 310 E 6th St	CITY Rolla	STATE MO 65401	ZIP CODE
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**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

*Paula R James, City Administrator*

PRINTED NAME Paula R James	DATE 11-18-14
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TITLE OR CORPORATE POSITION City Administrator	TELEPHONE NUMBER WITH AREA CODE (573) 435-6334	E-MAIL ADDRESS edgarspringsmo@yahoo.com
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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.**