

STATE OF MISSOURI  
**DEPARTMENT OF NATURAL RESOURCES**  
MISSOURI CLEAN WATER COMMISSION



**MISSOURI STATE OPERATING PERMIT**

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92<sup>nd</sup> Congress) as amended,

Permit No. MO-0034240

Owner: City of Glasgow  
Address: 100 Market Street, Glasgow, MO 65254

Continuing Authority: Same as above  
Address: Same as above

Facility Name: Glasgow Wastewater Treatment Facility  
Facility Address: 1 mile southwest of Highway 87 & Highway 240 intersection, Glasgow, MO 65254

Legal Description: Land Grant #02456, Howard County  
UTM Coordinates: X=512652, Y=4339922

Receiving Stream: Missouri River (P)  
First Classified Stream and ID: Missouri River (P) (701) 303(d) List  
USGS Basin & Sub-watershed No.: (10300102-0104)

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

**FACILITY DESCRIPTION**

Outfall #001 – POTW – SIC #4952

The use or operation of this facility shall be by or under the supervision of a Certified "D" Operator.

Three-cell aerated lagoon / sludge retained in lagoon

Design population equivalent is 1,798.

Design flow is 180,000 gallons per day.

Actual flow is 33,000 gallons per day.

Design sludge production is 27 dry tons/year.

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 621.250 RSMo, Section 640.013 RSMo and Section 644.051.6 of the Law.


May 1, 2020

Effective Date

  
Edward B. Galbraith, Director, Division of Environmental Quality

April 30, 2025

Expiration Date

  
Chris Wieberg, Director, Water Protection Program

OUTFALL #001	TABLE A-1. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations in Table A-1 shall become effective on <b>May 1, 2020</b> , and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Limit Set: M						
Flow	MGD	*		*	twice/week	24 hr. estimate
Biochemical Oxygen Demand <sub>5</sub>	mg/L		45	30	once/month	grab
Total Suspended Solids	mg/L		45	30	once/month	grab
<i>E. coli</i> (Note 1, Page 3)	#/100mL		1030	206	once/week	grab
Ammonia as N	mg/L	*		*	once/month	grab
Oil & Grease	mg/L	15		10	once/month	grab
EFFLUENT PARAMETER(S)	UNITS	MINIMUM		MAXIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
pH – Units **	SU	6.0			once/month	grab
EFFLUENT PARAMETER(S)			UNITS	MONTHLY AVERAGE MINIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
Biochemical Oxygen Demand <sub>5</sub> – Percent Removal (Note 2, Page 3)			%	85	once/month	calculated
Total Suspended Solids – Percent Removal (Note 2, Page 3)			%	85	once/month	calculated
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>JUNE 28, 2020</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
Limit Set: Q						
Total Phosphorus	mg/L	*		*	once/quarter***	grab
Total Nitrogen	mg/L	*		*	once/quarter***	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>JULY 28, 2020</u> .						

\* Monitoring requirement only.

\*\* pH is measured in pH units and is not to be averaged.

\*\*\* See table below for quarterly sampling requirements.

Quarterly Minimum Sampling Requirements			
Quarter	Months	Total Phosphorus and Total Nitrogen	Report is Due
First	January, February, March	Sample at least once during any month of the quarter	April 28 <sup>th</sup>
Second	April, May, June	Sample at least once during any month of the quarter	July 28 <sup>th</sup>
Third	July, August, September	Sample at least once during any month of the quarter	October 28 <sup>th</sup>
Fourth	October, November, December	Sample at least once during any month of the quarter	January 28 <sup>th</sup>

Note 1 - Effluent limitations and monitoring requirements for *E. coli* are applicable only during the recreational season from April 1 through October 31. The Monthly Average Limit for *E. coli* is expressed as a geometric mean. The Weekly Average for *E. coli* will be expressed as a geometric mean if more than one (1) sample is collected during a calendar week (Sunday through Saturday).

Note 2 – Influent sampling is not required when the facility does not discharge effluent during the reporting period. Samples are to be collected prior to any treatment process. Calculate Percent Removal by using the following formula:  $[(\text{Average Influent} - \text{Average Effluent}) / \text{Average Influent}] \times 100\% = \text{Percent Removal}$ . Influent and effluent samples are to be taken during the same month. The Average Influent and Average Effluent values are to be calculated by adding the respective values together and dividing by the number of samples taken during the month. Influent samples are to be collected as a grab sample.

OUTFALL #001	TABLE A-2. WHOLE EFFLUENT TOXICITY FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					
	The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations in Table A-2 shall become effective on <b>May 1, 2020</b> , and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:					
EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Limit Set: WA						
Acute Whole Effluent Toxicity (Note 3)	TU <sub>a</sub>	*			once/permit cycle	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>ONCE PER PERMIT CYCLE</u> ; THE FIRST REPORT IS DUE <u>SEPTEMBER 28, 2024</u> .						

\* Monitoring requirement only.

Note 3 – The Acute WET test shall be conducted once per permit cycle. See Special Condition #21 for additional requirements.

## **B. STANDARD CONDITIONS**

In addition to specified conditions stated herein, this permit is subject to the attached Parts I, II, & III standard conditions dated August 1, 2014, May 1, 2013, and August 1, 2019, and hereby incorporated as though fully set forth herein.

## **C. SPECIAL CONDITIONS**

### 1. Electronic Discharge Monitoring Report (eDMR) Submission System.

The permittee shall submit an eDMR Permit Holder and Certifier Registration form within **90 days** of the effective date of this permit. Per 40 CFR Part 127 National Pollutant Discharge Elimination System (NPDES) Electronic Reporting Rule, reporting of effluent limits and monitoring shall be submitted by the permittee via an electronic system to ensure a timely, complete, accurate, and nationally-consistent set of data. Visit <http://dnr.mo.gov/pubs/pub2474.pdf> to access the Facility Participation Package, which contains the eDMR Permit Holder and Certifier Registration form.

Once the permittee is activated in the eDMR system:

- Discharge Monitoring Reporting Requirements. The permittee must electronically submit compliance monitoring data via the eDMR system. In regards to Standard Conditions Part I, Section B, #7, the eDMR system is currently the only Department approved reporting method for this permit.
- Programmatic Reporting Requirements. The following reports (if required by this permit) must be electronically submitted as an attachment to the eDMR system until such a time when the current or a new system is available to allow direct input of the data:
  - Collection System Maintenance Annual Reports;
  - Any additional report required by the permit excluding bypass reporting.
 After such a system has been made available by the department, required data shall be directly input into the system by the next report due date.
- Other actions. The following shall be submitted electronically after such a system has been made available by the department:
  - Bypass reporting, See Special Condition #11 for 24-hr. bypass reporting requirements.

**C. SPECIAL CONDITIONS (continued)**

- (d) Electronic Submissions. To access the eDMR system, use the following link in your web browser: <https://edmr.dnr.mo.gov/edmr/E2/Shared/Pages/Main/Login.aspx>.
  - (e) Waivers from Electronic Reporting. The permittee must electronically submit compliance monitoring data and reports unless a waiver is granted by the department in compliance with 40 CFR Part 127. The permittee may obtain an electronic reporting waiver by first submitting an eDMR Waiver Request Form: <http://dnr.mo.gov/forms/780-2692-f.pdf>. The department will either approve or deny this electronic reporting waiver request within 120 calendar days. Only permittees with an approved waiver request may submit monitoring data and reports on paper to the Department for the period that the approved electronic reporting waiver is effective.
2. The full implementation of this operating permit, which includes implementation of any applicable schedules of compliance, shall constitute compliance with all applicable federal and state statutes and regulations in accordance with §644.051.16, RSMo, and the CWA section 402(k); however, this permit may be reopened and modified, or alternatively revoked and reissued:
- (a) To comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
    - (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
    - (2) controls any pollutant not limited in the permit.
  - (b) To incorporate an approved pretreatment program pursuant to 40 CFR 403.8(a).
3. All outfalls must be clearly marked in the field.
4. Permittee will cease discharge by connection to a facility with an area-wide management plan per 10 CSR 20-6.010(2)(B) within the timeframe allotted by the continuing authority with its notice of its availability. The permittee shall obtain Department approval for closure according to section 10 CSR 20-6.010(12) or alternate use of these facilities
5. Report as no-discharge when a discharge does not occur during the report period.
6. Changes in existing pollutants or the addition of new pollutants to the treatment facility
- The permittee must provide adequate notice to the Director of the following:
- (a) Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to section 301 or 306 of CWA if it were directly discharging those pollutants; and
  - (b) Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.
  - (c) For purposes of this paragraph, adequate notice shall include information on:
    - (1) the quality and quantity of effluent introduced into the POTW, and
    - (2) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.
7. Reporting of Non-Detects:
- (a) An analysis conducted by the permittee or their contracted laboratory shall be conducted in such a way that the precision and accuracy of the analyzed result can be enumerated.
  - (b) The permittee shall not report a sample result as “Non-Detect” without also reporting the detection limit of the test. Reporting as “Non Detect” without also including the detection limit will be considered failure to report, which is a violation of this permit.
  - (c) The permittee shall provide the “Non-Detect” sample result using the less than sign and the minimum detection limit (e.g., <10).
  - (d) Where the permit contains a Minimum Level (ML) and the permittee is granted authority in the permit to report zero in lieu of the < ML for a specified parameter (conventional, priority pollutants, metals, etc.), then zero (0) is to be reported for that parameter.
  - (e) See Standard Conditions Part I, Section A, #4 regarding proper detection limits used for sample analysis.
  - (f) When a parameter is not detected above ML, the permittee must report the data qualifier signifying less than ML for that parameter (e.g., < 50 µg/L, if the ML for the parameter is 50 µg/L). For reporting an average based on a mix of values detected and not detected, assign a value of “0” for all non-detects for that reporting period and report the average of all the results.
8. It is a violation of the Missouri Clean Water Law to fail to pay fees associated with this permit (644.055 RSMo).

**C. SPECIAL CONDITIONS (continued)**

9. The permittee shall comply with any applicable requirements listed in 10 CSR 20-9, unless the facility has received written notification that the Department has approved a modification to the requirements. The monitoring frequencies contained in this permit shall not be construed by the permittee as a modification of the monitoring frequencies listed in 10 CSR 20-9. To request a modification of the operational control testing requirements listed in 10 CSR 20-9, the permittee shall submit a permit modification application and fee to the Department requesting a deviation from the operational control monitoring requirements. Upon approval of the request, the Department will modify the permit
10. The permittee shall develop and implement a program for maintenance and repair of the collection system. The recommended guidance is the US EPA's Guide For Evaluating Capacity, Management, Operation, And Maintenance (CMOM) Programs At Sanitary Sewer Collection Systems (Document number EPA 305-B-05-002) or the Departments' CMOM Model located at <http://dnr.mo.gov/env/wpp/permits/docs/cmom-template.doc>. For additional information regarding the Departments' CMOM Model, see the CMOM Plan Model Guidance document at <http://dnr.mo.gov/pubs/pub2574.htm>.

The permittee shall also submit a report to the Northeast Regional Office or via the Electronic Discharge Monitoring Report (eDMR) Submission System annually, by January 28<sup>th</sup>, for the previous calendar year. The report shall contain the following information:

- (a) A summary of the efforts to locate and eliminate sources of excessive infiltration and inflow into the collection system serving the facility for the previous year.
  - (b) A summary of the general maintenance and repairs to the collection system serving the facility for the previous year.
  - (c) A summary of any planned maintenance and repairs to the collection system serving the facility for the upcoming calendar year. This list shall include locations (GPS, 911 address, manhole number, etc.) and actions to be taken.
11. Bypasses are not authorized at this facility unless they meet the criteria in 40 CFR 122.41(m). If a bypass occurs, the permittee shall report in accordance to 40 CFR 122.41(m)(3), and with Standard Condition Part I, Section B, subsection 2.b. Bypasses are to be reported to the Northeast Regional Office during normal business hours or by using the online Sanitary Sewer Overflow/Facility Bypass Application located at: <https://dnr.mo.gov/mogem/> or the Environmental Emergency Response spill-line at 573-634-2436 outside of normal business hours. Once an electronic reporting system compliant with 40 CFR Part 127, the National Pollutant Discharge Elimination System (NPDES) Electronic Reporting Rule, is available all bypasses must be reported electronically via the new system. Blending, which is the practice of combining a partially-treated wastewater process stream with a fully-treated wastewater process stream prior to discharge, is not considered a form of bypass. If the permittee wishes to utilize blending, the permittee shall file an application to modify this permit to facilitate the inclusion of appropriate monitoring conditions.
  12. The facility must be sufficiently secured to restrict entry by children, livestock and unauthorized persons as well as to protect the facility from vandalism.
  13. At least one gate must be provided to access the wastewater treatment facility and provide for maintenance and mowing. The gate shall remain closed except when temporarily opened by; the permittee to access the facility, perform operational monitoring, sampling, maintenance, mowing, or for inspections by the Department. The gate shall be closed and locked when the facility is not staffed.
  14. At least one (1) warning sign shall be placed on each side of the facility enclosure in such positions as to be clearly visible from all directions of approach. There shall also be one (1) sign placed for every five hundred feet (500') (150 m) of the perimeter fence. A sign shall also be placed on each gate. Minimum wording shall be SEWAGE TREATMENT FACILITY—KEEP OUT. Signs shall be made of durable materials with characters at least two inches (2") high and shall be securely fastened to the fence, equipment or other suitable locations.
  15. An Operation and Maintenance (O & M) manual shall be maintained by the permittee and made available to the operator. The O & M manual shall include key operating procedures and a brief summary of the operation of the facility.
  16. An all-weather access road shall be provided to the treatment facility.
  17. The discharge from the wastewater treatment facility shall be conveyed to the receiving stream via a closed pipe or a paved or rip-rapped open channel. Sheet or meandering drainage is not acceptable. The outfall sewer shall be protected against the effects of floodwater, ice or other hazards as to reasonably insure its structural stability and freedom from stoppage. The outfall shall be maintained so that a sample of the effluent can be obtained at a point after the final treatment process and before the discharge mixes with the receiving waters.

**C. SPECIAL CONDITIONS (continued)**

18. A minimum of two (2) feet freeboard must be maintained in each lagoon cell. A lagoon level gauge, which clearly marks the minimum freeboard level, shall be provided in each lagoon cell.
19. The lagoons shall be operated and maintained to ensure their structural integrity, which includes maintaining adequate freeboard and keeping the berms free of deep-rooted vegetation, animal dens, or other potential sources of damage.
20. The facility shall ensure that adequate provisions are provided to prevent or minimize surface water intrusion into the lagoon and to divert stormwater runoff around the lagoon and protect embankments from erosion.
21. Acute Whole Effluent Toxicity (WET) tests shall be conducted as follows:
  - (a) Freshwater Species and Test Methods: Species and short-term test methods for estimating the acute toxicity of NPDES effluents are found in the most recent edition of *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* (EPA/821/R-02/012; Table IA, 40 CFR Part 136). The permittee shall concurrently conduct 48-hour, static, non-renewal toxicity tests with the following species:
    - The fathead minnow, *Pimephales promelas* (Acute Toxicity EPA Test Method 2000.0).
    - The daphnid, *Ceriodaphnia dubia* (Acute Toxicity EPA Test Method 2002.0).
  - (b) Chemical and physical analysis of the upstream control sample and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping. Where upstream receiving water is not available or known to be toxic, other approved control water may be used.
  - (c) Test conditions must meet all test acceptability criteria required by the EPA Method used in the analysis.
  - (d) The Allowable Effluent Concentration (AEC) for this facility is 9.1% with the dilution series being: 100%, 50%, 25%, 9.1%, and 4.5%.
  - (e) All chemical and physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% effluent concentration.
  - (f) The facility must submit a full laboratory report for all toxicity testing. The report must include a quantification of acute toxic units ( $TU_a = 100/LC_{50}$ ) reported according to the test methods manual chapter on report preparation and test review. The Lethal Concentration 50 Percent ( $LC_{50}$ ) is the effluent concentration that would cause death in 50 percent of the test organisms at a specific time.

**MISSOURI DEPARTMENT OF NATURAL RESOURCES  
FACT SHEET  
FOR THE PURPOSE OF RENEWAL  
OF  
MO-0034240  
GLASGOW WWTF**

The Federal Water Pollution Control Act ("Clean Water Act" Section 402 Public Law 92-500 as amended) established the National Pollutant Discharge Elimination System (NPDES) permit program. This program regulates the discharge of pollutants from point sources into the waters of the United States, and the release of stormwater from certain point sources. All such discharges are unlawful without a permit (Section 301 of the "Clean Water Act"). After a permit is obtained, a discharge not in compliance with all permit terms and conditions is unlawful. Missouri State Operating Permits (MSOPs) are issued by the Director of the Missouri Department of Natural Resources (Department) under an approved program, operating in accordance with federal and state laws (Federal "Clean Water Act" and "Missouri Clean Water Law" Section 644 as amended). MSOPs are issued for a period of five (5) years unless otherwise specified.

As per [40 CFR Part 124.8(a)] and [10 CSR 20-6.020(1)(A)2.], a Factsheet shall be prepared to give pertinent information regarding the applicable regulations, rationale for the development of effluent limitations and conditions, and the public participation process for the Missouri State Operating Permit (operating permit) listed below.

A Factsheet is not an enforceable part of an operating permit.

This Factsheet is for a Minor facility.

**Part I – Facility Information**

Facility Type: POTW - SIC #4952

Facility Description: Three cell aerated lagoon system. Sludge is retained in the lagoon.

Have any changes occurred at this facility or in the receiving water body that effects effluent limit derivation?

- ✓ Yes; The facility outfall is being relocated from Hurricane Creek (C) to the Missouri River (P). Aerators are being added to the lagoon cells, so BOD and TSS limits are now secondary limits.

Application Date: 09/23/2016

Expiration Date: 06/30/2015

**OUTFALL(S) TABLE:**

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE
#001	0.28	Secondary	Domestic

**Facility Performance History:**

Review of DMR data for the five-year period from April 2012 through February 2017 indicated that DMRs were not received for August 2015 or from January 2016 through February 2017. BOD limits were exceeded in Apr 2013, Fecal coliform had two exceedances in Apr and May of 2013, pH was below the minimum in Mar 2015, and TSS was exceeded in Oct 2012, Apr 2013, and Jan 2015.

The facility was last inspected August 19, 2015. The inspection showed the following unsatisfactory features:

- On January 7, 2015, and March 13, 2015, failed to comply with the effluent limits contained in Part A of Missouri State Operating Permit (MSOP) #MO-0034240 [Sections 644.051.1(3) and 644.076.1, RSMo].
- Failed to submit an interim progress report, as required in Part B Standard Conditions, and Part E, Schedule of Compliance of MSOP #MO-0034240 [Sections 644.076.1 RSMo, and 10 CSR 20-6.010(7)(A)].
- Failed to meet the 65 percent removal efficiency for Total Suspended Solids, as required by Table B Influent Monitoring Requirements of Missouri State Operating Permit #MO-0034240 [Section 644.076.1, RSMo].

The facility received a notice of violation based on the following:

- Failed to upgrade the facility to meet final effluent limits for Fecal Coliform, as required in Part B, Standard Conditions, and Part E, Schedule of Compliance of Missouri State Operating Permit #MO-0034240 that expired on February 21, 2013 [Section 644.076.1 RSMo].
- Since/On August 19, 2015, operated, used, or maintained a water contaminant source, domestic wastewater from non-permitted outfalls, which intermittently discharge to a tributary to Greggs Creek and Bear Creek, waters of the state, without a Missouri State Operating Permit [Sections 644.051.2 and 644.076.1, RSMo, and 10 CSR 20-6.010(1)(A) and (5)(A)].
- Failed to provide oral and/or written notification to the department for any non-compliance which may endanger health or the environment, as required by the Standard Conditions and Special Condition #10 of Missouri State Operating Permit #MO-0034240 [Section 644.076.1, RSMo].
- Caused pollution of Bear Creek and a tributary to Greggs Creek, waters of the state, or placed or caused or permitted to be placed water contaminants in a location where it is reasonably certain to cause pollution of waters of the state [Sections 644.051.1(1) and 644.076.1, RSMo].
- The facility discharged water contaminants into waters of the state, which reduced the quality of such waters below the Water Quality Standards established by the Missouri Clean Water Commission [Sections 644.051.1(2) and 644.076.1, RSMo, and 10 CSR 20-7.031 or applicable subsections of 10 CSR 20-7.031].
- Failed to collect influent samples to ensure the facility is meeting the 65 percent removal efficiency for Biochemical Oxygen Demand and Total Suspended Solids, as required by Table B Influent Monitoring Requirements of Missouri State Operating Permit #MO-0034240 [Section 644.076.1, RSMo].
- Failed to submit the annual Inflow and Infiltration Report, as required by Special Condition #9 of Missouri State Operating Permit #MO-0034240 [Section 644.076.1, RSMo].
- Since June 30, 2015, operated, used, or maintained a water contaminant source, which intermittently discharges to Hurricane Creek, waters of the state, without a Missouri State Operating Permit [Sections 644.051.2 and 644.076.1, RSMo, and 10 CSR 20-6.010(1)(A) and (5)(A)].

Comments:

Changes in this permit include the addition of monitoring for Total Phosphorus and Total Nitrogen. BOD and TSS limits were changed from equivalent to secondary to secondary limits due to the facility adding aeration to the lagoons. The change from equivalent to secondary to secondary limits for BOD and TSS was discussed with the City, and the department has concluded that the addition of aeration and mixing to the lagoon will make equivalent to secondary limits no longer applicable.

The outfall location was changed from Hurricane Creek (C) to the Missouri River (P), which resulted in monitoring only requirements for ammonia as a result of a Reasonable Potential Analysis. See Part VII of the Fact Sheet for further information regarding the addition and removal of effluent parameters.

Special conditions were added or updated for the Electronic Discharge Monitoring Report (eDMR) Submission System reporting of Non-detects, and bypass reporting requirements.

This facility is receiving a construction permit (CP0001873) to relocate the outfall and add aerators to the lagoon. The facility provided information on the proposed aeration and mixing unit's ability to lower *E. coli* concentrations in the effluent. The department has not reviewed this treatment method for its ability to disinfect and therefore cannot ensure that this method will enable the facility to meet *E. coli* effluent limits. Provisions are being supplied in the new effluent line to the Missouri River where UV disinfection equipment can be installed in the future if expected treatment results for *E. coli* reduction cannot be achieved.

## **Part II – Operator Certification Requirements**

☒ - This facility is required to have a certified operator.

As per [10 CSR 20-6.010(8) Terms and Conditions of a Permit], the permittee shall operate and maintain facilities to comply with the Missouri Clean Water Law and applicable permit conditions and regulations. Operators or supervisors of operations at regulated wastewater treatment facilities shall be certified in accordance with [10 CSR 20-9.020(2)] and any other applicable state law or regulation. As per [10 CSR 20-9.020(2)(A)], requirements for operation by certified personnel shall apply to all wastewater treatment systems, if applicable, as listed below:

Owned or operated by or for a

☒ - Municipalities

☐ - Federal agency

☐ - County

☐ - Public Sewer District

☐ - State agency

☐ - Private Sewer Company regulated by the Public Service Commission

☐ - Public Water Supply Districts



Each of the above entities are only applicable if they have a Population Equivalent greater than two hundred (200) or fifty (50) or more service connections.

This facility currently requires an operator with a D Certification Level. Please see **Appendix - Classification Worksheet**. Modifications made to the wastewater treatment facility may cause the classification to be modified.

<http://www.dnr.mo.gov/operator/index.do>

Operator's Name: Steve Boss  
Certification Number: 9206  
Certification Level: C

The listing of the operator above only signifies that staff drafting this operating permit have reviewed appropriate Department records and determined that the name listed on the operating permit application has the correct and applicable Certification Level.

### **Part III– Operational Monitoring**

Missouri Clean Water Commission regulation 10 CSR 20-9.010 requires certain publicly owned treatment works and privately owned facilities regulated by the Public Service Commission to conduct internal operational control monitoring to further ensure proper operation of the facility and to be a safeguard or early warning for potential plant upsets that could affect effluent quality. This requirement is only applicable if the publicly owned treatment works and privately owned facilities regulated by the Public Service Commission has a Population Equivalent greater than two hundred (200).

10 CSR 20-9.010(3) allows the Department to modify the monitoring frequency required in the rule based upon the Department's judgement of monitoring needs for process control at the specified facility.

☒ - As per [10 CSR 20-9.010(4)], the facility is required to conduct operational monitoring. These operational monitoring reports are to be submitted to the Department along with the MSOP discharge monitoring reports.

✓ The facility is a lagoon that is designed to discharge and is required to conduct operational control monitoring as follows:

Operational Monitoring Parameter	Frequency
Precipitation	Twice/Week
Flow – Influent or Effluent	Twice/Week
pH – Primary Cell	Twice/Week
Dissolved Oxygen – Primary Cell	Twice/Week

### **Part IV – Receiving Stream Information**

#### **RECEIVING STREAM(S) TABLE: OUTFALL #001**

WATER-BODY NAME	CLASS	WBID	DESIGNATED USES*	12-DIGIT HUC	DISTANCE TO CLASSIFIED SEGMENT (MI)
Missouri River	P	701	AQL, DWS, HHP, IND, IRR, LWW, SCR, WBC(B), General Criteria	10300102-0104	0.0

\*As per 10 CSR 20-7.031 Missouri Water Quality Standards, the Department defines the Clean Water Commission's water quality objectives in terms of "water uses to be maintained and the criteria to protect those uses." The receiving stream and 1<sup>st</sup> classified receiving stream's beneficial water uses to be maintained are in the receiving stream table in accordance with [10 CSR 20-7.031(1)(C)].

Uses found in the receiving streams table, above:

10 CSR 20-7.031(1)(C)1.:

**AQL** = Protection of aquatic life (Current narrative use(s) are defined to ensure the protection and propagation of fish shellfish and wildlife, which is further subcategorized as: WWH = Warm Water Habitat; **CDF** = Cold-water fishery (Current narrative use is cold-water habitat.); **CLF** = Cool-water fishery (Current narrative use is cool-water habitat); **EAH** = Ephemeral Aquatic Habitat; **MAH** = Modified Aquatic Habitat; **LAH** = Limited Aquatic Habitat. This permit uses AQL effluent limitations in 10 CSR 20-7.031 Table A for all habitat designations unless otherwise specified.)

10 CSR 20-7.031(1)(C)2.: Recreation in and on the water

WBC = Whole Body Contact recreation where the entire body is capable of being submerged;

**WBC-A** = Whole body contact recreation that supports swimming uses and has public access;

**WBC-B** = Whole body contact recreation that supports swimming;

**SCR** = Secondary Contact Recreation (like fishing, wading, and boating).

10 CSR 20-7.031(1)(C)3. to 7.:

**HHP** (formerly HHF) = Human Health Protection as it relates to the consumption of fish;

**IRR** = Irrigation for use on crops utilized for human or livestock consumption;

**LWW** = Livestock and wildlife watering (Current narrative use is defined as LWP = Livestock and Wildlife Protection);

**DWS** = Drinking Water Supply;

**IND** = Industrial water supply

10 CSR 20-7.031(1)(C)8-11.: Wetlands (10 CSR 20-7.031 Table A currently does not have corresponding habitat use criteria for these defined uses)

WSA = Storm- and flood-water storage and attenuation; WHP = Habitat for resident and migratory wildlife species;

WRC = Recreational, cultural, educational, scientific, and natural aesthetic values and uses; WHC = Hydrologic cycle maintenance.

10 CSR 20-7.031(6): **GRW** = Groundwater

#### RECEIVING STREAM(S) LOW-FLOW VALUES:

RECEIVING STREAM (C, E, P, P1)	LOW-FLOW VALUES (CFS)*		
	1Q10	7Q10	30Q10
Missouri River (P)	19,636	20,387	21,662

\* - Data from USGS Gauge Station 06906500, located on the Missouri River at Glasgow, MO from October 1, 2000 to April 11, 2017

#### MIXING CONSIDERATIONS TABLE:

MIXING ZONE (CFS) [10 CSR 20-7.031(5)(A)4.B.(II)(a)]			ZONE OF INITIAL DILUTION (CFS) [10 CSR 20-7.031(5)(A)4.B.(II)(b)]		
1Q10	7Q10	30Q10	1Q10	7Q10	30Q10
4,909	5,097	5,416	2.8	2.8	N/A

#### RECEIVING STREAM MONITORING REQUIREMENTS:

No receiving water monitoring requirements recommended at this time.

## Part V – Rationale and Derivation of Effluent Limitations & Permit Conditions

#### ALTERNATIVE EVALUATIONS FOR NEW FACILITIES:

As per [10 CSR 20-7.015(4)(A)], discharges to losing streams shall be permitted only after other alternatives including land application, discharges to a gaining stream and connection to a regional wastewater treatment facility have been evaluated and determined to be unacceptable for environmental and/or economic reasons.

☒ - The facility does not discharge to a Losing Stream as defined by [10 CSR 20-2.010(40)] & [10 CSR 20-7.031(1)(O)], or is an existing facility.

#### ANTI-BACKSLIDING:

A provision in the Federal Regulations [CWA §303(d)(4); CWA §402(o); 40 CFR Part 122.44(l)] that requires a reissued permit to be as stringent as the previous permit with some exceptions.

☒ - Limitations in this operating permit for the reissuance of this permit conform to the anti-backsliding provisions of Section 402(o) of the Clean Water Act, and 40 CFR Part 122.44.

☒ - Material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation. The facility has relocated the outfall from Hurricane Creek (C) to the Missouri River (P). Monitoring only limits for ammonia were applied and pH shall be maintained above six (6.0) standard units. See **APPENDIX FOR ANTIDEGRADATION ANALYSIS** and **Part VI – Effluent Limits Determination**.

☒ - Information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance.

- WET testing requirements were changed from pass/fail to monitoring only for toxic units. This change reflects modifications to Missouri's Effluent Regulation found at 10 CSR 20-7.015. 40 CFR 122.44(d)(1)(ii) requiring the department to establish effluent limitations to control all parameters which have the reasonable potential to cause or contribute to an excursion above any state water quality standard, including state narrative criteria. The previous permit imposed a pass/fail limitation without collecting sufficient numerical data to conduct an analytical reasonable potential analysis. The permit writer has made a reasonable potential determination which concluded the facility does not have reasonable potential at this time but monitoring is required. Implementation of the toxic unit monitoring requirement will allow the department to effect numeric criteria in accordance with water quality standards established under §303 of the CWA.

☒ - The Department determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under section 402(a)(1)(b).

- **General Criteria.** The previous permit contained a special condition which described a specific set of prohibitions related to general criteria found in 10 CSR 20-7.031(4). In order to comply with 40 CFR 122.44(d)(1), the permit writer has conducted reasonable potential determinations for each general criterion and established numeric effluent limitations where reasonable potential exists. While the removal of the previous permit special condition creates the appearance of backsliding, since this permit establishes numeric limitations where reasonable potential to cause or contribute to an excursion of the general criteria exists the permit maintains sufficient effluent limitations and monitoring requirements in order to protect water quality, this permit is equally protective as compared to the previous permit. Therefore, given this new information, and the fact that the previous permit special condition was not consistent with 40 CFR 122.44(d)(1), an error occurred in the establishment of the general criteria as a special condition of the previous permit. Please see Part VI – Effluent Limits Determination for more information regarding the reasonable potential determinations for each general criterion related to this facility.

#### **ANTIDEGRADATION:**

In accordance with Missouri's Water Quality Standard [10 CSR 20-7.031(3)], for domestic wastewater discharge with new, altered, or expanding discharges, the Department is to document by means of Antidegradation Review that the use of a water body's available assimilative capacity is justified. In accordance with Missouri's water quality regulations for antidegradation [10 CSR 20-7.031(3)], degradation may be justified by documenting the socio-economic importance of a discharge after determining the necessity of the discharge. Facilities must submit the antidegradation review request to the department prior to establishing, altering, or expanding discharges. See <http://dnr.mo.gov/env/wpp/permits/antideg-implementation.htm>

☒ - This permit contains new and/or expanded discharge; please see **APPENDIX FOR ANTIDEGRADATION ANALYSIS**.

#### **AREA-WIDE WASTE TREATMENT MANAGEMENT & CONTINUING AUTHORITY:**

As per [10 CSR 20-6.010(2)(C)], ...An applicant may utilize a lower preference continuing authority by submitting, as part of the application, when a higher level authority is available, must submit information to the Department for review and approval, provided it does not conflict with any area-wide management plan approved under section 208 of the Federal Clean Water Act or any other regional sewage service and treatment plan approved for higher preference authority by the Department.

#### **BIOSOLIDS & SEWAGE SLUDGE:**

Biosolids are solid materials resulting from domestic wastewater treatment that meet federal and state criteria for beneficial uses (i.e. fertilizer). Sewage sludge is solids, semi-solids, or liquid residue generated during the treatment of domestic sewage in a treatment works; including but not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment process; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in a treatment works. Additional information regarding biosolids and sludge is located at the following web address: <http://extension.missouri.edu/main/DisplayCategory.aspx?C=74>, items WQ422 through WQ449.

☒ - Permittee is not authorized to land apply biosolids. Sludge/biosolids are stored in the lagoon. The permittee must submit a sludge management plan for approval that details removal and disposal plans when sludge is to be removed from lagoons.

#### **COMPLIANCE AND ENFORCEMENT:**

Enforcement is the action taken by the Water Protection Program (WPP) to bring an entity into compliance with the Missouri Clean Water Law, its implementing regulations, and/or any terms and conditions of an operating permit. The primary purpose of the enforcement activity in the WPP is to resolve violations and return the entity to compliance.

☒ - The facility is not currently under Water Protection Program enforcement action. Previous enforcement action was due to failure to upgrade for disinfection, failure to report sanitary sewer overflows, failure to collect influent samples to ensure the facility is meeting 65% removal efficiency for BOD and TSS, failure to submit an annual inflow and infiltration report, failure to comply with effluent limits, failure to submit an interim progress report for the schedule of compliance, and failure to apply for operating permit renewal.

**ELECTRONIC DISCHARGE MONITORING REPORT (EDMR) SUBMISSION SYSTEM:**

The U.S. Environmental Protection Agency (EPA) promulgated a final rule on October 22, 2015, to modernize Clean Water Act reporting for municipalities, industries, and other facilities by converting to an electronic data reporting system. This final rule requires regulated entities and state and federal regulators to use information technology to electronically report data required by the National Pollutant Discharge Elimination System (NPDES) permit program instead of filing paper reports. To comply with the federal rule, the Department is requiring all permittees to begin submitting discharge monitoring data and reports online. In an effort to aid facilities in the reporting of applicable information electronically, the department has created several new forms including operational control monitoring forms and an I&I location and reduction form. These forms are for optional use and can be found on the department's website at the following locations:

Operational Monitoring Lagoon: <http://dnr.mo.gov/forms/780-2801-f.pdf>

Operational Monitoring Mechanical: <http://dnr.mo.gov/forms/780-2800-f.pdf>

I&I Report: <http://dnr.mo.gov/forms/780-2690-f.pdf>

Per 40 CFR 127.15 and 127.24, permitted facilities may request a temporary waiver for up to 5 years or a permanent waiver from electronic reporting from the Department. To obtain an electronic reporting waiver, a permittee must first submit an eDMR Waiver Request Form: <http://dnr.mo.gov/forms/780-2692-f.pdf>. A request must be made for each facility. If more than one facility is owned or operated by a single entity, then the entity must submit a separate request for each facility based on its specific circumstances. An approved waiver is non-transferable.

The Department must review and notify the facility within 120 calendar days of receipt if the waiver request has been approved or rejected [40 CFR 124.27(a)]. During the Department review period as well as after a waiver is granted, the facility must continue submitting a hard-copy of any reports required by their permit. The Department will enter data submitted in hard-copy from those facilities allowed to do so and electronically submit the data to the EPA on behalf of the facility.

☒ - The permittee/facility is not currently using the eDMR data reporting system. The permittee shall submit an eDMR Permit Holder and Certifier Registration form within **90 days** of the effective date of this permit.

**PRETREATMENT PROGRAM:**

The reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants into a Publicly Owned Treatment Works [40 CFR Part 403.3(q)].

Pretreatment programs are required at any POTW (or combination of POTW operated by the same authority) and/or municipality with a total design flow greater than 5.0 MGD and receiving industrial wastes that interfere with or pass through the treatment works or are otherwise subject to the pretreatment standards. Pretreatment programs can also be required at POTWs/municipals with a design flow less than 5.0 MGD if needed to prevent interference with operations or pass through.

Several special conditions pertaining to the permittee's pretreatment program may be included in the permit, and are as follows:

- Implementation and enforcement of the program,
- Annual pretreatment report submittal,
- Submittal of list of industrial users,
- Technical evaluation of need to establish local limitations, and
- Submittal of the results of the evaluation

☒ - The permittee, at this time, is not required to have a Pretreatment Program or does not have an approved pretreatment program.

**REASONABLE POTENTIAL ANALYSIS (RPA):**

Federal regulation [40 CFR Part 122.44(d)(1)(i)] requires effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause or contribute to an in-stream excursion above narrative or numeric water quality standard.

In accordance with [40 CFR Part 122.44(d)(1)(iii)] if the permit writer determines that any given pollutant has the reasonable potential to cause, or contribute to an in-stream excursion above the WQS, the permit must contain effluent limits for that pollutant.

☒ - A RPA was conducted on appropriate parameters. Please see **APPENDIX – RPA RESULTS**.

**REMOVAL EFFICIENCY:**

Removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to Biochemical Oxygen Demand 5-day (BOD<sub>5</sub>) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs)/municipals.

☒ - Secondary Treatment is 85% removal [40 CFR Part 133.102(a)(3) & (b)(3)].

**SANITARY SEWER OVERFLOWS (SSO) AND INFLOW AND INFILTRATION (I&I):**

Sanitary Sewer Overflows (SSOs) are defined as untreated sewage releases and are considered bypassing under state regulation [10 CSR 20-2.010(12)] and should not be confused with the federal definition of bypass. SSOs result from a variety of causes including blockages, line breaks, and sewer defects that can either allow wastewater to backup within the collection system during dry weather conditions or allow excess stormwater and groundwater to enter and overload the collection system during wet weather conditions. SSOs can also result from lapses in sewer system operation and maintenance, inadequate sewer design and construction, power failures, and vandalism. SSOs include overflows out of manholes, cleanouts, broken pipes, and other into waters of the state and onto city streets, sidewalks, and other terrestrial locations.

Inflow and Infiltration (I&I) is defined as unwanted intrusion of stormwater or groundwater into a collection system. This can occur from points of direct connection such as sump pumps, roof drain downspouts, foundation drains, and storm drain cross-connections or through cracks, holes, joint failures, faulty line connections, damaged manholes, and other openings in the collection system itself. I&I results from a variety of causes including line breaks, improperly sealed connections, cracks caused by soil erosion/settling, penetration of vegetative roots, and other sewer defects. In addition, excess stormwater and groundwater entering the collection system from line breaks and sewer defects have the potential to negatively impact the treatment facility.

Missouri RSMo §644.026.1.(13) mandates that the Department issue permits for discharges of water contaminants into the waters of this state, and also for the operation of sewer systems. Such permit conditions shall ensure compliance with all requirements as established by sections 644.006 to 644.141. Standard Conditions Part I, referenced in the permit, contains provisions requiring proper operation and maintenance of all facilities and systems of treatment and control. Missouri RSMo §644.026.1.(15) instructs the Department to require proper maintenance and operation of treatment facilities and sewer systems and proper disposal of residual waste from all such facilities. To ensure that public health and the environment are protected, any noncompliance which may endanger public health or the environment must be reported to the Department within 24 hours of the time the permittee becomes aware of the noncompliance. Standard Conditions Part I, referenced in the permit, contains the reporting requirements for the permittee when bypasses and upsets occur. The permit also contains requirements for permittees to develop and implement a program for maintenance and repair of the collection system. The permit requires that the permittee submit an annual report to the Department for the previous calendar year that contains a summary of efforts taken by the permittee to locate and eliminate sources of excess I & I, a summary of general maintenance and repairs to the collection system, and a summary of any planned maintenance and repairs to the collection system for the upcoming calendar year.

☒ - At this time, the Department recommends the US EPA's Guide for Evaluating Capacity, Management, Operation and Maintenance (CMOM) Programs at Sanitary Sewer Collection Systems (Document # EPA 305-B-05-002) or the Departments' CMOM Model located at <http://dnr.mo.gov/env/wpp/permits/docs/cmom-template.doc>. For additional information regarding the Departments' CMOM Model, see the CMOM Plan Model Guidance document at <http://dnr.mo.gov/pubs/pub2574.htm>. The CMOM identifies some of the criteria used to evaluate a collection system's management, operation, and maintenance and was intended for use by the EPA, state, regulated community, and/or third party entities. The CMOM is applicable to small, medium, and large systems; both public and privately owned; and both regional and satellite collection systems. The CMOM does not substitute for the Clean Water Act, the Missouri Clean Water Law, and both federal and state regulations, as it is not a regulation.

**SCHEDULE OF COMPLIANCE (SOC):**

Per 644.051.4 RSMo, a permit may be issued with a Schedule of Compliance (SOC) to provide time for a facility to come into compliance with new state or federal effluent regulations, water quality standards, or other requirements. Such a schedule is not allowed if the facility is already in compliance with the new requirement, or if prohibited by other statute or regulation. A SOC includes an enforceable sequence of interim requirements (actions, operations, or milestone events) leading to compliance with the Missouri Clean Water Law, its implementing regulations, and/or the terms and conditions of an operating permit. *See also* Section 502(17) of the Clean Water Act, and 40 CFR §122.2. For new effluent limitations, the permit may include interim monitoring for the specific parameter to demonstrate the facility is not already in compliance with the new requirement. Per 40 CFR § 122.47(a)(1), 10 CSR 20-7.031(11), and 10 CSR 20-7.015(9), compliance must occur as soon as possible. If the permit provides a schedule for meeting new water quality based effluent limits, a SOC must include an enforceable, final effluent limitation in the permit even if the SOC extends beyond the life of the permit.

A SOC is not allowed:

- For effluent limitations based on technology-based standards established in accordance with federal requirements, if the deadline for compliance established in federal regulations has passed. 40 CFR § 125.3.

- For a newly constructed facility in most cases. Newly constructed facilities must meet applicable effluent limitations when discharge begins, because the facility has installed the appropriate control technology as specified in a permit or antidegradation review. A SOC is allowed for a new water quality based effluent limit that was not included in a previously public noticed permit or antidegradation review, which may occur if a regulation changes during construction.
- To develop a TMDL, UAA, or other study associated with development of a site specific criterion. A facility is not prohibited from conducting these activities, but a SOC may not be granted for conducting these activities.

In order to provide guidance to Permit Writers in developing SOC's, and attain a greater level of consistency, on April 9, 2015 the Department issued an updated policy on development of SOC's. This policy provides guidance to Permit Writers on the standard time frames for schedules for common activities, and guidance on factors that may modify the length of the schedule such as a Cost Analysis for Compliance.

☒ - This permit does not contain a SOC.

**SEWER EXTENSION AUTHORITY SUPERVISED PROGRAM:**

In accordance with [10 CSR 20-6.010(6)(A)], the department may grant approval of a permittee's Sewer Extension Authority Supervised Program. These approved permittees regulate and approve construction of sanitary sewers and pump stations, which are tributary to this wastewater treatment facility. The permittee shall act as the continuing authority for the operation, maintenance, and modernization of the constructed collection system. See <http://dnr.mo.gov/env/wpp/permits/sewer-extension.htm>.

☒ - The permittee does not have a department approved Sewer Extension Authority Supervised Program.

**STORMWATER POLLUTION PREVENTION PLAN (SWPPP):**

In accordance with 40 CFR 122.44(k) *Best Management Practices (BMPs)* to control or abate the discharge of pollutants when: (1) Authorized under section 304(e) of the Clean Water Act (CWA) for the control of toxic pollutants and hazardous substances from ancillary industrial activities; (2) Authorized under section 402(p) of the CWA for the control of stormwater discharges; (3) Numeric effluent limitations are infeasible; or (4) the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA.

In accordance with the EPA's *Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators*, (Document number EPA 833-B-09-002) [published by the United States Environmental Protection Agency (USEPA) in February 2009], BMPs are measures or practices used to reduce the amount of pollution entering (regarding this operating permit) waters of the state. BMPs may take the form of a process, activity, or physical structure.

Additionally in accordance with the Stormwater Management, a SWPPP is a series of steps and activities to (1) identify sources of pollution or contamination, and (2) select and carry out actions which prevent or control the pollution of stormwater discharges. The purpose of a SWPPP is to comply with all applicable stormwater regulations by creating an adaptive management plan to control and mitigate stream pollution from stormwater runoff. Developing a SWPPP provides opportunities to employ appropriate BMPs to minimize the risk of pollutants being discharged during storm events. The following paragraph outlines the general steps the permittee should take to determine which BMPs will work to achieve the benchmark values or limits in the permit. This section is not intended to be all encompassing or restrict the use of any physical BMP or operational and maintenance procedure assisting in pollution control. Additional steps or revisions to the SWPPP may be required to meet the requirements of the permit.

Areas which should be included in the SWPPP are identified in 40 CFR 122.26(b)(14). Once the potential sources of stormwater pollution have been identified, a plan should be formulated to best control the amount of pollutant being released and discharged by each activity or source. This should include, but is not limited to, minimizing exposure to stormwater, good housekeeping measures, proper facility and equipment maintenance, spill prevention and response, vehicle traffic control, and proper materials handling. Once a plan has been developed the facility will employ the control measures determined to be adequate to achieve the benchmark values discussed above. The facility will conduct monitoring and inspections of the BMPs to ensure they are working properly and re-evaluate any BMP not achieving compliance with permitting requirements. For example, if sample results from an outfall show values of TSS above the benchmark value, the BMP being employed is deficient in controlling stormwater pollution. Corrective action should be taken to repair, improve, or replace the failing BMP. This internal evaluation is required at least once per month but should be continued more frequently if BMPs continue to fail. If failures do occur, continue this trial and error process until appropriate BMPs have been established.

For new, altered, or expanded stormwater discharges, the SWPPP shall identify reasonable and effective BMPs while accounting for environmental impacts of varying control methods. The antidegradation analysis must document why no discharge or no exposure options are not feasible. The selection and documentation of appropriate control measures shall serve as an alternative analysis of technology and fulfill the requirements of antidegradation [10 CSR 20-7.031(3)]. For further guidance, consult the antidegradation implementation procedure (<http://dnr.mo.gov/env/wpp/docs/AIP050212.pdf>).



Alternative Analysis (AA) evaluation of the BMPs is a structured evaluation of BMPs that are reasonable and cost effective. The AA evaluation should include practices that are designed to be: 1) non-degrading; 2) less degrading; or 3) degrading water quality. The glossary of AIP defines these three terms. The chosen BMP will be the most reasonable and effective management strategy while ensuring the highest statutory and regulatory requirements are achieved and the highest quality water attainable for the facility is discharged. The AA evaluation must demonstrate why “no discharge” or “no exposure” is not a feasible alternative at the facility. This structured analysis of BMPs serves as the antidegradation review, fulfilling the requirements of 10 CSR 20-7.031(3) Water Quality Standards and *Antidegradation Implementation Procedure* (AIP), Section II.B.

If parameter-specific numeric exceedances continue to occur and the permittee feels there are no practicable or cost-effective BMPs which will sufficiently reduce a pollutant concentration in the discharge to the benchmark values established in the permit, the permittee can submit a request to re-evaluate the benchmark values. This request needs to include 1) a detailed explanation of why the facility is unable to comply with the permit conditions and unable to establish BMPs to achieve the benchmark values; 2) financial data of the company and documentation of cost associated with BMPs for review and 3) the SWPPP, which should contain adequate documentation of BMPs employed, failed BMPs, corrective actions, and all other required information. This will allow the Department to conduct a cost analysis on control measures and actions taken by the facility to determine cost-effectiveness of BMPs. The request shall be submitted in the form of an operating permit modification; the application is found at:

<http://dnr.mo.gov/forms/index.html>.

☒ - At this time, the permittee is not required to develop and implement a SWPPP.

#### **VARIANCE:**

As per the Missouri Clean Water Law § 644.061.4, variances shall be granted for such period of time and under such terms and conditions as shall be specified by the commission in its order. The variance may be extended by affirmative action of the commission. In no event shall the variance be granted for a period of time greater than is reasonably necessary for complying with the Missouri Clean Water Law §§644.006 to 644.141 or any standard, rule or regulation promulgated pursuant to Missouri Clean Water Law §§644.006 to 644.141.

☒ - This operating permit is not drafted under premises of a petition for variance.

#### **WASTELOAD ALLOCATIONS (WLA) FOR LIMITS:**

As per [10 CSR 20-2.010(78)], the amount of pollutant each discharger is allowed by the Department to release into a given stream after the Department has determined total amount of pollutant that may be discharged into that stream without endangering its water quality.

☒ - Wasteload allocations were calculated where applicable using water quality criteria or water quality model results and the dilution equation below:

$$C_e = \frac{(Q_e + Q_s)C - (Q_s \times C_s)}{(Q_e)} \quad (\text{EPA/505/2-90-001, Section 4.5.5})$$

Where    C = downstream concentration      C<sub>e</sub> = effluent concentration  
          C<sub>s</sub> = upstream concentration      Q<sub>e</sub> = effluent flow  
          Q<sub>s</sub> = upstream flow

Chronic wasteload allocations were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration) and stream volume of flow at the edge of the mixing zone (MZ). Acute wasteload allocations were determined using applicable water quality criteria (CMC: criteria maximum concentration) and stream volume of flow at the edge of the zone of initial dilution (ZID).

Water quality based maximum daily and average monthly effluent limitations were calculated using methods and procedures outlined in USEPA's "Technical Support Document For Water Quality-based Toxics Control" (EPA/505/2-90-001).

#### **Number of Samples "n":**

Additionally, in accordance with the TSD for water quality-based permitting, effluent quality is determined by the underlying distribution of daily values, which is determined by the Long Term Average (LTA) associated with a particular Wasteload Allocation (WLA) and by the Coefficient of Variation (CV) of the effluent concentrations. Increasing or decreasing the monitoring frequency does not affect this underlying distribution or treatment performance, which should be, at a minimum, be targeted to comply with the values dictated by the WLA. Therefore, it is recommended that the actual planned frequency of monitoring normally be used to determine the value of "n" for calculating the AML. However, in situations where monitoring frequency is once per month or less, a higher value for "n" must be assumed for AML derivation purposes. Thus, the statistical procedure being employed using an assumed number of samples is "n = 4" at a minimum. For Total Ammonia as Nitrogen, "n = 30" is used

**WLA MODELING:**

There are two general types of effluent limitations, technology-based effluent limits (TBELs) and water quality based effluent limits (WQBELs). If TBELs do not provide adequate protection for the receiving waters, then WQBEL must be used.

☒ - A WLA study was either not submitted or determined not applicable by Department staff.

**WHOLE EFFLUENT TOXICITY (WET) TEST:**

☒ - The permittee is required to conduct WET test for this facility.

A WET test is a quantifiable method of determining if a discharge from a facility may be causing toxicity to aquatic life by itself, in combination with or through synergistic responses when mixed with receiving stream water.

Under the federal Clean Water Act (CWA) §101(a)(3), requiring WET testing is reasonably appropriate for site-specific Missouri State Operating Permits for discharges to waters of the state issued under the National Pollutant Discharge Elimination System (NPDES). WET testing is also required by 40 CFR 122.44(d)(1). WET testing ensures that the provisions in the 10 CSR 20-6.010(8)(A) and the Water Quality Standards 10 CSR 20-7.031(4)(D),(F),(G),(J)2.A & B are being met. Under [10 CSR 20-6.010(8)(B)], the Department may require other terms and conditions that it deems necessary to assure compliance with the Clean Water Act and related regulations of the Missouri Clean Water Commission. In addition the following MCWL apply: §§644.051.3 requires the Department to set permit conditions that comply with the MCWL and CWA; 644.051.4 specifically references toxicity as an item we must consider in writing permits (along with water quality-based effluent limits, pretreatment, etc...); and 644.051.5 is the basic authority to require testing conditions. WET test will be required by facilities meeting the following criteria:

- ☐ Facility is a designated Major.
- ☐ Facility continuously or routinely exceeds its design flow.
- ☐ Facility that exceeds its design population equivalent (PE) for BOD<sub>5</sub> whether or not its design flow is being exceeded.
- ☐ Facility (whether primarily domestic or industrial) that alters its production process throughout the year.
- ☐ Facility handles large quantities of toxic substances, or substances that are toxic in large amounts.
- ☐ Facility has Water Quality-based Effluent Limitations for toxic substances (other than NH<sub>3</sub>)
- ☒ Facility is a municipality with a Design Flow ≥ 22,500 gpd.
- ☐ Other – please justify.

**40 CFR 122.41(M) - BYPASSES:**

The federal Clean Water Act (CWA), Section 402 prohibits wastewater dischargers from “bypassing” untreated or partially treated sewage (wastewater) beyond the headworks. A bypass is defined as an intentional diversion of waste streams from any portion of a treatment facility, [40 CFR 122.41(m)(1)(i)]. Additionally, Missouri regulation 10 CSR 20-7.015(9)(G) states a bypass means the intentional diversion of waste streams from any portion of a treatment facility, except in the case of blending, to waters of the state. Only under exceptional and specified limitations do the federal regulations allow for a facility to bypass some or all of the flow from its treatment process. Bypasses are prohibited by the CWA unless a permittee can meet all of the criteria listed in 40 CFR 122.41(m)(4)(i)(A), (B), & (C). Any bypasses from this facility are subject to the reporting required in 40 CFR 122.41(l)(6) and per Missouri’s Standard Conditions I, Section B, part 2.b. Additionally, Anticipated Bypasses include bypasses from peak flow basins or similar devices designed for peak wet weather flows.

☒ - This facility does not anticipate bypassing.

**303(d) LIST & TOTAL MAXIMUM DAILY LOAD (TMDL):**

Section 303(d) of the federal Clean Water Act requires that each state identify waters that are not meeting water quality standards and for which adequate water pollution controls have not been required. Water quality standards protect such beneficial uses of water as whole body contact (such as swimming), maintaining fish and other aquatic life, and providing drinking water for people, livestock and wildlife. The 303(d) list helps state and federal agencies keep track of waters that are impaired but not addressed by normal water pollution control programs.

A TMDL is a calculation of the maximum amount of a given pollutant that a body of water can absorb before its water quality is affected. If a water body is determined to be impaired as listed on the 303(d) list, then a watershed management plan will be developed that shall include the TMDL calculation

☒ - This facility discharges to a stream with an EPA approved TMDL for Chlordane and PCBs. This facility is not considered to be a source of these pollutants or considered to contribute to the impairment.



## Part VI – Effluent Limits Determination

### OUTFALL #001 – MAIN FACILITY OUTFALL

Effluent limitations derived and established in the below Effluent Limitations Table are based on current operations of the facility. Future permit action due to facility modification may contain new operating permit terms and conditions that supersede the terms and conditions, including effluent limitations, of this operating permit.

#### EFFLUENT LIMITATIONS TABLE:

PARAMETER	Unit	Basis for Limits	Daily Maximum	Weekly Average	Monthly Average	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type ****
Flow	MGD	1	*		*	same	twice/week	monthly	E
BOD <sub>5</sub>	mg/L	1		45	30	65/45	1/month	monthly	G
TSS	mg/L	1		45	30	110/70	1/month	monthly	G
<i>Escherichia coli</i> **	#/100mL	1, 3		1030	206	same	1/week	monthly	G
Ammonia as N	mg/L	2, 3	*		*	5.3/1.3 (s) 12.0/2.6 (w)	1/month	monthly	G
Oil & Grease	mg/L	1, 3	15		10	same	1/month	monthly	G
Total Nitrogen	mg/L	1	*		*	***	1/quarter	quarterly	G
Total Phosphorus	mg/L	1	*		*	***	1/quarter	quarterly	G
Acute Whole Effluent Toxicity	TUa	1, 9	*			Pass / Fail	1/permit cycle	1/permit cycle	G
PARAMETER	Unit	Basis for Limits	Minimum		Maximum	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type
pH	SU	1	6.0			6.5	1/month	monthly	G
PARAMETER	Unit	Basis for Limits	Daily Minimum		Monthly Avg Min	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type
BOD <sub>5</sub> Percent Removal	%	1			85	65	1/month	monthly	M
TSS Percent Removal	%	1			85	65	1/month	monthly	M

\* - Monitoring requirement only.

\*\* - #/100mL; the Monthly Average for *E. coli* is a geometric mean.

\*\*\* - Parameter not previously established in previous state operating permit.

\*\*\*\* - C = 24-hour composite

G = Grab

E = 24-hr. estimate

M = Measured/calculated

#### Basis for Limitations Codes:

- |  |                                   |   |
|--|-----------------------------------|---|
| 1. State or Federal Regulation/Law       | 5. Antidegradation Policy         | 9. WET Test Policy                        |
| 2. Water Quality Standard (includes RPA) | 6. Water Quality Model            | 10. Multiple Discharger Variance          |
| 3. Water Quality Based Effluent Limits   | 7. Best Professional Judgment     | 11. Nutrient Criteria Implementation Plan |
| 4. Antidegradation Review                | 8. TMDL or Permit in lieu of TMDL |   |

### OUTFALL #001 – DERIVATION AND DISCUSSION OF LIMITS:

- Flow.** In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the Department, which may require the submittal of an operating permit modification.
- Biochemical Oxygen Demand (BOD<sub>5</sub>).**
  - ☒ - 45 mg/L as a Weekly Average and 30 mg/L as a Monthly Average. Please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Effluent Limits Determination**.
- Total Suspended Solids (TSS).**
  - ☒ - 45 mg/L as a Weekly Average and 30 mg/L as a Monthly Average. Please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Effluent Limits Determination**.

- **Escherichia coli (E. coli).** Monthly average of 206 per 100 mL as a geometric mean and Weekly Average of 1030 per 100 mL as a geometric mean during the recreational season (April 1 – October 31), to protect Whole Body Contact Recreation (B) designated use of the receiving stream, as per 10 CSR 20-7.031(5)(C). An effluent limit for both monthly average and weekly average is required by 40 CFR 122.45(d). The Geometric Mean is calculated by multiplying all of the data points and then taking the nth root of this product, where n = # of samples collected. For example: Five *E. coli* samples were collected with results of 1, 4, 6, 10, and 5 (#/100mL). Geometric Mean = 5<sup>th</sup> root of (1)(4)(6)(10)(5) = 5<sup>th</sup> root of 1,200 = 4.1 #/100mL.
- **Total Ammonia Nitrogen.** Monitoring only. Reasonable Potential Analysis showed no reasonable potential to cause or contribute to an in-stream excursion above the WQS. See **APPENDIX FOR ANTIDegradation ANALYSIS.**

Early Life Stages Present Total Ammonia Nitrogen criteria apply [10 CSR 20-7.031(5)(B)7.C. & Table B3]. Background total ammonia nitrogen = 0.35 mg/L.

Season	Temp (°C)	pH (SU)	Total Ammonia Nitrogen CCC (mg/L)	Total Ammonia Nitrogen CMC (mg/L)
Summer	26	7.8	1.5	12.1
Winter	6	7.8	3.1	12.1

**Summer: April 1 – September 30**

Chronic WLA:  $C_e = ((0.28 + 5,416)1.5 - (5,416 * 0.35))/0.28$   
 $C_e = 22,362 \text{ mg/L}$

Acute WLA:  $C_e = ((0.28 + 2.8)12.1 - (2.8 * 0.35))/0.28$   
 $C_e = 129.6 \text{ mg/L}$

$LTA_c = 22,362 \text{ mg/L} (0.780) = 17,449 \text{ mg/L}$   
 $LTA_a = 129.6 \text{ mg/L} (0.321) = 41.6 \text{ mg/L}$

[CV = 0.6, 99<sup>th</sup> Percentile, 30 day avg.]  
[CV = 0.6, 99<sup>th</sup> Percentile]

Use most protective number of  $LTA_c$  or  $LTA_a$ .

MDL = 41.6 mg/L (3.11) = 129.6 mg/L  
AML = 41.6 mg/L (1.19) = 49.5 mg/L

[CV = 0.6, 99<sup>th</sup> Percentile]  
[CV = 0.6, 95<sup>th</sup> Percentile, n = 30]

**Winter: October 1 – March 31**

Chronic WLA:  $C_e = ((0.28 + 5,416)3.1 - (5,416 * 0.35))/0.28$   
 $C_e = 53,474 \text{ mg/L}$

Acute WLA:  $C_e = ((0.28 + 2.8)12.1 - (2.8 * 0.35))/0.28$   
 $C_e = 129.6 \text{ mg/L}$

$LTA_c = 53,474 \text{ mg/L} (0.780) = 41,725 \text{ mg/L}$   
 $LTA_a = 129.6 \text{ mg/L} (0.321) = 41.6 \text{ mg/L}$

[CV = 0.6, 99<sup>th</sup> Percentile, 30 day avg.]  
[CV = 0.6, 99<sup>th</sup> Percentile]

Use most protective number of  $LTA_c$  or  $LTA_a$ .

MDL = 41.6 mg/L (3.11) = 129.6 mg/L  
AML = 41.6 mg/L (1.19) = 49.5 mg/L

[CV = 0.6, 99<sup>th</sup> Percentile]  
[CV = 0.6, 95<sup>th</sup> Percentile, n = 30]

- **Oil & Grease.** Conventional pollutant, effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.
- **Total Phosphorus and Total Nitrogen.** Monitoring required for facilities greater than 100,000 gpd design flow per 10 CSR 20-7.015(9)(D)7. Total Nitrogen shall be determined by testing for Total Kjeldahl Nitrogen (TKN) and Nitrate + Nitrite and reporting the sum of the results (reported as N). Nitrate + Nitrite can be analyzed together or separately.
- **pH.** –  $\geq 6.0$  SU. pH limitations [10 CSR 20-7.015] are protective of the water quality standard [10 CSR 20-7.031(5)(E)], due to the buffering capacity of the mixing zone.

- **Biochemical Oxygen Demand (BOD<sub>5</sub>) Percent Removal.** In accordance with 40 CFR Part 133.102(a)(3) & (b)(3), removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to Biochemical Oxygen Demand 5-day (BOD<sub>5</sub>) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs)/municipals. This facility is required to meet 85% removal efficiency for BOD<sub>5</sub>.
- **Total Suspended Solids (TSS) Percent Removal.** In accordance with 40 CFR Part 133.105(a)(3) & (b)(3), removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to Biochemical Oxygen Demand 5-day (BOD<sub>5</sub>) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs)/municipals. This facility is required to meet 85% removal efficiency for TSS.

#### Whole Effluent Toxicity

- **Acute Whole Effluent Toxicity.** Monitoring requirement only. Monitoring is required to determine if reasonable potential exists for this facility's discharge to exceed water quality standards

Classified P with other than default Mixing Considerations, the AEC% is determined as follows:.

Acute AEC% =  $\{[(\text{design flow}_{\text{cfs}} + \text{ZID}_{7\text{Q10}}) / \text{design flow}_{\text{cfs}}]^{-1}\} \times 100 = \#\%$

Acute AEC% =  $\{[(0.2 + 2.0) / 0.2]^{-1}\} \times 100 = 9.1\%$

The Allowable Effluent Concentration (AEC) is 9.1% with the dilution series being: 100%, 50%, 25%, 9.1%, 4.5%

#### Sampling Frequency Justification:

Sampling and Reporting Frequency was retained from previous permit. Weekly sampling is required for *E. coli*, per 10 CSR 20-7.015(9)(D)6.A.

**WET Test Sampling Frequency Justification.** WET Testing schedules and intervals are established in accordance with the Department's Permit Manual; Section 5.2 *Effluent Limits / WET Testing for Compliance Bio-monitoring*. It is recommended that WET testing be conducted during the period of lowest stream flow.

#### Acute Whole Effluent Toxicity

☒ -No less than **ONCE/PERMIT CYCLE:**

☒ -Municipality with a design flow  $\geq 22,500$  gpd, but less than 1.0 MGD.

☐ - Other, please justify.

#### Sampling Type Justification:

As per 10 CSR 20-7.015, BOD<sub>5</sub>, TSS and WET test samples collected for lagoons may be grab samples. Grab samples must be collected for pH, Ammonia as N, *E. coli*, Oil & Grease, and Total Phosphorus. This is due to the holding time restriction for *E. coli*, the volatility of Ammonia, and the fact that pH cannot be preserved and must be sampled in the field. As Ammonia, Oil & Grease, and Total Phosphorus samples must be immediately preserved, these samples are to be collected as a grab. For further information on sampling and testing methods please review 10 CSR 20-7.015(9)(D) 2.

#### OUTFALL #001 – GENERAL CRITERIA CONSIDERATIONS:

In accordance with 40 CFR 122.44(d)(1), effluent limitations shall be placed into the permit for those pollutants which have been determined to cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality. The rule further states that pollutants which have been determined to cause, have the reasonable potential to cause, or contribute to an excursion above a narrative criterion within an applicable State water quality standard, the permit shall contain a numeric effluent limitation to protect that narrative criterion. In order to comply with this regulation, the permit writer will complete reasonable potential determinations on whether the discharge will violate any of the general criteria listed in 10 CSR 20-7.031(4). These specific requirements are listed below followed by derivation and discussion (the lettering matches that of the rule itself, under 10 CSR 20-7.031(4)). It should also be noted that Section 644.076.1, RSMo as well as Section D – Administrative Requirements of Standard Conditions Part I of this permit states that it shall be unlawful for any person to cause or permit any discharge of water contaminants from any water contaminant or point source located in Missouri that is in violation of sections 644.006 to 644.141 of the Missouri Clean Water Law or any standard, rule or regulation promulgated by the commission.

- (A) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses. The discharge from this facility is made up of treated domestic wastewater. No evidence of an excursion of this criterion has been observed by the department in the past and the facility has not

disclosed any other information related to the characteristics of the discharge on their permit application which has the potential to cause or contribute to an excursion of this narrative criterion. Additionally, this facility utilizes secondary treatment technology and this permit contains secondary treatment technology based effluent limits. Based on the information reviewed during the drafting of this permit, it has been determined that if the facility meets final effluent limitations established in this permit, there is no reasonable potential for the discharge to cause an excursion of this criterion.

- (B) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses. Please see (A) above as justification is the same.
- (C) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses. Please see (A) above as justification is the same.
- (D) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life. This permit contains final effluent limitations which are protective of both acute and chronic toxicity for various pollutants that are either expected to be discharged by domestic wastewater facilities or that were disclosed by this facility on the application for permit coverage. Based on the information reviewed during the drafting of this permit, it has been determined if the facility meets final effluent limitations established in this permit, there is no reasonable potential for the discharge to cause an excursion of this criterion.
- (E) There shall be no significant human health hazard from incidental contact with the water. Please see (D) above as justification is the same.
- (F) There shall be no acute toxicity to livestock or wildlife watering. Please see (D) above as justification is the same.
- (G) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community. Please see (A) above as justification is the same.
- (H) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247. The discharge from this facility is made up of treated domestic wastewater. No evidence of an excursion of this criterion has been observed by the department in the past and the facility has not disclosed any other information related to the characteristics of the discharge on their permit application which has the potential to cause or contribute to an excursion of this narrative criterion. Additionally, any solid wastes received or produced at this facility are wholly contained in appropriate storage facilities, are not discharged, and are disposed of offsite. This discharge is subject to Standard Conditions Part III, which contains requirements for the management and disposal of sludge to prevent its discharge. Therefore, this discharge does not have reasonable potential to cause or contribute to an excursion of this criterion.

## **Part VII – 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 required to determine “findings of affordability” because the permit applies to a combined or separate sanitary sewer system for a publically-owned treatment works.

**Cost Analysis for Compliance** - The Department has made a reasonable search for empirical data indicating the permit is affordable. The search consisted of a review of Department records that might contain economic data on the community, a review of information provided by the applicant as part of the application, and public comments received in response to public notices of this draft permit. If the empirical cost data was used by the permit writer, this data may consist of median household income, any other ongoing projects that the Department has knowledge, and other demographic financial information that the community provided as contemplated by Section 644. 145.3. See **Appendix – Cost Analysis for Compliance**

## **Part VIII – Administrative Requirements**

On the basis of preliminary staff review and the application of applicable standards and regulations, the Department, as administrative agent for the Missouri Clean Water Commission, proposes to issue a permit(s) subject to certain effluent limitations, schedules, and special conditions contained herein and within the operating permit. The proposed determinations are tentative pending public comment.

### **PERMIT SYNCHRONIZATION:**

The Department of Natural Resources is currently undergoing a synchronization process for operating permits. Permits are normally issued on a five-year term, but to achieve synchronization many permits will need to be issued for less than the full five years allowed by regulation. The intent is that all permits within a watershed will move through the Watershed Based Management (WBM) cycle together and all expire in the same fiscal year. This will allow further streamlining by placing multiple permits within a smaller geographic area on public notice simultaneously, thereby reducing repeated administrative efforts. This will also allow the Department to explore a watershed based permitting effort at some point in the future. Renewal applications must continue to be submitted within 180 days of expiration, however, in instances where effluent data from the previous renewal is less than 4 years old, that data may be re-submitted to meet the requirements of the renewal application. If the permit provides a schedule of compliance for meeting new water quality based effluent limits beyond the expiration date of the permit, the time remaining in the schedule of compliance will be allotted in the renewed permit. With permit synchronization, this permit will expire in the 2<sup>nd</sup> Quarter of calendar year 2020. If the Department issues the permit at this time, the effective period of the permit would be less than one year in length. To ensure efficient use of Department staff, reduce the Department's permitting back log and to provide better service to the permittee by avoiding another renewal application to be submitted in such a short time period this operating permit will be issued for the maximum timeframe of five years and synced with other permits in the watershed at a later date.

### **PUBLIC NOTICE:**

The Department shall give public notice that a draft permit has been prepared and its issuance is pending. Additionally, public notice will be issued if a public hearing is to be held because of a significant degree of interest in and water quality concerns related to a draft permit. No public notice is required when a request for a permit modification or termination is denied; however, the requester and permittee must be notified of the denial in writing. The Department must issue public notice of a pending operating permit or of a new or reissued statewide general permit. The public comment period is the length of time not less than 30 days following the date of the public notice which interested persons may submit written comments about the proposed permit. For persons wanting to submit comments regarding this proposed operating permit, then please refer to the Public Notice page located at the front of this draft operating permit. The Public Notice page gives direction on how and where to submit appropriate comments.

☒ - The Public Notice period for this operating permit was from July 14, 2017 to August 14, 2017. No responses received. Standard Conditions Part III was updated since the public notice was completed and the date in this operating permit has been updated from March 1, 2015 to Aug 1, 2019.

**DATE OF FACT SHEET: 06/19/2017; REVIEWED: 3/23/2020**

### **COMPLETED BY:**

**CAILIE CARLILE, P.E.**  
**MISSOURI DEPARTMENT OF NATURAL RESOURCES**  
**WATER PROTECTION PROGRAM**  
**ENGINEERING SECTION**  
**(573) 522-4297**  
**cailie.carlile@dnr.mo.gov**

## Appendices

### APPENDIX - CLASSIFICATION WORKSHEET:

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
Maximum Population Equivalent (P.E.) served (Max 10 pts.)	1 pt./10,000 PE or major fraction thereof.	0
Maximum: 10 pt Design Flow (avg. day) or peak month; use greater (Max 10 pts.)	1 pt. / MGD or major fraction thereof.	0
EFFLUENT DISCHARGE RECEIVING WATER SENSITIVITY:		
Missouri or Mississippi River	0	0
All other stream discharges except to losing streams and stream reaches supporting whole body contact	1	
Discharge to lake or reservoir outside of designated whole body contact recreational area	2	
Discharge to losing stream, or stream, lake or reservoir area supporting whole body contact recreation	3	
PRELIMINARY TREATMENT - Headworks		
Screening and/or comminution	3	
Grit removal	3	
Plant pumping of main flow (lift station at the headworks)	3	3
PRIMARY TREATMENT		
Primary clarifiers	5	
Combined sedimentation/digestion	5	
Chemical addition (except chlorine, enzymes)	4	
REQUIRED LABORATORY CONTROL – performed by plant personnel (highest level only)		
Push – button or visual methods for simple test such as pH, Settleable solids	3	
Additional procedures such as DO, COD, BOD, titrations, solids, volatile content	5	5
More advanced determinations such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc.	7	
Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph	10	
ALTERNATIVE FATE OF EFFLUENT		
Direct reuse or recycle of effluent	6	
Land Disposal – low rate	3	
High rate	5	
Overland flow	4	
Total from page <b>ONE (1)</b>	----	8

**APPENDIX - CLASSIFICATION WORKSHEET (CONTINUED):**

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
<b>VARIATION IN RAW WASTE (highest level only) (DMR exceedances and Design Flow exceedances)</b>		
Variation do not exceed those normally or typically expected	0	
Recurring deviations or excessive variations of 100 to 200 % in strength and/or flow	2	
Recurring deviations or excessive variations of more than 200 % in strength and/or flow	4	
Raw wastes subject to toxic waste discharge	6	
<b>SECONDARY TREATMENT</b>		
Trickling filter and other fixed film media with secondary clarifiers	10	
Activated sludge with secondary clarifiers (including extended aeration and oxidation ditches)	15	
Stabilization ponds without aeration	5	
Aerated lagoon	8	8
Advanced Waste Treatment Polishing Pond	2	
Chemical/physical – without secondary	15	
Chemical/physical – following secondary	10	
Biological or chemical/biological	12	
Carbon regeneration	4	
<b>DISINFECTION</b>		
Chlorination or comparable	5	
Dechlorination	2	
On-site generation of disinfectant (except UV light)	5	
UV light	4	
<b>SOLIDS HANDLING - SLUDGE</b>		
Solids Handling Thickening	5	
Anaerobic digestion	10	
Aerobic digestion	6	
Evaporative sludge drying	2	
Mechanical dewatering	8	
Solids reduction (incineration, wet oxidation)	12	
Land application	6	
Total from page <b>TWO (2)</b>	----	8
Total from page <b>ONE (1)</b>	---	8
Grand Total	---	16

- ☐ - A: 71 points and greater  
☐ - B: 51 points – 70 points  
☐ - C: 26 points – 50 points  
☒ - D: 0 points – 25 points

**APPENDIX – RPA RESULTS:**

Parameter	CMC*	RWC Acute*	CCC*	RWC Chronic*	n**	Range max/min	CV***	MF	RP Yes/No
Total Ammonia as Nitrogen (Summer) mg/L	12.1	3.80	1.5	0.35	21.00	10/0.1	1.14	3.83	NO
Total Ammonia as Nitrogen (Winter) mg/L	12.1	2.84	3.1	0.35	15.00	7.39/0.1	0.92	3.76	NO

N/A – Not Applicable

\* - Units are (µg/L) unless otherwise noted.

\*\* - If the number of samples is 10 or greater, then the CV value must be used in the WQBEL for the applicable constituent. If the number of samples is < 10, then the default CV value must be used in the WQBEL for the applicable constituent.

\*\*\* - Coefficient of Variation (CV) is calculated by dividing the Standard Deviation of the sample set by the Mean of the same sample set.

RWC – Receiving Water Concentration. It is the concentration of a toxicant or the parameter toxicity in the receiving water after mixing (if applicable).

n – Is the number of samples.

MF – Multiplying Factor. 99% Confidence Level and 99% Probability Basis.

RP – Reasonable Potential. It is where an effluent is projected or calculated to cause an excursion above a water quality standard based on a number of factors including, as a minimum, the four factors listed in 40 CFR 122.44(d)(1)(ii).

Reasonable Potential Analysis is conducted as per (TSD, EPA/505/2-90-001, Section 3.3.2). A more detailed version including calculations of this RPA is available upon request.



**APPENDIX – ANTIDEGRADATION ANALYSIS:**

# **Water Quality and Antidegradation Review**

*For the Protection of Water Quality  
and Determination of Effluent Limits for Discharge to the Missouri River*

*by*  
***Glasgow Wastewater Treatment Facility***



May 2017

## Table of Contents

1.	Facility Information .....	21
2.	Water Quality Information.....	21
2.1.	Water Quality History:.....	21
3.	Receiving Waterbody Information .....	21
4.	General Comments.....	22
5.	Antidegradation Review Information .....	22
5.1.	Tier Determination.....	22
	Table 1. Pollutants of Concern and Tier Determination .....	23
5.2.	Existing Water Quality .....	23
5.3.	No Discharge Evaluation .....	23
5.4.	Losing Stream Alternative Discharge Location.....	23
5.5.	Assimilative Capacity Calculations .....	23
	Table 2. Assimilative Capacity Calculations for the Missouri River (at proposed flow).....	24
	Table 3. Pollutant Loads at Glasgow WWTF .....	24
	Table 4: Applicant Proposed Limits .....	25
6.	General Assumptions of the Water Quality and Antidegradation Review .....	25
7.	Mixing Considerations.....	26
8.	Permit Limits and Monitoring Information .....	26
	Table 5. Effluent Limits for Outfall 001 .....	27
9.	Receiving Water Monitoring Requirements .....	27
10.	Derivation and Discussion of Limits .....	27
10.1.	Outfall #001 – Main Facility Outfall .....	28
10.2.	Limit Derivation.....	28
	Table 6. Calculations of Minimally Degrading Effluent Limits.....	29
	Table 7. Reasonable Potential Analysis to Exceed MDL of Minimal Degradation Limits.....	30
	Table 8. Water Quality-based Effluent Limits for POCs.....	32
11.	Antidegradation Review Preliminary Determination .....	33
	Appendix A: Map of Discharge Location.....	34
	Appendix B: Natural Heritage Review .....	35
	Appendix C: Streeter Phelps Model Results Proposed Design Flow .....	40
	Appendix D: Antidegradation Review Summary Attachments.....	43
	Appendix E: Applicant Supplied Minimal Degradation Calculations.....	51

## 1. FACILITY INFORMATION

FACILITY NAME: Glasgow WWTF NPDES #: MO-0034240

FACILITY TYPE: POTW – SIC #4952

FACILITY DESCRIPTION: The facility outfall for the existing three cell lagoon system will be relocated from Hurricane Creek to the Missouri River. The design flow will remain the same at 0.18 MGD. The facility will also be adding aerators to the first and second lagoon cells.

COUNTY:	<u>Howard</u>	UTM COORDINATES:	<u>X= 512652/ Y= 4339922</u>
12- DIGIT HUC:	<u>10300102-0104</u>	LEGAL DESCRIPTION:	<u>Land Grant #02456</u>
EDU*:	<u>Ozark/Moreau/Loutre</u>	ECOREGION:	<u>Western Corn Belt Plains</u>

\* - Ecological Drainage Unit

## 2. WATER QUALITY INFORMATION

In accordance with Missouri's Water Quality Standard [10 CSR 20-7.031(3)] and federal antidegradation policy at Title 40 Code of Federal Regulation (CFR) Section 131.12 (a), the Missouri Department of Natural Resources (MDNR) developed a statewide antidegradation policy and corresponding procedures to implement the policy. A proposed discharge to a water body will be required to undergo a level of Antidegradation Review which documents that the use of a water body's available assimilative capacity is justified. Effective August 30, 2008, and revised July 13, 2016, a facility is required to use *Missouri's Antidegradation Implementation Procedure (AIP)* for new and expanded wastewater discharges.

### 2.1. WATER QUALITY HISTORY:

Discharge Monitoring Reports for the last five years (April 2012 through February 2017) indicate that DMRs were not received for August 2015 or from January 2016 through February 2017. BOD limits were exceeded in Apr 2013, Fecal coliform had two exceedances in Apr and May of 2013, pH was exceeded in Mar 2015, and TSS was exceeded in Oct 2012, Apr 2013, and Jan 2015. From April 2012 to present, the mean monthly average flow was 0.045 gallons per day, and the mean daily max flow was 0.053 MGD. The applicant had previously proposed reducing the design flow to 130,000 gallons per day or 99,000 gallons per day, but maintaining the existing design flow was determined to be the most appropriate approach as no changes were proposed that would reduce the treatment capacity of the existing system.

This facility is currently under enforcement for violations including failing to upgrade to meet disinfection requirements, failure to submit required reports, and failure to apply for renewal of the operating permit at least 180 days before expiration.

Low flow values for the Missouri River were calculated using discharge data from October 1, 2000 to April 11, 2017 from USGS Station 06906500, Missouri River at Glasgow, MO.

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	RECEIVING WATERBODY	DISTANCE TO CLASSIFIED SEGMENT (MI)
001	0.28	Secondary	Missouri River	0.0

## 3. RECEIVING WATERBODY INFORMATION

WATERBODY NAME	CLASS	WBID	LOW-FLOW VALUES (CFS)			DESIGNATED USES**
			1Q10	7Q10	30Q10	
Missouri River	P	701	19,636	20,387	21,662	AQL, DWS, HHP, IND, IRR, LWV, SCR, WBC(B), General Criteria

\*\* Irrigation (IRR), Livestock & Wildlife Watering (LWW), Protection of Warm Water Aquatic Life (AQL), Human Health Protection (HHP), Cool Water Fishery (CLF), Cold Water Fishery (CDF), Whole Body Contact Recreation – Category A (WBC-A), Whole Body Contact Recreation – Category B (WBC-B), Secondary Contact Recreation (SCR), Drinking Water Supply (DWS), Industrial (IND), Groundwater (GRW).

RECEIVING WATER BODY SEGMENT #1: Missouri River  
Upper end segment\* UTM coordinates: X= 512652 / Y= 4339922 (Outfall)  
Lower end segment\* UTM coordinates: X= 512606 / Y= 4339777 (Mouth of Hurricane Creek)

\*Segment is the portion of the stream where discharge occurs. Segment is used to track changes in assimilative capacity and is bound at a minimum by existing sources and confluences with other significant water bodies.

#### 4. GENERAL COMMENTS

Shafer, Kline, & Warren, Inc. prepared, on behalf of the City of Glasgow, the *Antidegradation Report for the City of Glasgow Wastewater Lagoon Improvements* dated August 2012 with a revised application dated September 15, 2016. An antidegradation review was originally completed in 2012 to convert the facility to a controlled discharge lagoon that was planning not to discharge during the recreational season (Apr. 1 – Oct 31.). This antidegradation review will be for continuous discharge.

Applicant elected to determine that all pollutants of concern (POC) are minimally degrading in the receiving stream using existing water quality. This analysis was conducted to fulfill the requirements of the AIP. Information that was provided by the applicant in the submitted report and summary forms in Appendix D was used to develop this review document.

No Geohydrological evaluation was required for this review. The stream is gaining for discharge purposes (Appendix A: Map).

Dissolved oxygen modeling analysis was submitted for review (Appendix C) and was verified by staff with the Streeter-Phelps model. Staff believes that the results of the model are protective of the water quality standards for dissolved oxygen.

A Missouri Department of Conservation Natural Heritage Review Report was obtained (Appendix B); There are records for species listed under the Federal Endangered Species Act, and possibly also records for species listed Endangered by the state, or Missouri Species and/or Natural Communities of Conservation Concern within or near the defined Project Area. The applicant must contact the U.S. Fish and Wildlife Service and the Missouri Department of Conservation for further coordination.

#### 5. ANTIDEGRADATION REVIEW INFORMATION

The following is a review of the *Antidegradation Report for the City of Glasgow Wastewater Lagoon Improvements* dated August 2012 with a revised application dated September 15, 2016.

##### 5.1. TIER DETERMINATION

Below is a list of pollutants of concern reasonably expected to be in the discharge (see Appendix D). Pollutants of concern are defined as those pollutants “proposed for discharge that affects beneficial use(s) in waters of the state. POCs include pollutants that create conditions unfavorable to beneficial uses in the water body receiving the discharge or proposed to receive the discharge.” (AIP, Page 7). Tier 2 was determined for all POCs (see Appendix D).

TABLE 1. POLLUTANTS OF CONCERN AND TIER DETERMINATION

POLLUTANTS OF CONCERN	TIER	DEGRADATION	COMMENT
BOD5/DO	2	Minimal	
Total Suspended Solids (TSS)	**	Minimal	
Ammonia	2	Minimal	
pH	***	Minimal	Permit limits applied
<i>Escherichia coli</i> ( <i>E. coli</i> )	2	Minimal	
Oil & Grease	2	Minimal	Permit limits applied

\* Tier assumed.

Tier determination not possible: \*\* No in-stream standards for these parameters. \*\*\* Standards for these parameters are ranges

The following Antidegradation Review Summary attachments in Appendix D were used by the applicant:

For pollutants of concern, the attachments are:

☒ Attachment A, Tier 2 with significant degradation.

## 5.2. EXISTING WATER QUALITY

Existing water quality data for the Missouri River was obtained by the applicant from Stream Team Data (Team 443, 1995 to 1998, 16:00; See Appendix E). Department staff compared the applicant supplied data to data from the Missouri Department of Natural Resources Water Quality Assessment System, and the applicant supplied data for ammonia was found to be as high as, or higher than, the department's data.

All POCs were considered to be Tier 2 based on the submitted tier analysis.

## 5.3. NO DISCHARGE EVALUATION

According to 10 CSR 20-6.010 (4)(D), reports for the purpose of constructing a wastewater treatment facility shall consider the feasibility of constructing and operating a no discharge facility. The applicant has already evaluated no discharge options as part of previous submittals (see Section 5.6. DEMONSTRATION OF NECESSITY AND SOCIAL AND ECONOMIC IMPORTANCE).

## 5.4 LOSING STREAM ALTERNATIVE DISCHARGE LOCATION

Under 10 CSR 20-7.015(4) (A), *discharges to losing stream shall be permitted only after other alternatives including land application, discharge to gaining stream and connection to a regional facility have been evaluated and determined to be unacceptable for environmental and/or economic reasons.*

The facility does not discharge to a losing stream segment or will not discharge within 2 miles of a losing stream segment.

## 5.5. ASSIMILATIVE CAPACITY CALCULATIONS

The applicant supplied Facility Assimilative Capacity calculations for DO, BOD<sub>5</sub>, ammonia, TSS, and oil and grease (Appendix E) and proposed having no effluent limits for ammonia. The applicant supplied calculations used a proposed design flow of 130,000 gpd. FAC and Percent FAC capacity calculations for ammonia used the lowest flow recorded since October 1, 2000 for the Missouri River (18,400 cfs), summer chronic ammonia criteria with no mixing, and average effluent ammonia concentration. FAC and Percent FAC Capacity were recalculated in this review using the design flow of 180,000 gpd, 30Q10 low flow value calculated for the Missouri River, and water-quality based effluent limit daily maximums for summer and winter ammonia for discharge to the Missouri River.

TABLE 2. ASSIMILATIVE CAPACITY CALCULATIONS FOR THE MISSOURI RIVER (AT PROPOSED FLOW)

	Water Quality Standards		Water Quality		Facility Assimilative Capacity		
	Acute Criteria Aquatic Life	Chronic Criteria Aquatic Life	EWQ (mg/L)	WQBEL Daily Max (mg/L)	Discharge Load (lbs/day)	FAC Chronic (lbs/day)	FAC <sub>ratio</sub> (Existing Load/FAC)
Ammonia - Summer	12.1	1.5	0.35	129.6	194.7	134,368	0.145%
Ammonia- Winter	12.1	3.1	0.35	129.6	194.7	321,313	0.061%

The outfall location for the Glasgow WWTF is being relocated to the Missouri River. Current discharge is to Hurricane Creek approximately 0.4 stream miles from the Missouri River. Table 3 compares existing BOD and TSS loads to proposed loads.

TABLE 3. POLLUTANT LOADS AT GLASGOW WWTF

	Existing Effluent Limit	Existing Loading	Future Effluent Limit	Future Loading	Percent Loading Change
<b>BOD monthly avg.</b>	45 mg/L	67.6 lb/day	30 mg/L	45.1 lb/day	-33%
<b>BOD weekly avg.</b>	65 mg/L	97.6 lb/day	45 mg/L	67.6 lb/day	-31%
<b>TSS monthly avg.</b>	70 mg/L	105.1 lb/day	30 mg/L	45.1 lb/day	-57%
<b>TSS weekly avg.</b>	110 mg/L	165.2 lb/day	45 mg/L	67.6 lb/day	-59%

For BOD, TSS, oil & grease, pH, and *E. coli* facility assimilative capacity cannot be determined by use of the Missouri Antidegradation Rule and Implementation Procedure's (AIP's) assimilative capacity equations. For BOD<sub>5</sub>, the Streeter-Phelps water quality model was used to verify that the proposed limits are protective of water quality for dissolved oxygen (See Appendix C). For oil and grease, if the facility is publicly owned, the requirements in 10 CSR 20-7.031 Table A apply.

Calculated facility assimilative capacities used were less than 1%. *Missouri's Antidegradation Rule and Implementation Procedure* considers the use of less than 10% of the facility's available assimilative capacity as insignificant degradation. All POCs were insignificant. The procedures indicate that cumulative degradation, as reflected in the segment assimilative capacity, is measured from the time that existing water quality is first determined; therefore, the net increase in loading will only be those of the Glasgow WWTF discharge. Because this antidegradation review serves to establish the existing water quality at this location, the proposed expansion of POCs in Outfall 001 amounts to the sum total of the degradation.

## 5.6. DEMONSTRATION OF NECESSITY AND SOCIAL AND ECONOMIC IMPORTANCE

Missouri's antidegradation implementation procedures specify that if the proposed activity does not result in significant degradation then a demonstration of necessity (i.e., alternatives analysis) and a determination of social and economic importance are not required. However the applicant elected to perform an Alternatives Analysis on a limited basis to justify the discharge produced by the preferred treatment alternative.

Non-degrading alternatives evaluated included no-discharge land application and subsurface irrigation. These alternatives were considered not practicable due to the high clay and rock content, the slopes of the local soils, and the large amount of land required. Regionalization was considered not practicable due to geographic limitations.

The preferred alternative was to relocate the outfall location for the lagoon. The current discharge is to Hurricane Creek, a Class C stream. Piping to the Missouri River will require about 1,200 feet of pipe and will provide more volume for effluent dilution. The applicant also discussed environmental impacts, technical factors, location, and project schedule in the Alternatives & SEI Analysis section of the *Antidegradation Report for the City of Glasgow Wastewater Lagoon Improvements*. Glasgow voters have already voted to give the City permission to sell bonds to cover the cost of this alternative, which was determined to be the most economically efficient treatment option.

The applicant proposed limits are shown in Table 4. The applicant proposed BOD limits of 45 mg/L monthly average and 65 mg/L weekly average and TSS limits of 80 mg/L monthly average and 120 mg/L weekly average. However, because the applicant is proposing to add aeration to the lagoon, equivalent to secondary TSS and BOD limits will no longer apply and the facility will have to meet the requirements at 10 CSR 20-7.015(2)(A)1. of 45 mg/L weekly average and 30 mg/L monthly average.

TABLE 4: APPLICANT PROPOSED LIMITS

	Monthly Average	Weekly Average
<b>BOD<sub>5</sub></b>	45	65
<b>TSS</b>	80	120
<b>Ammonia</b>	No limit (No Reasonable Potential)	No limit (No Reasonable Potential)
<b>Oils &amp; Grease</b>	10	15

## 6. GENERAL ASSUMPTIONS OF THE WATER QUALITY AND ANTIDEGRADATION REVIEW

1. A Water Quality and Antidegradation Review (WQAR) assumes that [10 CSR 20-6.010(3) Continuing Authorities and 10 CSR 20-6.010(4) (D), consideration for no discharge] has been or will be addressed in a Missouri State Operating Permit or Construction Permit Application.
2. A WQAR does not indicate approval or disapproval of alternative analysis as per [10 CSR 20-7.015(4) Losing Streams], and/or any section of the effluent regulations.
3. Changes to Federal and State Regulations made after the drafting of this WQAR may alter Water Quality Based Effluent Limits (WQBEL).
4. Effluent limitations derived from Federal or Missouri State Regulations (FSR) may be WQBEL or Effluent Limit Guidelines (ELG).
5. WQBEL supersede ELG only when they are more stringent. Mass limits derived from technology based limits are still appropriate.

6. A WQAR does not allow discharges to waters of the state, and shall not be construed as a National Pollution Discharge Elimination System or Missouri State Operating Permit to discharge or a permit to construct, modify, or upgrade.
7. Limitations and other requirements in a WQAR may change as Water Quality Standards, Methodology, and Implementation procedures change.
8. Nothing in this WQAR removes any obligations to comply with county or other local ordinances or restrictions.
9. If the proposed treatment technology is not covered in 10 CSR 20-8 Design Guides, the treatment process may be considered a new technology. As a new technology, the permittee will need to work with the review engineer to ensure equipment is sized properly. The operating permit may contain additional requirements to evaluate the effectiveness of the technology once the facility is in operation. This Antidegradation Review is based on the information provided by the facility and is not a comprehensive review of the proposed treatment technology. If the review engineer determines the proposed technology will not consistently meet proposed effluent limits, the permittee will be required to revise their Antidegradation Report.

## 7. MIXING CONSIDERATIONS

**Mixing Zone (MZ):** One-quarter (1/4) of the stream volume of flow; length one-quarter (1/4) mile. [10 CSR 20-7.031(5)(A)4.B.(III)(a)].

**Zone of Initial Dilution (ZID):** One-tenth (0.1) of the mixing zone volume of flow, not to exceed 10 times the effluent design flow. [10 CSR 20-7.031(5)(A)4.B.(III)(b)].

	Flow (cfs)	MZ (cfs)	ZID (cfs)
<b>7Q10</b>	20,387	5,097	2.8
<b>1Q10</b>	19,636	4,909	2.8
<b>30Q10</b>	21,662	5,416	2.8

$$AEC\% = \left( \frac{100}{DilutionRatio + 1} \right) = 100/(2.0/.20 + 1) = 9.1\%$$

## 8. PERMIT LIMITS AND MONITORING INFORMATION

WASTELoad ALLOCATION  
STUDY CONDUCTED (Y OR N):

USE ATTAINABILITY  
ANALYSIS CONDUCTED (Y OR N):

WHOLE BODY CONTACT  
USE RETAINED (Y OR N):

\* UAA CONDUCTED ON THE MISSOURI RIVER IN 2005 WITH WBC RETAINED

### OUTFALL #001

WET TEST (Y OR N):

FREQUENCY: ONCE/PERMIT CYCLE AEC: 9.1% METHOD: MULTIPLE



TABLE 5. EFFLUENT LIMITS FOR OUTFALL 001

PARAMETER	UNITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	BASIS FOR LIMIT (NOTE 1)	MONITORING FREQUENCY
FLOW	MGD	*		*	FSR	TWICE/WEEK
BIOCHEMICAL OXYGEN DEMAND <sub>5</sub> ****	MG/L		45	30	FSR	ONCE/MONTH
TOTAL SUSPENDED SOLIDS****	MG/L		45	30	FSR	ONCE/MONTH
pH	SU	**		**	FSR	ONCE/MONTH
AMMONIA AS N	MG/L	*		*	MDEL	ONCE/MONTH
WET TESTING	TU	*			FSR	ONCE/PERMIT CYCLE
<i>ESCHERICHIA COLIFORM</i> ( <i>E. COLI</i> )	NOTE 1		1030***	206***	FSR	ONCE/WEEK
TOTAL NITROGEN	MG/L	*		*	FSR	ONCE/QUARTER
TOTAL PHOSPHORUS	MG/L	*		*	FSR	ONCE/QUARTER

NOTE 1 – COLONIES/100 mL

NOTE 2– WATER QUALITY-BASED EFFLUENT LIMITATION – WQBEL; OR MINIMALLY DEGRADING EFFLUENT LIMIT – MDEL; OR PREFERRED ALTERNATIVE EFFLUENT LIMIT – PEL; OR TECHNOLOGY-BASED EFFLUENT LIMIT – TBEL; OR NO DEGRADATION EFFLUENT LIMIT – NDEL; OR FEDERAL/STATE REGULATION – FSR; OR NOT APPLICABLE – N/A.

ALSO, PLEASE SEE THE **GENERAL ASSUMPTIONS OF THE WQAR #4 & #5.**

\* Monitoring requirements only.

\*\* The pH is to be maintained at or above 6.0 pH units.

\*\*\* The Monthly and Weekly Average for *E. coli* shall be reported as a Geometric Mean. The Weekly Average for *E. coli* will be expressed as a geometric mean if more than one (1) sample is collected during a calendar week (Sunday through Saturday).

\*\*\*\* This facility is required to meet a removal efficiency of 85% or more for BOD<sub>5</sub> and TSS. Influent BOD<sub>5</sub> and TSS data should be reported to ensure removal efficiency requirements are met.

## 9. RECEIVING WATER MONITORING REQUIREMENTS

No receiving water monitoring requirements recommended at this time.

## 10. DERIVATION AND DISCUSSION OF LIMITS

Wasteload allocations and limits were calculated using two methods:

1) Water quality-based – Using water quality criteria or water quality model results and the dilution equation below:

$$C = \frac{(C_s \times Q_s) + (C_e \times Q_e)}{(Q_e + Q_s)} \quad (\text{EPA/505/2-90-001, Section 4.5.5})$$

Where C = downstream concentration

C<sub>s</sub> = upstream concentration

Q<sub>s</sub> = upstream flow

C<sub>e</sub> = effluent concentration

Q<sub>e</sub> = effluent flow

Chronic wasteload allocations were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration) and stream volume of flow at the edge of the mixing zone (MZ). Acute wasteload allocations were determined using applicable water quality criteria (CMC: criteria maximum concentration) and stream volume of flow at the edge of the zone of initial dilution (ZID).

Water quality-based maximum daily and average monthly effluent limitations were calculated using methods and procedures outlined in USEPA's "Technical Support Document For Water Quality-based Toxics Control" (EPA/505/2-90-001).

2) Assimilative capacity based – Using existing water quality (EWQ), water quality criteria, and the facility assimilative capacity ratio within the following equation:

New Outfall:

$$C_d = [FAC_{ratio} * ((C_c * (Q_s + Q_d)) - (EWQ * Q_s) * CF)] / Q_d$$

Where:  $C_c$  = downstream concentration, the Water Quality Standard (WQS)

$Q_s$  = Stream 7Q10 flow (ft<sup>3</sup>/s), 30Q10 or 30Q5 flow.

Where: 7Q10 flow is used for toxics; 30Q10 flow is used chronic calculations of ammonia and 30Q5, for human health chronic calculations. Acute ammonia calculations use the 1Q10 flow.

$Q_d$  = Proposed effluent design flow (ft<sup>3</sup>/s)

EWQ = upstream concentration

$C_d$  = effluent concentration of the proposed facility

$C_d$  with no permitted level and permitted level.

1) For POCs with no permitted discharge, if POC is ammonia, determine WQBEL for all discharges regardless of performance and use the maximum daily limit. For other POCs with no permitted discharge,  $C_d$  is based on monitoring data. The 99<sup>th</sup> percentile value of the pollutant monitoring concentrations should be used for  $C_d$  for pollutants with monitoring only. A reasonable potential analysis should be conducted for these POCs.

2) For POCs with permitted levels,  $C_d$  should be the concentration in the permit.

$FAC_{ratio}$  = facility assimilative capacity (FAC) ratio (calculated or assumed)

CF = Conversion factors are: 0.0054 for ug/L, 5.4 for mg/L.

Chronic wasteload allocations (WLA<sub>c</sub>) were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration) and upstream stream flow without mixing considerations. Acute wasteload allocations are only determined in the absence of applicable chronic criteria.

For most toxic and conventional POCs, the minimally-degrading maximum daily limits are determined by applying the WLA<sub>c</sub> (or applicable WLA<sub>a</sub>) as the maximum daily (MDL) mass limitation. The WLA mass limitation must be applied as the maximum daily limit because the Antidegradation Implementation Procedure applies the FAC as pounds per day.

Note: Minimally-degrading effluent limits have been based on the authority included in Section III. Permit Consideration of the AIP.

### **10.1. OUTFALL #001 – MAIN FACILITY OUTFALL**

### **10.2. LIMIT DERIVATION**

The process for limit derivation for POCs that are minimally degrading is as follows:

- 1) Determine using method #2 outlined above for all applicable POCs the minimally degrading wasteload allocation and effluent limits (MDEL) that retains the remaining assimilative capacity and does not exceed 10% of the FAC.

- 2) The next step is to develop water quality-based effluent limits. The water quality-based maximum daily and average monthly limit will be compared to the MDEL maximum daily limit as a concentration value. If the MDEL concentration value is greater than the water quality-based maximum and average monthly limits, only the water quality limits will apply. If the MDEL concentration value is less than the water quality-based maximum and average monthly limits, the water quality-based limits and the MDEL maximum daily as a mass limit will apply.
- 3) Determine the need for permit limits of various POCs using reasonable potential analysis. While this process is applied to all applicable POCs, this process is particularly important for POCs having monitoring only requirements for an existing discharge. No POC will exceed the maximum daily limit (MDL). Limits that exceed the MDL of the MDEL may have the MDEL applied. Some POCs may have the limit applied under certain circumstances.
- 4) To determine if any of the above proposed limits are protective of water quality standards, the final step is to develop water quality-based effluent limits. The more stringent of the MDEL and WQBEL will be applied.

TABLE 6. CALCULATIONS OF MINIMALLY DEGRADING EFFLUENT LIMITS

	Chronic Criteria (C <sub>c</sub> )	EWQ	FAC (lb/day)	10% FAC (lb/day)	MDEL Max Daily Limit (MDL) (C <sub>d</sub> )
Ammonia As N (Apr 1 – Sept 30)	1.5 mg/L	0.35 mg/L	134,368	13,437	8,944 mg/L
Ammonia As N (Oct 1 – Mar 31)	3.1 mg/L	0.35 mg/L	321,313	32,131	21,389 mg/L

$$FAC = (C_c(Q_s + Q_d) - EWQ * Q_s) * CF$$

$$C_d = FACRATIO * \frac{C_c * (Q_s + Q_d) - (EWQ * Q_s)}{Q_d}$$

C <sub>c</sub>	Chronic criterion
Q <sub>s</sub>	Stream flow: 30Q10 flow is used for ammonia
Q <sub>d</sub>	Average daily design flow of new discharge
CF	Conversion factor. A CF of 5.4 is used to derive a load in “lbs/day” when the WQS is represented in mg/L and flow is represented in cfs [(mg/L) · (cfs) · 5.4] = (lbs/day)]
C <sub>d</sub>	New discharge concentration (mg/L)
EWQ	Existing water quality (mg/L)

To determine the need for permit limits for ammonia, a reasonable potential analysis was conducted. Statistical analysis of the raw discharge monitoring data was completed, and the reasonable potential to exceed (RPTE calculation) in Table 7 below was determined. The RPA should be conducted such that the maximum daily limit will not exceed the receiving water concentration. No POC exceeded the maximum daily limit.

TABLE 7. REASONABLE POTENTIAL ANALYSIS TO EXCEED MAXIMUM DAILY LIMIT

Parameter	CMC	RWC Acute	CCC	RWC Chronic	n*	Range max/min	CV**	MF	RP Yes/No
Ammonia (Summer) mg/L	12.1	3.80	1.5	0.35	21.00	10/0.1	1.14	3.83	NO
Ammonia (Winter) mg/L	12.1	2.84	3.1	0.35	15.00	7.39/0.1	0.92	3.76	NO

\* If the number of samples is 10 or greater, then the CV value must be used in the WQBEL for the applicable constituent. If the number of samples is < 10, then the default CV value must be used in the WQBEL for the applicable constituent.

\*\* Coefficient of Variation (CV) is calculated by dividing the Standard Deviation of the sample set by the Mean of the same sample set.

RWC – Receiving Water Concentration. The concentration of a toxicant or the parameter toxicity in the receiving water after mixing (if applicable).

n – Number of samples.

MF – Multiplying Factor. 99% Confidence Level and 99% Probability Basis.

RP – Reasonable Potential. Where an effluent is projected or calculated to cause an excursion above a water quality standard based on a number of factors including, as a minimum, the four factors listed in 40 CFR 122.44(d)(1)(ii).

Reasonable Potential Analysis is conducted as per (TSD, EPA/505/2-90-001, Section 3.3.2). A more detailed version, including calculations, of this RPA is available upon request.

- **Flow.** In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the department, which may require the submittal of an operating permit modification.
- **Biochemical Oxygen Demand (BOD<sub>5</sub>).** BOD<sub>5</sub> limits of 30 mg/L monthly average, 45 mg/L average weekly limits as per 10 CSR 20-7.015(2)(A)1..

To protect beneficial uses within the Missouri River, dissolved oxygen modeling analysis was submitted for review and was verified by staff with the Streeter-Phelps model (Appendix C). 45 mg/L CBOD<sub>5</sub> was used as input to the Streeter Phelps analysis. Streeter Phelps modeling simulated using the proposed design flow and site specific data for summer indicated a 2.29 mg/L dissolved oxygen deficit below the calculated dissolved oxygen saturation value. The modeled lowest dissolved oxygen or critical dissolved oxygen sag was 5.95 mg/L for summer. Streeter Phelps modeling simulated using the proposed design flow and site specific data for winter indicated a 3.84 mg/L dissolved oxygen deficit below the calculated dissolved oxygen saturation value. The modeled lowest dissolved oxygen or critical dissolved oxygen sag was 9.7 mg/L for winter.

**As a result of this analysis, MDNR staff concludes that the above mentioned effluent limits are protective of beneficial uses and existing water quality.**

Influent monitoring may be required for this facility in its Missouri State Operating Permit.

- **Total Suspended Solids (TSS).** 30 mg/L monthly average, 45 mg/L average weekly limit as per 10 CSR 20-7.015(2)(A)1. According to EPA, because TSS and BOD are closely correlated, we apply the same limits for TSS as BOD. Influent monitoring may be required for this facility in its Missouri State Operating Permit.

- **pH.** – pH shall be maintained above six (6.0) standard units. Technology based limits [10 CSR 20-7.015] are protective of the water quality standard [10 CSR 20-7.031(5)(E)], due to the buffering capacity of the mixing zone.
- **Total Ammonia Nitrogen.** Monitoring requirement only. The reasonable potential analysis (Table 7) indicated that there was not reasonable potential to exceed either the water quality-based effluent limits calculated below or the minimally degrading effluent limits. The *Total Ammonia Nitrogen Criteria Implementation Guidance* (August 2007) states that “if the results of the RPA indicate reasonable potential does not exist, a monitoring only requirement for total ammonia nitrogen must be in the permit until the next renewal.”

Water Quality-Based Effluent limits for Ammonia were calculated below and compared to the MDELs

WATER QUALITY-BASED EFFLUENT LIMITS:

Early Life Stages Present Total Ammonia Nitrogen criteria apply

[10 CSR 20-7.031(4)(B)7.C. & Table B3]. Background total ammonia nitrogen = 0.35 mg/L (applicant supplied existing water quality data for the Missouri River).

Season	Temp (°C)	pH (SU)	Total Ammonia Nitrogen CCC (mg N/L)	Total Ammonia Nitrogen CMC (mg N/L)
Summer	26	7.8	1.5	12.1
Winter	6	7.8	3.1	12.1

Summer

Chronic WLA:  $C_e = ((0.28 + 5,416)1.5 - (5,416 * 0.35))/0.28$   
 $C_e = 22,362 \text{ mg/L}$

Acute WLA:  $C_e = ((0.28 + 2.8)12.1 - (2.8 * 0.35))/0.28$   
 $C_e = 129.6 \text{ mg/L}$

$LTA_c = 23,362 \text{ mg/L } (0.780) = 17,449 \text{ mg/L}$  [CV = 0.6, 99<sup>th</sup> Percentile, 30 day avg.]

$LTA_a = 129.6 \text{ mg/L } (0.321) = 41.6 \text{ mg/L}$  [CV = 0.6, 99<sup>th</sup> Percentile]

MDL =  $41.6 \text{ mg/L } (3.11) = 129.6 \text{ mg/L}$  [CV = 0.6, 99<sup>th</sup> Percentile]

AML =  $41.6 \text{ mg/L } (1.19) = 49.5 \text{ mg/L}$  [CV = 0.6, 95<sup>th</sup> Percentile, n = 30]

Winter

Chronic WLA:  $C_e = ((0.28 + 5,416)3.1 - (5,416 * 0.35))/0.28$   
 $C_e = 53,474 \text{ mg/L}$

Acute WLA:  $C_e = ((0.28 + 2.8)12.1 - (2.8 * 0.35))/0.28$   
 $C_e = 129.6 \text{ mg/L}$

$LTA_c = 53,474 \text{ mg/L } (0.780) = 41,725 \text{ mg/L}$  [CV = 0.6, 99<sup>th</sup> Percentile, 30 day avg.]

$LTA_a = 129.6 \text{ mg/L } (0.321) = 41.6 \text{ mg/L}$  [CV = 0.6, 99<sup>th</sup> Percentile]

MDL =  $41.6 \text{ mg/L } (3.11) = 129.6 \text{ mg/L}$  [CV = 0.6, 99<sup>th</sup> Percentile]

AML =  $41.6 \text{ mg/L } (1.19) = 49.5 \text{ mg/L}$  [CV = 0.6, 95<sup>th</sup> Percentile, n = 30]

Season	Maximum Daily Limit (mg/l)	Average Monthly Limit (mg/l)
Summer	129.6	49.5
Winter	129.6	49.5

Table 8 shows the WQBELs and MDELs for ammonia. By comparison, all WQBELs in Table 8 are less than the MDELs, therefore the more stringent water quality-based effluent limits would apply.

TABLE 8. WATER QUALITY-BASED EFFLUENT LIMITS FOR POCs.

Pollutant of Concern (mg/L)	WQBEL		MDEL	
	MDL	AML	MDL	AML
Ammonia – Summer	129.6	49.5	8,944	3,422
Ammonia – Winter	129.6	49.5	21,389	8,184

The discharge monitoring report values for ammonia for the last five years (April 2012 through February 2017) have been consistently below both the MDELs and the WQBELs for ammonia and the reasonable potential analysis indicated no reasonable potential existed. Because of this, monitoring only is being required for ammonia.

**Notice to Permittee:** On August 22, 2013, the Environmental Protection Agency (EPA) published a notice in the Federal Register announcing the final national recommended ambient water quality criteria for protection of aquatic life from the effects of ammonia in freshwater. The EPA's guidance, *Final Aquatic Life Ambient Water Quality Criteria for Ammonia – Fresh Water 2013*, is not a rule, nor automatically part of a state's water quality standards. States must adopt new ammonia criteria consistent with EPA's published ammonia criteria into their water quality standards that protect aquatic life in water.

The Water Protection Program (WPP) 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 begun discussions about how these new criteria will be implemented. WPP is suggesting that all permittees consider the lower ammonia criteria if they so choose. Consideration of the future ammonia criteria at this time could avoid a near-future upgrade. More information about the new ammonia criteria for aquatic life protection may be found at: <http://dnr.mo.gov/pubs/pub2481.htm>.

- ***Escherichia coli (E. coli)***. Monthly average of 206 per 100 mL as a geometric mean and Weekly Average of 1030 during the recreational season (April 1 – October 31), to protect Whole Body Contact Recreation (B) designated use of the receiving stream, as per 10 CSR 20-7.031(5)(C) and 10 CSR 20-7.015 (9)(B)1.A.]. An effluent limit for both monthly average and weekly average is required by 40 CFR 122.45(d).

For facilities greater than 100,000 gpd: At a minimum, weekly monitoring is required during the recreational season (April 1 – October 31), with compliance to be determined by calculating the geometric mean of all samples collected during the reporting period (samples collected during the calendar week for the weekly average, and samples collected during the calendar month for the monthly average). The weekly average requirement is consistent with EPA federal regulation 40 CFR 122.45(d). Please see **GENERAL ASSUMPTIONS OF THE WQAR #7**.

## **Whole Effluent Toxicity**

- **Acute Whole Effluent Toxicity**. Monitoring requirement only. Monitoring is required to determine if reasonable potential exists for this facility's discharge to exceed water quality standards.

Classified P with other than default Mixing Considerations, the AEC% is determined as follows:

$$\text{Acute AEC\%} = \{[(\text{design flow}_{\text{cfs}} + \text{ZID}_{7\text{Q}10}) / \text{design flow}_{\text{cfs}}]^{-1}\} \times 100 = \#\%$$

$$\text{Acute AEC\%} = \{[(0.28 + 2.8) / 0.28]^{-1}\} \times 100 = 9.1\%$$

The Allowable Effluent Concentration (AEC) is 9.1% with the dilution series being: 100%, 50%, 25%, 9.1%, 4.5%

- **Oil & Grease**. Conventional pollutant, [10 CSR 20-7.031, Table A]. Effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.
- **Total Phosphorus and Total Nitrogen**. Monitoring required for facilities greater than 100,000 gpd design flow per 10 CSR 20-7.015(9)(D)7. Once per quarter sampling for one permit cycle or up to 5 years if permit cycle is less than 5 years.

## **11. ANTIDEGRADATION REVIEW PRELIMINARY DETERMINATION**

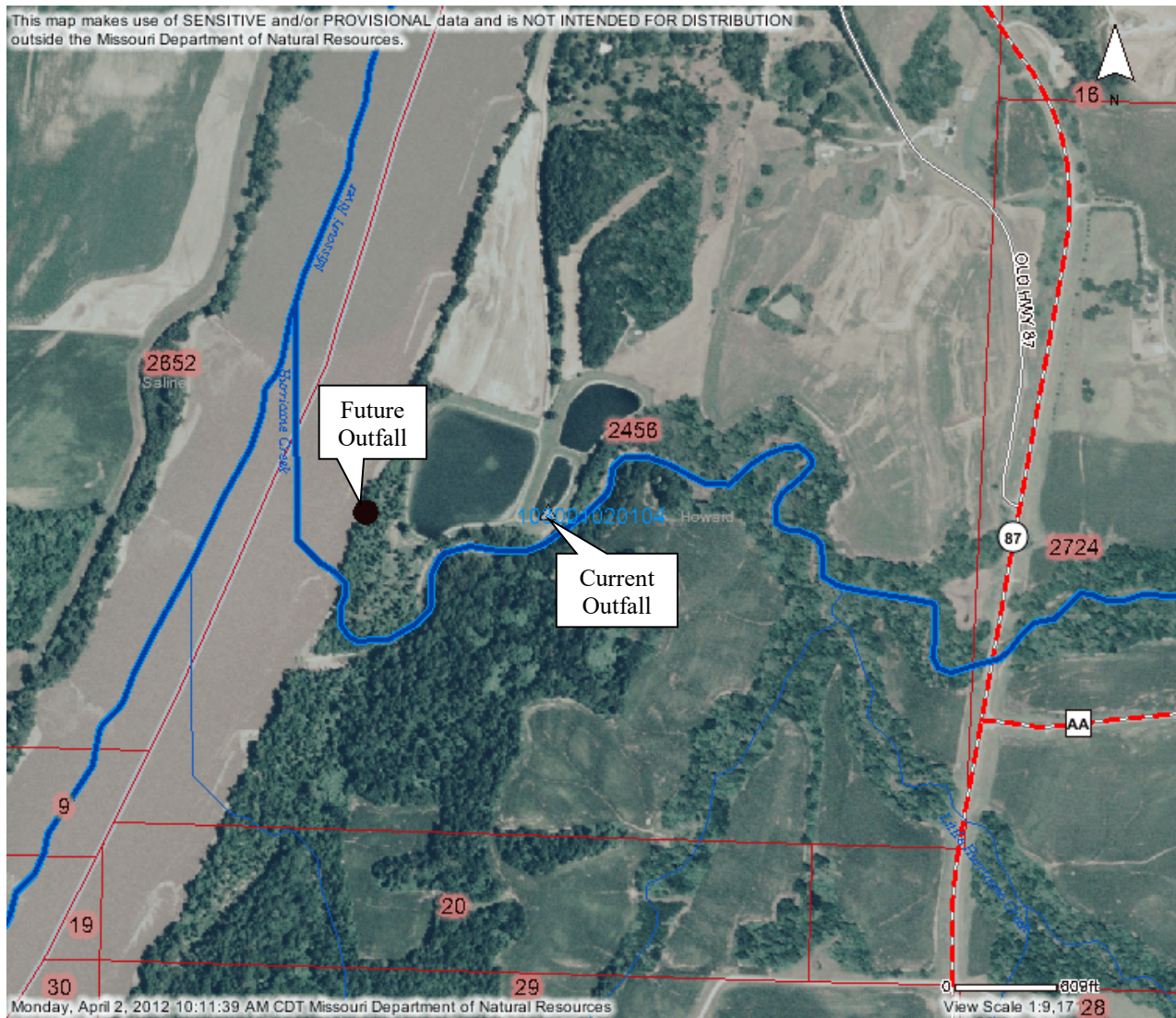
The proposed new facility discharge, Glasgow WWTF, 0.18 MGD will result in minimal degradation of the segment identified in the Missouri River. Per the requirements of the AIP, the effluent limits in this review were developed to be protective of beneficial uses and to retain the remaining assimilative capacity. MDNR has determined that the submitted review is sufficient and meets the requirements of the AIP. No further analysis is needed for this discharge.

Reviewer: Cailie Carlile, P.E.

Date: 05/04/2017

Unit Chief: John Rustige, P.E.

## Appendix A: Map of Discharge Location





## Appendix B: Natural Heritage Review



### Missouri Department of Conservation

Missouri Department of Conservation's Mission is to protect and manage the forest, fish, and wildlife resources of the state and to facilitate and provide opportunities for all citizens to use, enjoy and learn about these resources.

### **Natural Heritage Review Level Three Report: Species Listed Under the Federal Endangered Species Act**

There are records for species listed under the Federal Endangered Species Act, and possibly also records for species listed Endangered by the state, or Missouri Species and/or Natural Communities of Conservation Concern within or near the the defined Project Area. Please contact the U.S. Fish and Wildlife Service and the Missouri Department of Conservation for further coordination.

**Foreword:** Thank you for accessing the Missouri Natural Heritage Review Website developed by the Missouri Department of Conservation with assistance from the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, Missouri Department of Transportation and NatureServe. The purpose of this website is to provide information to federal, state and local agencies, organizations, municipalities, corporations and consultants regarding sensitive fish, wildlife, plants, natural communities and habitats to assist in planning, designing and permitting stages of projects.

### **PROJECT INFORMATION**

**Project Name and ID Number:** Glasgow WWTF Outfall Relocation #2672

**Project Description:** Relocating wastewater treatment facility outfall from Hurricane Creek to the Missouri River

**Project Type:** Waste Transfer, Treatment, and Disposal, Liquid waste/Effluent, Wastewater treatment plant, Modification

**Contact Person:** Cailie Carlile

**Contact Information:** cailie.carlile@dnr.mo.gov or 5737511714

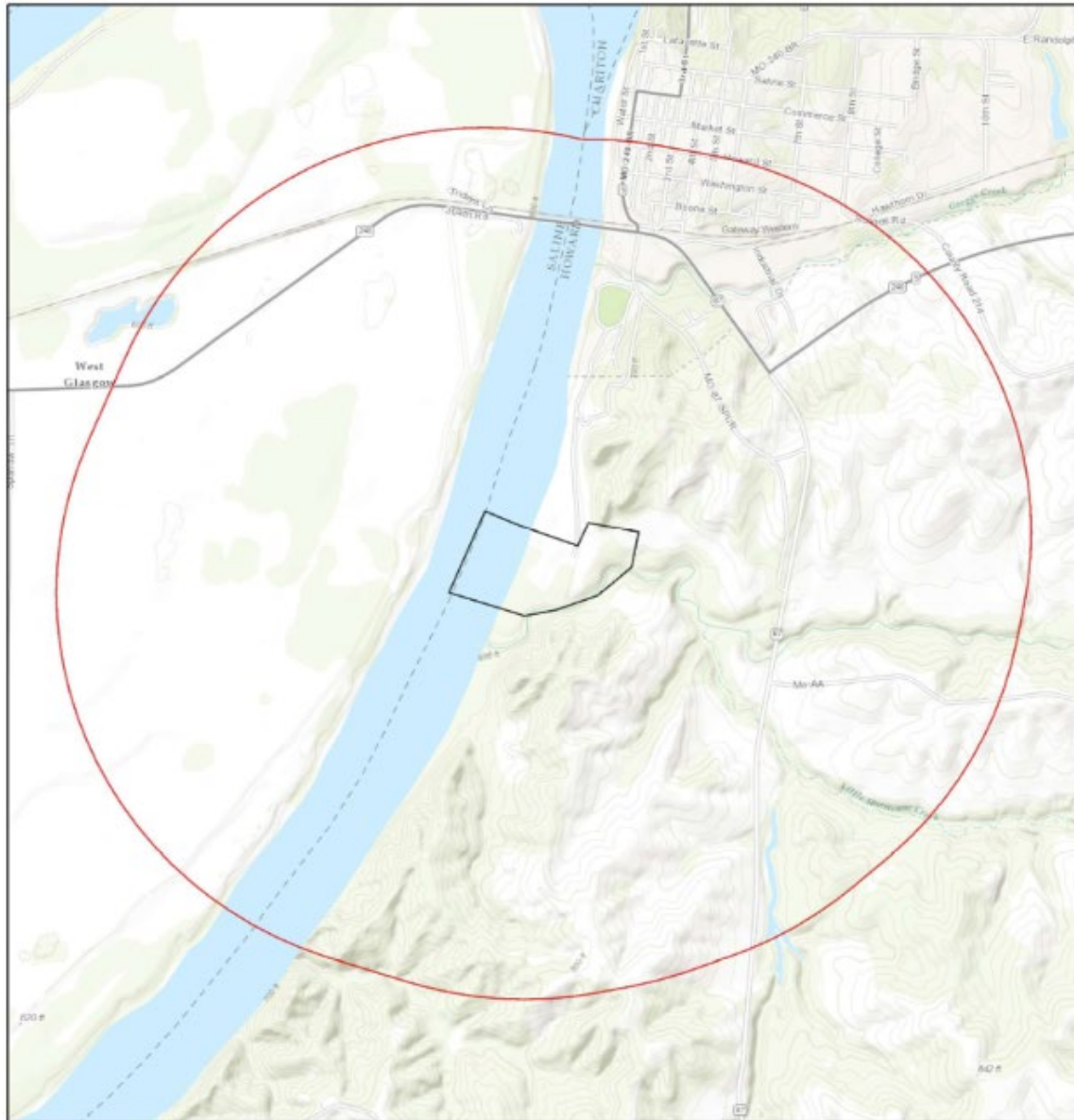
**Disclaimer:** The NATURAL HERITAGE REVIEW REPORT produced by this website identifies if a species tracked by the Natural Heritage Program is known to occur within or near the area submitted for your project, and shares suggested recommendations on ways to avoid or minimize project impacts to sensitive species or special habitats. If an occurrence record is present, or the proposed project might affect federally listed species, the user must contact the Department of Conservation or U.S. Fish and Wildlife Service for more information. The Natural Heritage Program tracks occurrences of sensitive species and natural communities where the species or natural community has been found. Lack of an occurrence record does not mean that a sensitive plant, animal or natural community is not present on or near the project area. Depending on the project, current habitat conditions, and geographic location in the state, surveys may be necessary. Additionally, because land use conditions change and animals move, the existence of an occurrence record does not mean the species/habitat is still present. Therefore, Reports include information about records near but not necessarily on the project site.

The Natural Heritage Report is not a site clearance letter for the project. It provides an indication of whether or not public lands and sensitive resources are known to be (or are likely to be) located close to the proposed project. Incorporating information from the Natural Heritage Program into project plans is an important step that can help reduce unnecessary impacts to Missouri's sensitive fish, forest and wildlife resources. However, the Natural Heritage Program is only one reference that should be used to evaluate potential adverse project impacts. Other types of information, such as wetland and soils maps and on-site inspections or surveys, should be considered. Reviewing current landscape and habitat information, and species' biological characteristics would additionally ensure that Missouri Species of Conservation Concern are appropriately identified and addressed in planning efforts.

**U.S. Fish and Wildlife Service – Endangered Species Act (ESA) Coordination:** Lack of a Natural Heritage Program occurrence record for federally listed species in your project area does not mean the species is not present, as the area may never have been surveyed. Presence of a Natural Heritage Program occurrence record does not mean the project will result in negative impacts. The information within this report is not intended to replace Endangered Species Act consultation with the U.S. Fish and Wildlife Service (USFWS) for listed species. Direct contact with the USFWS may be necessary to complete consultation and it is required for actions with a federal connection, such as federal funding or a federal permit; direct contact is also required if ESA concurrence is necessary. Visit the USFWS Information for Planning and Conservation (IPaC) website at <https://ecos.fws.gov/ipac/> for further information. This site was developed to help streamline the USFWS environmental review process and is a first step in ESA coordination. The Columbia Missouri Ecological Field Services Office may be reached at 573-234-2132, or by mail at 101 Park Deville Drive, Suite A, Columbia, MO 65203.

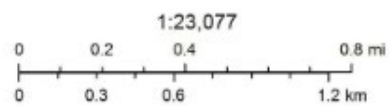
**Transportation Projects:** If the project involves the use of Federal Highway Administration transportation funds, these recommendations may not fulfill all contract requirements. Please contact the Missouri Department of Transportation at 573-526-4778 or [www.modot.mo.gov/ehp/index.htm](http://www.modot.mo.gov/ehp/index.htm) for additional information on recommendations.

## Glasgow WWTF Outfall Relocation



April 12, 2017

- Project Boundary
- Buffered Project Boundary



Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

### Species or Communities of Conservation Concern within the Area:

There are records for species listed under the Federal Endangered Species Act, and possibly also records for species listed Endangered by the state, or Missouri Species and/or Natural Communities of Conservation Concern within or near the the defined Project Area. Please contact the U.S. Fish and Wildlife Service and the Missouri Department of Conservation for further coordination.

MDC Natural Heritage Review  
Resource Science Division  
P.O. Box 180  
Jefferson City, MO  
65102-0180  
Phone: 573-522-4115 ext. 3182  
[NaturalHeritageReview@mdc.mo.gov](mailto:NaturalHeritageReview@mdc.mo.gov)

U.S. Fish and Wildlife Service  
Ecological Service  
101 Park Deville Drive  
Suite A  
Columbia, MO  
65203-0007  
Phone: 573-234-2132

### Other Special Search Results:

The project occurs on or near public land, STUMP ISLAND PARK ACCESS, please contact MDC.

### Project Type Recommendations:

Waste Transfer, Treatment, and Disposal - Wastewater treatment plant: New or Maintenance. Recommendations to help avoid and minimize impacts to fish, forest and wildlife resources are under development.

### Project Location and/or Species Recommendations:

**Endangered Species Act Coordination - Indiana bats** (*Myotis sodalis*, federal- and state-listed endangered) and **Northern long-eared bats** (*Myotis septentrionalis*, federal-listed threatened) may occur near the project area. Both of these species of bats hibernate during winter months in caves and mines. During the summer months, they roost and raise young under the bark of trees in wooded areas, often riparian forests and upland forests near perennial streams. During project activities, avoid degrading stream quality and where possible leave snags standing and preserve mature forest canopy. Do not enter caves known to harbor Indiana bats or Northern long-eared bats, especially from September to April. **If any trees need to be removed for your project, please contact the U.S. Fish and Wildlife Service (Ecological Services, 101 Park Deville Drive, Suite A, Columbia, Missouri 65203-0007; Phone 573-234-2132 ext. 100 for Ecological Services) for further coordination under the Endangered Species Act.**

The project location submitted and evaluated is within the geographic range of nesting Bald Eagles in Missouri. Bald Eagles (*Haliaeetus leucocephalus*) may nest near streams or water bodies in the project area. Nests are large and fairly easy to identify. Adults begin nesting activity in late December and January and young birds leave the nest in late spring to early summer. While no longer listed as endangered, eagles continue to be protected by the federal government under the Bald and Golden Eagle Protection Act. Work managers should be alert for nesting areas within 1500 meters of project activities, and follow federal guidelines at: <http://www.fws.gov/midwest/MidwestBird/EaglePermits/index.html> if eagle nests are seen.

The project location submitted and evaluated is located within or adjacent to the Mississippi or Missouri rivers. Pallid Sturgeons (*Scaphirhynchus albus*, federal- and state-listed endangered) are big river fish that range widely in the Mississippi and Missouri River system (including parts of some major tributaries). Any project that modifies big river habitat or impacts water quality should consider the possible impact to pallid sturgeon populations. See <http://mdc.mo.gov/124> for Best Management Practices. Additional coordination with the U.S. Fish and Wildlife Service under the Endangered Species Act may be necessary (U.S. Fish and Wildlife Service, Ecological Services, 101 Park DeVille Drive, Suite A, Columbia, Missouri 65203-0007; phone 573-234-2132.)



**Invasive exotic species** are a significant issue for fish, wildlife and agriculture in Missouri. Seeds, eggs, and larvae may be moved to new sites on boats or construction equipment. Please inspect and clean equipment thoroughly before moving between project sites. See <http://mdc.mo.gov/9633> for more information.

- Remove any mud, soil, trash, plants or animals from equipment before leaving any water body or work area.
- Drain water from boats and machinery that have operated in water, checking motor cavities, live-well, bilge and transom wells, tracks, buckets, and any other water reservoirs.
- When possible, wash and rinse equipment thoroughly with hard spray or HOT water (?140° F, typically available at do-it-yourself car wash sites), and dry in the hot sun before using again.

**Streams and Wetlands – Clean Water Act Permits:** Streams and wetlands in the project area should be protected from activities that degrade habitat conditions. For example, soil erosion, water pollution, placement of fill, dredging, in-stream activities, and riparian corridor removal, can modify or diminish aquatic habitats. Streams and wetlands may be protected under the Clean Water Act and require a permit for any activities that result in fill or other modifications to the site. Conditions provided within the U.S. Army Corps of Engineers (USACE) Clean Water Act Section 404 permit (<http://www.nwk.usace.army.mil/Missions/RegulatoryBranch.aspx>) and the Missouri Department of Natural Resources (DNR) issued Clean Water Act Section 401 Water Quality Certification (<http://dnr.mo.gov/env/wpp/401/index.html>), if required, should help minimize impacts to the aquatic organisms and aquatic habitat within the area. Depending on your project type, additional permits may be required by the Missouri Department of Natural Resources, such as permits for stormwater, wastewater treatment facilities, and confined animal feeding operations. Visit <http://dnr.mo.gov/env/wpp/permits/index.html> for more information on DNR permits. Visit both the USACE and DNR for more information on Clean Water Act permitting.

For further coordination with the Missouri Department of Conservation and the U.S. Fish and Wildlife Services, please see the contact information below.

MDC Natural Heritage Review  
Resource Science Division  
P.O. Box 180  
Jefferson City, MO  
65102-0180  
Phone: 573-522-4115 ext. 3182  
[NaturalHeritageReview@mdc.mo.gov](mailto:NaturalHeritageReview@mdc.mo.gov)

U.S. Fish and Wildlife Service  
Ecological Service  
101 Park Deville Drive  
Suite A  
Columbia, MO  
65203-0007  
Phone: 573-234-2132

#### Miscellaneous Information

**FEDERAL** Concerns are species/habitats protected under the Federal Endangered Species Act and that have been known near enough to the project site to warrant consideration. For these, project managers must contact the U.S. Fish and Wildlife Service Ecological Services (101 Park Deville Drive Suite A, Columbia, Missouri 65203-0007; Phone 573-234-2132; Fax 573-234-2181) for consultation.

**STATE** Concerns are species/habitats known to exist near enough to the project site to warrant concern and that are protected under the Wildlife Code of Missouri (RSMo 3 CSR 1 0). "State Endangered Status" is determined by the Missouri Conservation Commission under constitutional authority, with requirements expressed in the Missouri Wildlife Code, rule 3CSR 1 0-4.111. Species tracked by the Natural Heritage Program have a "State Rank" which is a numeric rank of relative rarity. Species tracked by this program and all native Missouri wildlife are protected under rule 3CSR 10-4.110 General Provisions of the Wildlife Code.

Additional information on Missouri's sensitive species may be found at <http://mdc.mo.gov/discover-nature/field-guide/endangered-species>. Detailed information about the animals and some plants mentioned may be accessed at [http://mdc4.mdc.mo.gov/applications/mofwis/mofwis\\_search1.aspx](http://mdc4.mdc.mo.gov/applications/mofwis/mofwis_search1.aspx). If you would like printed copies of best management practices cited as internet URLs, please contact the Missouri Department of Conservation.

## Appendix C: Streeter Phelps Model Results Proposed Design Flow

WINTER			
INPUT			
1. EFFLUENT CHARACTERISTICS			
Discharge (cfs):			0.27852
CBOD5 (mg/L):			45
Ammonia as Nitrogen (mg/L):			7.39
NBOD (mg/L):			33.7723
Dissolved Oxygen (mg/L):			2.5
Temperature (deg C):			12
2. RECEIVING WATER CHARACTERISTICS			
Upstream Discharge (cfs):			20387
Upstream CBOD5 (mg/L):			1.5
Upstream NBOD (mg/L):			0.5
Upstream Dissolved Oxygen (mg/L):			9.7
Upstream Temperature (deg C):			2
Elevation (ft NGVD):			600
Downstream Average Channel Slope (ft/ft):			0.0002
Downstream Average Channel Depth (ft):			13.6
Downstream Average Channel Velocity (fps):			3.3
3. REAERATION RATE (Base e) AT 20 deg C (day <sup>-1</sup> ): Applicable value below here:			
			0.47
Reference	Applic.	Applic.	Suggested
	Vel (fps)	Dep (ft)	Values
Churchill	1.5 - 6	2 - 50	0.47
O'Connor and Dobbins	.1 - 1.5	2 - 50	0.47
Owens	.1 - 6	1 - 2	0.38
Tsivoglou-Wallace	.1 - 6	.1 - 2	1.52
4. BOD DECAY RATE (Base e) AT 20 deg C (day <sup>-1</sup> ):			
			0.30
Reference			Suggested
			Value
Wright and McDonnell, 1979			0.30
OUTPUT			
1. INITIAL MIXED RIVER CONDITION			
CBOD5 (mg/L):			1.5
NBOD (mg/L):			0.5
Dissolved Oxygen (mg/L):			9.7
Temperature (deg C):			2.0
2. TEMPERATURE ADJUSTED RATE CONSTANTS (Base e)			
Reaeration (day <sup>-1</sup> ):			0.31
BOD Decay (day <sup>-1</sup> ):			0.13
3. CALCULATED INITIAL ULTIMATE CBODU AND TOTAL BODU			
Initial Mixed CBODU (mg/L):			2.2
Initial Mixed Total BODU (CBODU + NBOD, mg/L):			2.7
4. INITIAL DISSOLVED OXYGEN DEFICIT			
Saturation Dissolved Oxygen (mg/L):			13.535
Initial Deficit (mg/L):			3.84
5. TRAVEL TIME TO CRITICAL DO CONCENTRATION (days):			
			0.000000
6. DISTANCE TO CRITICAL DO CONCENTRATION (feet):			
			0.00
7. CRITICAL DO DEFICIT (mg/L):			
			3.84
8. CRITICAL DO CONCENTRATION (mg/L):			
			9.70

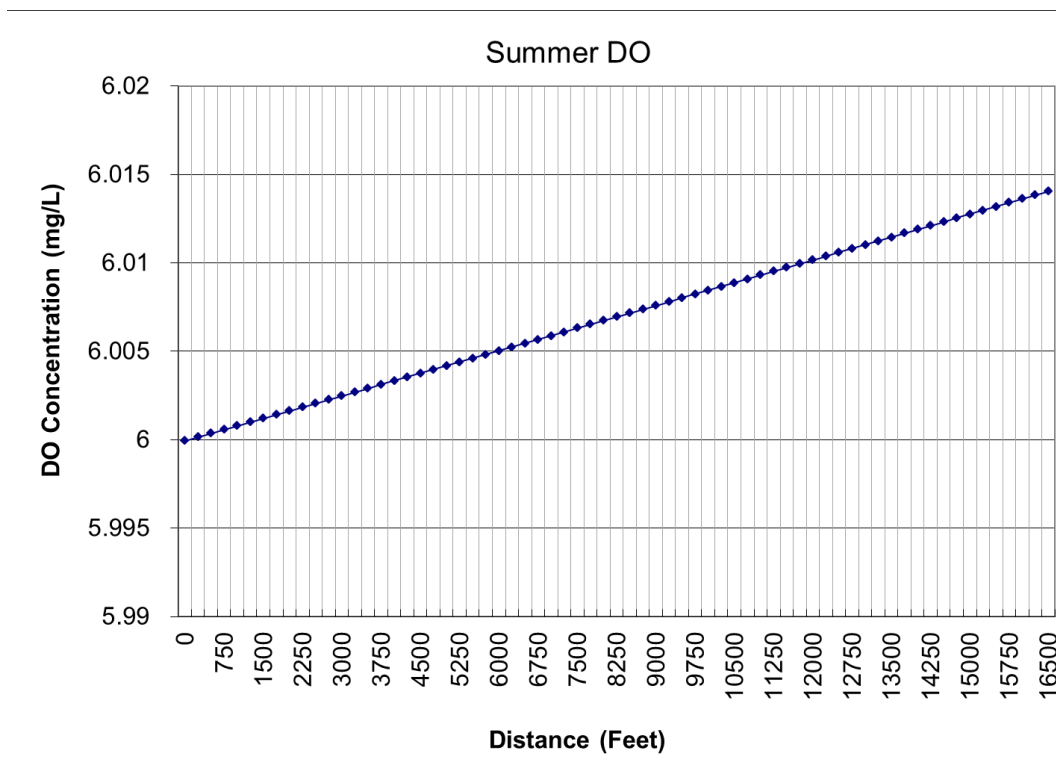
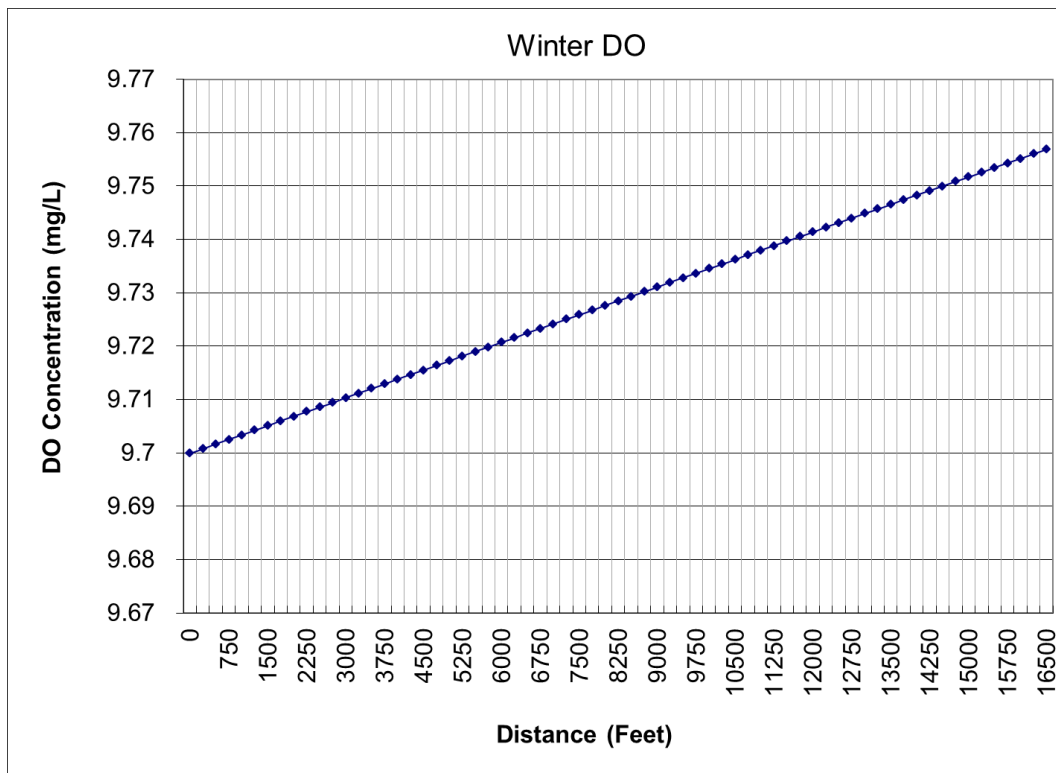
## SUMMER

### INPUT

<b>1. EFFLUENT CHARACTERISTICS</b>			
Discharge (cfs):			0.27852
CBOD5 (mg/L):			45
Ammonia as Nitrogen (mg/L):			10
NBOD (mg/L):			45.7
Dissolved Oxygen (mg/L):			2.5
Temperature (deg C):			23
<b>2. RECEIVING WATER CHARACTERISTICS</b>			
Upstream Discharge (cfs):			20387
Upstream CBOD5 (mg/L):			1.5
Upstream NBOD (mg/L):			0.5
Upstream Dissolved Oxygen (mg/L):			6
Upstream Temperature (deg C):			24
Elevation (ft NGVD):			600
Downstream Average Channel Slope (ft/ft):			0.0002
Downstream Average Channel Depth (ft):			13.6
Downstream Average Channel Velocity (fps):			3.3
<b>3. REAERATION RATE (Base e) AT 20 deg C (day<sup>-1</sup>):</b>			<b>Applicable value below here:</b>
			0.47
Reference	Applic. Vel (fps)	Applic. Dep (ft)	Suggested Values
Churchill	1.5 - 6	2 - 50	0.47
O'Connor and Dobbins	.1 - 1.5	2 - 50	0.47
Owens	.1 - 6	1 - 2	0.38
Tsivoglou-Wallace	.1 - 6	.1 - 2	1.52
<b>4. BOD DECAY RATE (Base e) AT 20 deg C (day<sup>-1</sup>):</b>			<b>0.30</b>
Reference			Suggested Value
Wright and McDonnell, 1979			0.30

### OUTPUT

<b>1. INITIAL MIXED RIVER CONDITION</b>	
CBOD5 (mg/L):	1.5
NBOD (mg/L):	0.5
Dissolved Oxygen (mg/L):	6.0
Temperature (deg C):	24.0
<b>2. TEMPERATURE ADJUSTED RATE CONSTANTS (Base e)</b>	
Reaeration (day <sup>-1</sup> ):	0.52
BOD Decay (day <sup>-1</sup> ):	0.36
<b>3. CALCULATED INITIAL ULTIMATE CBODU AND TOTAL BODU</b>	
Initial Mixed CBODU (mg/L):	2.2
Initial Mixed Total BODU (CBODU + NBOD, mg/L):	2.7
<b>4. INITIAL DISSOLVED OXYGEN DEFICIT</b>	
Saturation Dissolved Oxygen (mg/L):	8.239
Initial Deficit (mg/L):	2.24
<b>5. TRAVEL TIME TO CRITICAL DO CONCENTRATION (days):</b>	
	-0.536125
<b>6. DISTANCE TO CRITICAL DO CONCENTRATION (feet):</b>	
	-152859.88
<b>7. CRITICAL DO DEFICIT (mg/L):</b>	
	2.29
<b>8. CRITICAL DO CONCENTRATION (mg/L):</b>	
	5.95





## Appendix D: Antidegradation Review Summary Attachments

The attachments that follow contain summary information provided by the applicant, City of Glasgow. MDNR staff determined that changes must be made to the information contained within these attachments. The following were modified and can be found within the MDNR WQAR:

- 1) Water Quality Review Assistance/Antidegradation Review Request: Proposed design flow was changed to 180,000 gallons per day in this review.
- 2) Attachment B: The applicant supplied calculations used a proposed design flow of 130,000 gpd. FAC and Percent FAC capacity calculations for ammonia used the lowest flow recorded since October 1, 2000 for the Missouri River (18,400 cfs), summer chronic ammonia criteria with no mixing, and average effluent ammonia concentration. FAC and Percent FAC Capacity were recalculated in this review using the design flow of 180,000 gpd, 30Q10 low flow value calculated for the Missouri River, and water-quality based effluent limit daily maximums for summer and winter ammonia for discharge to the Missouri River.

The applicant also supplied Facility Assimilative Capacity calculations for DO, BOD<sub>5</sub>, TSS, and oil and grease (also in Appendix E), but assimilative capacity was not used for these POCs as discussed in section 5.5 Assimilative Capacity Calculations.

RECEIVED

SEP 23 2016



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
WATER PROTECTION PROGRAM, WATER POLLUTION CONTROL BRANCH

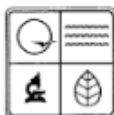
**WATER QUALITY REVIEW ASSISTANCE/ANTIDEGRADATION REVIEW REQUEST**  
PRE-CONSTRUCTION REVIEW FOR PROTECTION OF BENEFICIAL USES AND DEVELOPING EFFLUENT LIMITS

TYPE OF PROJECT <input type="checkbox"/> Grant <input type="checkbox"/> SRF Loan <input checked="" type="checkbox"/> All Other Projects			
REQUESTER DENNIS STITH		TELEPHONE NUMBER WITH AREA CODE 573-234-2648	
PERMITTEE CITY OF GLASGOW		TELEPHONE NUMBER WITH AREA CODE 660-338-2377	
<b>REASON FOR REQUEST</b>			
<input checked="" type="checkbox"/> New Discharge (See Instruction #9) <input type="checkbox"/> Upgrade (No expansion) (See AIP) <input type="checkbox"/> Expansion			
DESCRIPTION OF PROPOSED ACTIVITY: RELOCATE THE OUTFALL FROM AN INTERMITTENT STREAM TO THE MISSOURI RIVER, REDUCE THE DESIGN FLOW FROM 180,000 GPD TO 130,000 GPD.			
<b>FACILITY INFORMATION</b>			
FACILITY NAME GLASGOW WWTF		MSOP NUMBER (IF APPLICABLE) MO-0034240	
COUNTY HOWARD		SIC / NAICS CODE 4952	
METHOD OF BACTERIA COMPLIANCE <input type="checkbox"/> Chlorine Disinfection <input type="checkbox"/> Ultraviolet Disinfection <input type="checkbox"/> Ozone <input checked="" type="checkbox"/> Not Applicable			
WATER QUALITY ISSUES NONE			
Water quality issues include: effluent limit compliance issues, notice (s) of violation, water body beneficial uses not attained or supported, etc.			
OUTFALL	LOCATION (LAT/LONG OR LEGAL DESCRIPTION)	MAPPED <sup>1</sup> (CHECK)	RECEIVING WATER BODY <sup>2</sup>
1	NW 1/4, SW 1/4, SW 1/4, SEC. 20, T51N, R17W	<input checked="" type="checkbox"/>	Missouri River
		<input type="checkbox"/>	
		<input type="checkbox"/>	
<sup>1</sup> Attach topographic map (See <a href="http://www.dnr.mo.gov/internetmapviewer/">www.dnr.mo.gov/internetmapviewer/</a> ) with outfall location(s) clearly marked. For additional outfalls, attach a separate form. <sup>2</sup> See general instructions for discharges to streams.			
OUTFALL	NEW DESIGN FLOW ** (MGD)	TREATMENT TYPE	EFFLUENT TYPES*
1	130,000	CONTINUOUS DISCHARGE	municipal
* Describe predominating character of effluent. Example: domestic wastewater, municipal wastewater, industrial wastewater, storm water, mining leachate, etc. ** If expansion, indicate new design flow.			
<input checked="" type="checkbox"/> Checked for rare or endangered species and provided determination with this request. See Instruction #8.			
<b>ANTIDEGRADATION REVIEW SUBMISSION:</b>			
See attached Antidegradation instructions. Applicant supplied a summary within:			
<input checked="" type="checkbox"/> Tier Determination and Effluent Limit Summary <input type="checkbox"/> Attachment A – Significant Degradation <input checked="" type="checkbox"/> Attachment B – Minimal Degradation <input type="checkbox"/> Attachment C – Temporary degradation <input type="checkbox"/> Attachment D – Tier 1 Review <input type="checkbox"/> No Degradation Evaluation – Conclusion of Antidegradation Review			

MD 780-1993 (03-09)

See general instructions. Additional information may be needed to complete your request. Your request may be returned if items are missing. Revised submittal will be considered a new submittal.	
SIGNATURE <i>Dennis E. Stith</i>	DATE 9/15/14
PRINT NAME Dennis E. Stith, P.E.	
E-MAIL ADDRESS Dennis.Stith@skw-inc.com	
Submit request to:	Missouri Department of Natural Resources Water Protection Program Attn: Permits and Engineering Section P.O. Box 176 Jefferson City, MO 65102-0176 Phone: 573-751-1300 Fax: 573-522-9920
The water quality review assistance is a process to determine effluent limits for new facilities or existing facilities seeking to increase loading into the receiving stream. Limits can be calculated by the permittee and submitted for review the department.	
<b>GENERAL INSTRUCTIONS</b>	
<ol style="list-style-type: none"> <li>Please attach:           <ol style="list-style-type: none"> <li>A list of pollutants expected to be discharged.</li> <li>The location of each outfall clearly shown on map(s). A U.S. Geological Survey topographic map is available at <a href="http://www.dnr.mo.gov/internetmapviewer/">www.dnr.mo.gov/internetmapviewer/</a>.</li> </ol> </li> <li>Discharge(s) to all gaining streams: Applicant must submit dissolved oxygen analysis (i.e., using Missouri Department of Natural Resources approved models such as Streeter Phelps (<a href="http://www.ecy.wa.gov/programs/eap/pwspread/pwspread.html">www.ecy.wa.gov/programs/eap/pwspread/pwspread.html</a>) or Qual2K/Qual2E (Q2K/Q2E) stream water quality study (<a href="http://www.epa.gov/athens/wwqts/index.html">www.epa.gov/athens/wwqts/index.html</a>)) indicating that the preferred alternative's BOD<sub>5</sub> effluent limitations from the alternative analysis or the technology-based/regulatory BOD<sub>5</sub> effluent limits are protective of Missouri's water quality standard for dissolved oxygen. <b>Note:</b> If Q2K/Q2E is used, wasteload allocation for ammonia must be assumed. All Q2K/Q2E studies must have department approved Quality Assurance Project Plans. Recommended modeling procedures from the department (may differ with discharge) for this analysis are available upon request.</li> <li>Discharge(s) to unclassified gaining stream: Applicant may provide the time of travel to the confluence with the classified stream segment for modeling pollutant decay (See <i>Total Ammonia Nitrogen Criteria Implementation Guidance Policy</i> at <a href="http://www.dnr.mo.gov/env/wpp/permits/antideg-implementation.htm">www.dnr.mo.gov/env/wpp/permits/antideg-implementation.htm</a>). Otherwise, the applicant may determine limits based on no decay of discharge pollutants, which typically results in lower permit limits. Please use the TR-55 method (<i>Natural Resource Conservation Service, Urban Hydrology for Small Watersheds, Technical Release No. 55, June 1986</i>) for time of travel determination (<a href="http://directives.sc.egov.usda.gov/22162.wba">http://directives.sc.egov.usda.gov/22162.wba</a>). Please include a map, schematic or description of flow segments with your calculations. A worksheet with instructions is available upon request.</li> <li>For all discharges, the chronic water quality criteria point of compliance is the classified stream or the confluence with the classified stream. No mixing is allowed for streams with seven-day Q10 low flow less than 0.1 cfs (10 CSR 20-7.031(4)(A)B(I)), while mixing is allowed for streams with seven-day Q10 low flow greater than 0.1 cfs (10 CSR 20-7.031(4)(A)B(II)).</li> <li>For industrial facilities, a list of all chemicals, compounds, elements, etc. found in the discharge must be submitted with the request. Proprietary names of chemicals are not sufficient, as these chemicals may contain several pollutants for which the department must evaluate separate effluent limits. A pre-construction review meeting is highly recommended.</li> <li>Do not submit water quality review assistance requests for renewals. All water quality-based effluent limits will be determined during the renewal process.</li> <li>10 CSR 20-7.015(8)(B)3. allows alternative limitations (i.e., lagoon or trickling filters) if a water quality impact study is conducted. This impact study should indicate that equivalent to secondary treatment for lagoons or trickling filters are protective of Missouri Water Quality standards for dissolved oxygen and ammonia.</li> <li>Applicant must check for rare and endangered aquatic species that may be affected by the discharge at <a href="http://mdcgis.mdc.mo.gov/heritage/newheritage/heritage.htm">http://mdcgis.mdc.mo.gov/heritage/newheritage/heritage.htm</a>.</li> <li>Additional requirements for new facilities:           <ol style="list-style-type: none"> <li>Division of Geology and Land Survey Geohydrologic Evaluations must be submitted with the request.</li> <li>Coordinates of outfall (s) in lat/long or in the public land survey system must be provided.</li> <li>Please submit a letter with project timeframe.</li> </ol> </li> </ol>	
<b>Note: Lack of response for additional informational within a reasonable timeframe will result in return of request.</b>	

MO 790-1693 (03-09)



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
WATER PROTECTION PROGRAM, WATER POLLUTION CONTROL BRANCH  
**ANTIDEGRADATION REVIEW SUMMARY**  
**ATTACHMENT B: TIER 2 – MINIMAL DEGRADATION**

RECEIVED

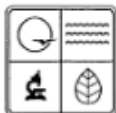
SEP 23 2016

Water Protection Program

<b>1. FACILITY</b>						
NAME GLASGOW WWTF				TELEPHONE WITH AREA CODE 660-338-2377		
ADDRESS (PHYSICAL) 1 MILE SW OF HWY 87 & HWY 240			CITY GLASGOW	STATE MO	ZIP CODE 65254	
<b>2. RECEIVING WATER BODY SEGMENT #1</b>						
NAME MISSOURI RIVER						
<b>3. WATER BODY SEGMENT #2 (IF APPLICABLE)</b>						
NAME N/A						
<b>4. ASSIMILATIVE CAPACITY TABLE</b>						
Determining the facility assimilative capacity, or FAC, and the segment assimilative capacity, or SAC for each pollutant of concern is explained in detail in the Antidegradation Implementation Procedure Section II.A.3. and Appendix 3. POCs to be considered include those pollutants reasonably expected to be present in the discharge per the Antidegradation Implementation Procedure Section II.A. Provide all calculations in the Antidegradation Review report.						
Pollutant of Concern	Facility Assimilative Capacity (lbs/day)		New Load (lbs/day)		Percent of Facility Assimilative Capacity (%)	
BOD5	634760		49		0.000001	
TSS	148772		87		0.000006	
NH3-N	113662		2.7		0.000000	
OILS & GREASE	49591		11		0.000002	
Pollutant of Concern	Water Body Segment #1 SAC	Cumulative Net Increase in Load	Cumulative % of Water Body Segment #1 SAC	Water Body Segment #2 SAC	Cumulative Net Increase in Load	Cumulative % of Water Body Segment #2 SAC
BOD5	634760	49	0.000001			
TSS	148772	87	0.000006			
NH3-N	113662	2.7	0.000000			
OILS & Grease	49591	11	0.000002			
<b>Assimilative Capacity Summary</b>						
DUE TO A DILLUTION OF THE EFFLUENT FLOW IN THE STREAM TO A FACTOR OF 91,500 TO 1, THE EFFLUENT'S EFFECT ON ASSIMILATIVE CAPACITY IS INSIGNIFICANT IN RELATION TO THE ALLOWED VALUES FOR ALL POCS.						
Is degradation considered minimal for all Pollutants of Concern? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No						
Degradation is considered minimal if the new or proposed loading is less than 10 percent of the FAC and the cumulative degradation is less than 20 percent of the SAC according to the Antidegradation Implementation Procedure Section II.A.3. If yes, an alternatives analysis and a social and economic importance analysis are not required.						
Comments/Discussion						

<b>MINIMAL DEGRADATION CALCULATIONS</b> <b>ATTACHED</b>	
MO 780-2022 (01/09)	1
<b>5. OIL AND GREASE</b>	
Is this a publicly owned treatment works, or POTW, restaurant, school or other domestic wastewater treatment facility with oil and grease as a Pollutant of Concern? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
In accordance with 10 CSR 20-7.031(3)(B), waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses. In accordance with 10 CSR 20-7.031 Table A, oil and grease has a chronic toxicity of 10 mg/L for protection of aquatic life. This facility will meet the effluent limits (MDL and AML of 15 mg/L and 10 mg/L, respectively).	
<b>6. DECHLORINATION</b>	
If Chlorination and Dechlorination is the existing or proposed method of disinfection treatment, will the effluent discharged be equal to or less than the Water Quality Standards for Total Residual Chlorine stated in Table A of 10 CSR 20-7.031?	
<input type="checkbox"/> Yes <input type="checkbox"/> No	
Based on the disinfection treatment system being designed for total removal of Total Residual Chlorine, minimal degradation for Total Residual Chlorine is assumed and the facility will be required to meet the water quality based effluent limits. These compliance limits for Total Residual Chlorine are much less than the method detection limit of 0.13 mg/L.	
<b>7. PROPOSED PROJECT SUMMARY</b>	
RELOCATE THE OUTFALL FROM AN INTERMITTEND STREAM TO THE MISSOURI RIVER, REDUCE THE DESIGN FLOW FROM 180,000 GPD TO 130,000 GPD	
Attach the Antidegradation Review report and all supporting documentation.	
<b>CONSULTANT:</b> I have prepared or reviewed this from and all attached reports and documentation. The conclusion proposed in consistent with the AIP and current state and federal regulations.	
SIGNATURE 	DATE 9/15/16
PRINT NAME Dennis E. Stith, P.E.	
TELEPHONE NUMBER WITH AREA CODE 660-385-6441	E-MAIL ADDRESS DENNIS.STITH@SKW-INC.COM
<b>OWNER:</b> I have read and reviewed the prepared documents and agree with this submittal.	
SIGNATURE 	DATE 9-20-16
<b>CONTINUING AUTHORITY:</b> I have read and reviewed the prepared documents and agree with this submittal.	
SIGNATURE 	DATE 9-20-16
MO 780-2022 (01/09)	2

RECEIVED  
SEP 23 2016



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
WATER PROTECTION PROGRAM, WATER POLLUTION CONTROL BRANCH  
**ANTIDEGRADATION REVIEW SUMMARY**  
**TIER DETERMINATION AND EFFLUENT LIMIT SUMMARY**

Water Protection Pro

<b>1. FACILITY</b>			
NAME GLASGOW WWTF		TELEPHONE NUMBER WITH AREA CODE 660-338-2377	
ADDRESS (PHYSICAL) 1 MILE SW OF HWY 87 & HWY 240		CITY GLASGOW	STATE MO
			ZIP CODE 65254
<b>2. RECEIVING WATER BODY SEGMENT #1</b>			
NAME Missouri River			
2.1	UPPER END OF SEGMENT (Location of discharge) UTM _____ OR Lat 39D12'25.2"N, Long 92D51'14.1"W		
2.2	LOWER END OF SEGMENT UTM _____ OR Lat 39D13'15"N, Long 92D50'54.7"W		
<small>Per the Missouri Antidegradation Rule and Implementation Procedure, or AIP, the definition of a segment, "a segment is a section of water that is bound, at a minimum, by significant existing sources and confluences with other significant water bodies."</small>			
<b>3. WATER BODY SEGMENT #2 (IF APPLICABLE)</b>			
NAME N/A			
3.1	UPPER END OF SEGMENT UTM _____ OR Lat _____, Long _____		
3.2	LOWER END OF SEGMENT UTM _____ OR Lat _____, Long _____		
<b>4. WATER BODY SEGMENT #3 (IF APPLICABLE)</b>			
NAME N/A			
4.1	UPPER END OF SEGMENT UTM _____ OR Lat _____, Long _____		
4.2	LOWER END OF SEGMENT UTM _____ OR Lat _____, Long _____		
<b>5. PROJECT INFORMATION</b>			
Is the receiving water body an Outstanding National Resource Water, an Outstanding State Resource Water, or drainage thereto? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
<small>In Tables D and E of 10 CSR 20-7.031, Outstanding National Resource Waters and Outstanding State Resource Water are listed. Per the Antidegradation Implementation Procedure Section 1.B.3., "any degradation of water quality is prohibited in these waters unless the discharge only results in temporary degradation." Therefore, if degradation is significant or minimal, the Antidegradation Review will be denied.</small>			
Will the proposed discharge of all pollutants of concern, or POCs, result in net increase in the ambient water quality concentration of the receiving water after mixing? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
<small>If yes, submit a summary table showing the levels of each pollutant of concern before and after the proposed discharge in the receiving water and then complete Attachment B for the first downstream classified water body segment.</small>			
Will the discharge result in temporary degradation? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
<small>If yes, complete Attachment C.</small>			
Has the project been determined as non-degrading? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
<small>If yes, complete No Degradation Evaluation – Conclusion of Antidegradation Review form. Submit with the appropriate Construction Permit Application as no antidegradation review is required.</small>			
<b>If yes to one of the above questions, skip to Section 8 - Wet Weather.</b>			

MO/780-2025 (01/09)

## 6. EXISTING WATER QUALITY DATA OR MODEL SUMMARY

Obtaining Existing Water Quality is possible by three methods according to the Antidegradation Implementation Procedure Section II.A.1.: (1) using previously collected data with an appropriate Quality Assurance Project Plan, or QAPP (2) collecting water quality data by approved the Missouri Department of Natural Resources methodology or (3) using an appropriate water quality model. QAPPs must be submitted to the department for approval well in advance (six months) of the proposed activity. Provide all the appropriate corresponding data and reports which were approved by the department Water Quality Monitoring and Assessment Section.

Date existing water quality data was provided by the Water Quality Monitoring and Assessment Section:

Approval date of the QAPP by the Water Quality Monitoring and Assessment Section:

Approval date of the project sampling plan by the Water Quality Monitoring and Assessment Section:

Approval date of the data collected for all appropriate pollutants of concern by the Water Quality Monitoring and Assessment Section:

Comments/Discussion:

Instream Data for DO and NH3 per Level 2 Stream Team Data, TSS & O&G assumed at 95% of intermittent stream eff limits.

## 7. POLLUTANTS OF CONCERN AND TIER DETERMINATION(S)

Pollutants of Concern to be considered include those pollutants reasonably expected to be present in the discharge per the Antidegradation Implementation Procedure Section II.S. The tier protection levels are specified and defined in rule at 10 CSR 20-7.031 (2).

Water Body Segment One Pollutants of Concern and Tier Determination(s)		
Tier 1	Tier 2 with Minimal Degradation	Tier 2 with Significant Degradation
	BOD5	
	TSS	
	NH3-N	
	OILS & GREASE	

**Note:** Add an asterisk to items that you only assume are Tier 2 with significant degradation.

Water Body Segment Two Pollutants of Concern and Tier Determination(s)		
Tier 1	Tier 2 with Minimal Degradation	Tier 2 with Significant Degradation

- For pollutants of concern that are Tier 2 with significant degradation, complete Attachment A.
- For pollutants of concern that are Tier 2 with minimal degradation, complete Attachment B.
- For pollutants of concern that are Tier 1, complete Attachment D. Additionally, a Tier 2 review must be conducted for each pollutant of concern on the appropriate water body segment.

## 8. WET WEATHER ANTICIPATIONS

If an applicant anticipates excessive inflow or infiltration and pursues approval from the department to bypass secondary treatment, a feasibility analysis is required. The feasibility analysis must comply with the criteria of all applicable state and federal regulations including 40 CFR 122.41(m)(4). Attach the feasibility analysis to this report.

What is the Wet Weather Flow Peaking Factor in relation to design flow? 1.4

Wet Weather Design Summary:

N/A, BUFFERING CAPACITY IN LAGOON.

MO/780-2025 (01/09)

### 9. SUMMARY OF THE PROPOSED ANTIDEGRADATION REVIEW EFFLUENT LIMITS

What are the proposed pollutants of concern and their respective effluent limits that the selected treatment option will comply with:

Pollutant of Concern	Units	Wasteload Allocation	Average Monthly Limit	Daily Maximum Limit
BOD5	MG/L	N/A	45	WEEKLY MAX 65
TSS	MG/L	N/A	80	WEEKLY MAX 120
Dissolved Oxygen	N/A	N/A	N/A	N/A
Ammonia	N/A	N/A	N/A	N/A
Bacteria (E. Coli)	N/A	N/A	N/A	N/A
OILS & GREASE	MG/L	N/A	10	15

These proposed limits must not violate water quality standards, be protective of beneficial uses and achieve the highest statutory and regulatory requirements.

Attach the Antidegradation Review report and all supporting documentation.

**CONSULTANT:** I have prepared or reviewed this form and all attached reports and documentation. The conclusion proposed is consistent with the Antidegradation Implementation Procedure and current state and federal regulation.

SIGNATURE  DATE 9/15/16

NAME AND OFFICIAL TITLES

DENNIS E. STITH, P.E., TEAM LEADER

COMPANY NAME

SHAFER, KLINE AND WARREN, INC.

ADDRESS CITY STATE ZIP CODE  
107 BUTLER ST MACON MO 63552

TELEPHONE NUMBER WITH AREA CODE E-MAIL ADDRESS  
660-385-6441 DENNIS.STITH@SKW-INC.COM

**OWNER:** I have read and reviewed the prepared documents and agree with this submittal.

SIGNATURE  DATE 9-20-16

NAME AND OFFICIAL TITLES

KEVIN ATWOOD, CITY ADMINISTRATOR

ADDRESS CITY STATE ZIP CODE  
100 MARKET GLASGOW MO 65254

TELEPHONE NUMBER WITH AREA CODE E-MAIL ADDRESS  
660-338-2377

**CONTINUING AUTHORITY:** Continuing Authority is the permanent organization that will be responsible for the operation, maintenance and modernization of the facility. The regulatory requirement regarding continuing authority is found in 10 CSR 20-6.010(3) available at [www.sos.mo.gov/adrules/csr/current/10csr/10c20-6a.pdf](http://www.sos.mo.gov/adrules/csr/current/10csr/10c20-6a.pdf).

I have read and reviewed the prepared documents and agree with this submittal.

SIGNATURE  DATE 9-20-16

NAME AND OFFICIAL TITLES

KEVIN ATWOOD, CITY ADMINISTRATOR

ADDRESS CITY STATE ZIP CODE  
100 MARKET GLASGOW MO 65254

TELEPHONE NUMBER WITH AREA CODE E-MAIL ADDRESS  
660-338-2377



## Appendix E: Applicant Supplied Minimal Degradation Calculations

Glasgow, MO

Aug. 19, 2012

### Antidegradation Review Summary, Attachment B: Tier 2 - Minimal Degradation

#### 4. Assimilative Capacity Table

\* Stream Team Data, Team 443, 1995 to 1998, 16:00

USGS data for Missouri River 1Q10, 10/1/2000 to 3/20/2012

18,400.0 cfs =

11,892,230,960 gpd

Date	Instream DO*	Instream NH <sub>3</sub> *	Effluent Limit TSS	Effluent Limit O&G
2/24/1998	14	0.40		
10/1/1997	10	0.10		
12/4/1996	12	0.25		
10/2/1996	11	0.62		
12/6/1995	10	0.40		
Average mg/l (95% of int. stream eff limit for TSS & O&G)	11.4	0.35	28.5	9.5
Average lb/d (95% of int. stream eff limit for TSS & O&G)	1,130,666	35,110	2,826,664	942,221
CCC, mg/l (min for O <sub>2</sub> )	5.0	1.50	30	10
CCC, lb/d (min for O <sub>2</sub> )	495,906	148,772	2,975,436	991,812
Assimilative Capacity, lb/d	<b>634,760</b>	<b>113,662</b>	<b>148,772</b>	<b>49,591</b>
10% of FAC	63,476	11,366	14,877	4,959
20 or SAC	126,952	22,732	29,754	9,918

Future Design Flow:

130,000 gpd

Parameter	Average Monthly Limit mg/l	Effluent Data 10/2006 to 9/2011 mg/l	New Load lb/d	Percent of Assimilative Capacity %
BOD <sub>5</sub>	45		48.8	0.000001
TSS	80		86.7	0.000006
NH <sub>3</sub>		2.5	2.7	0.000000
Oils & Grease	10		10.8	0.000002

**APPENDIX – COST ANALYSIS FOR COMPLIANCE:**

**Missouri Department of Natural Resources  
Water Protection Program  
Cost Analysis for Compliance  
(In accordance with RSMo 644.145)**

**Glasgow WWTF, Permit Renewal  
City of Glasgow  
Missouri State Operating Permit #MO-0034240**

Section 644.145 RSMo requires the Department of Natural Resources (DNR) to make a “finding of affordability” when “issuing permits under” or “enforcing provisions of” state or federal clean water laws “pertaining to any portion of a combined or separate sanitary sewer system for publicly-owned treatment works.”

This cost analysis is based on data available to the Department as provided by the permittee and data obtained from readily available sources. For the most accurate analysis, it is essential that the permittee provides the Department with current information about the City’s financial and socioeconomic situation. The financial questionnaire available to permittees on the DNR website (<http://dnr.mo.gov/forms/780-2511-f.pdf>) should have been submitted with the permit renewal application. If it was not received with the renewal application, the Department sent a request to complete it with the welcome letter.

The Department is required to issue a permit with final effluent limits in accordance with 644.051.1.(1) RSMo, 644.051.1.(2) RSMo, and the Clean Water Act. The practical result of this analysis is to incorporate a compliance schedule into the permit in order to mitigate adverse impact to distressed populations resulting from new costs for the wastewater treatment facility.

**Facility Description:**

Residential Connections:	_____ 522
Commercial Connections:	_____
Industrial Connections:	_____
Total Connections for this facility:	_____ 522

**New Permit Requirements:**

The permit requires compliance with new monitoring requirements for total nitrogen and total phosphorus. Effluent limits for five day biochemical oxygen demand and total suspended solids were also made more stringent.

**Anticipated Costs Associated with Complying with the New Requirements:**

The total cost estimated for new quarterly monitoring requirements for total nitrogen and total phosphorus is \$400 annually. This cost, if financed through user fees, might cost each household an extra \$0.06<sup>1</sup> per month. A community sets their user rates based on several factors. The percentage of the current user rate that is available to cover new debt is unknown to the Department. There is no estimated new cost associated with the reduced BOD and TSS limits as the facility is expected to be capable of meeting these limits with the aerated lagoon.

**(1) A community’s financial capability and ability to raise or secure necessary funding;**

Due to the minimal cost associated with this new permit requirement, the Department anticipates that the City of Glasgow has the means to raise \$400 annually.

**(2) Affordability of pollution control options for the individuals or households at or below the median household income level of the community;**

The total cost estimated for the new quarterly monitoring requirements is \$400 annually. This cost, if financed through user fees, might cost each household an extra \$0.06 per month. This would make the additional cost per household as a percent of median household income (MHI) 0.002%<sup>2</sup> based on the City’s MHI of \$48,156. Due to the minimal cost associated with this new requirement, the Department anticipates an extremely low to no rate increase will be necessary that could impact individuals or households of the community.

**(3) An evaluation of the overall costs and environmental benefits of the control technologies;**

**Nutrient Monitoring**

Nutrients are mineral compounds that are required for organisms to grow and thrive. Of the six (6) elemental macronutrients, Nitrogen and Phosphorus are generally not readily available and limit growth of organisms. Excess nitrogen and phosphorus will cause a shift in the ecosystem's food web. Once excess nitrogen and phosphorus are introduced into a waterbody, some species' populations will dramatically increase, while other populations will not be able to sustain life. Competition and productivity are two factors in which nutrients can alter aquatic ecosystems and the designated uses of a waterbody. For example, designated uses, such as drinking water sources and recreational uses become impaired when algal blooms take over a waterbody. These blooms can cause foul tastes and odors in the drinking water, unsightly appearance, and fish mortality in the waterbody. Some algae also produce toxins that may cause serious adverse health conditions such as liver damage, tumor promotion, paralysis, and kidney damage. The monitoring requirements for Nitrogen and Phosphorus have been added to the permit to provide data regarding the health of the receiving stream's aquatic life. A healthy ecosystem is beneficial as it provides reduced impacts on human and aquatic health as well as recreational opportunities.

**(4) Inclusion of ongoing costs of operating and maintaining the existing wastewater collection and treatment system, including payments on outstanding debts for wastewater collection and treatment systems when calculating projected rates:**

The community did not provide the Department with information, nor could it be found through readily available data.

**(5) An inclusion of ways to reduce economic impacts on distressed populations in the community, including but not limited to low and fixed income populations. This requirement includes but is not limited to:**

- (a) Allowing adequate time in implementation schedules to mitigate potential adverse impacts on distressed populations resulting from the costs of the improvements and taking into consideration local community economic considerations.
- (b) Allowing for reasonable accommodations for regulated entities when inflexible standards and fines would impose a disproportionate financial hardship in light of the environmental benefits to be gained.

**Socioeconomic Data<sup>3-11</sup>:**

Potentially Distressed Populations – City of Glasgow	
Total Population (2015)	1,135
Percent Population Growth/Decline (2000-2015)	-10.1%
2015 Median Household Income (in 2016 Dollar)	\$48,156
Percent Change in Median Household Income (2000-2015)	+14.6%
Median Age (2015)	39.6
Change in Median Age in Years (2000-2015)	1.5
Unemployment Rate (2015)	6.6%
Percent of Population Below Poverty Level (2015)	14.6%
Percent of Households Receiving Food Stamps (2015)	10.5%

**(6) An assessment of other community investments and operating costs relating to environmental improvements and public health protection;**

The community did not report any other investments relating to environmental improvements.

**(7) An assessment of factors set forth in the United States Environmental Protection Agency's guidance, including but not limited to the "Combined Sewer Overflow Guidance for Financial Capability Assessment and Schedule Development" that may ease the cost burdens of implementing wet weather control plans, including but not limited to small system considerations, the attainability of water quality standards, and the development of wet weather standards;**

The new requirements associated with this permit will not impose a financial burden on the community, nor will the new requirements require the City of Glasgow to seek funding from an outside source.

**(8) An assessment of any other relevant local community economic condition.**

The community did not report any other relevant local economic conditions.

The Department contracted with Wichita State University to complete an assessment tool that would allow for predictions on rural Missouri community populations and future sustainability. The purpose of the study is to use a statistical modeling analysis in order to determine factors associated with each rural Missouri community that would predict the future population changes that could occur in each community. A stepwise regression model was applied to 19 factors which were determined as predictors of rural population change in Missouri. The model established a hierarchy of the predicting factors which allowed the model to place a weighted value on each of the factors. A total of 745 rural towns and villages in Missouri received a weighted value for each of the predicting factors. The weighted values for each town / village were then added together to determine an overall decision score. The overall decision scores were then divided into five categories and each town was assigned to a different categorical group based on the overall decision score.

The categorical groups were developed from the range of overall scores across all rural towns and villages within Missouri. The range covers 1,191 score points (-245 to 946).

Based on the assessment tool, the City of Glasgow has been determined as a category 3 community. This means that the City of Glasgow's socioeconomic status and population is predicted to remain stable over time. Future changes in only a few of the 19 weighted factors could cause your community to experience either a rise or decline of population. If your community experiences a decline in population which results in the inability to secure the necessary funding for an upgrade to meet the new requirements within this permit, a schedule of compliance may be necessary. At that time, please contact the Department and send an application for a schedule of compliance with justification for the time necessary to comply with this permit.

**Conclusion and Finding**

As a result of new regulations, the Department is proposing modifications to the current operating permit that may require the permittee to increase monitoring. The Department identified the actions for which cost analysis for compliance is required under Section 644.145 RSMo.

The Department estimates the cost for quarterly nitrogen and phosphorus monitoring is \$400 per year. Should these additional costs be financed through user fees, it may require user fees 0.002% of the community's MHI.

The Department considered the eight (8) criteria presented in subsection 644.145.3 when evaluating the cost associated with the relevant actions. Taking into consideration these criteria, this analysis examined whether the above referenced permit modifications affects the ability of an individual customer or household to pay a utility bill without undue hardship or unreasonable sacrifice in the essential lifestyle or spending patterns of the individual or household. As a result of reviewing the above criteria, the Department hereby finds that the action described above may result in a low burden with regard to the community's overall financial capability and a low financial impact for most individual customers/households; therefore, the new permit requirements are affordable.

**References:**

1.  $((\$400/522)/12 \text{ months}) = \$0.06$
2.  $(\$0.06/(\$48,156/12))*100\% = 0.002\%$
3. U.S. Census Bureau. 2011-2015 American Community Survey 5-Year Estimates, Table B01003: Total Population - Universe: Total Population.  
[http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS\\_15\\_5YR\\_B01003&prodType=table](http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_15_5YR_B01003&prodType=table).
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STANDARD CONDITIONS FOR NPDES PERMITS  
ISSUED BY  
THE MISSOURI DEPARTMENT OF NATURAL RESOURCES  
MISSOURI CLEAN WATER COMMISSION  
REVISED  
AUGUST 1, 2014

These Standard Conditions incorporate permit conditions as required by 40 CFR 122.41 or other applicable state statutes or regulations. These minimum conditions apply unless superseded by requirements specified in the permit.

## Part I – General Conditions

### Section A – Sampling, Monitoring, and Recording

1. **Sampling Requirements.**
  - a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
  - b. All samples shall be taken at the outfall(s) or Missouri Department of Natural Resources (Department) approved sampling location(s), and unless specified, before the effluent joins or is diluted by any other body of water or substance.
2. **Monitoring Requirements.**
  - a. Records of monitoring information shall include:
    - i. The date, exact place, and time of sampling or measurements;
    - ii. The individual(s) who performed the sampling or measurements;
    - iii. The date(s) analyses were performed;
    - iv. The individual(s) who performed the analyses;
    - v. The analytical techniques or methods used; and
    - vi. The results of such analyses.
  - b. If the permittee monitors any pollutant more frequently than required by the permit at the location specified in the permit using test procedures approved under 40 CFR Part 136, or another method required for an industry-specific waste stream under 40 CFR subchapters N or O, the results of such monitoring shall be included in the calculation and reported to the Department with the discharge monitoring report data (DMR) submitted to the Department pursuant to Section B, paragraph 7.
3. **Sample and Monitoring Calculations.** Calculations for all sample and monitoring results which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in the permit.
4. **Test Procedures.** The analytical and sampling methods used shall conform to the reference methods listed in 10 CSR 20-7.015 unless alternates are approved by the Department. The facility shall use sufficiently sensitive analytical methods for detecting, identifying, and measuring the concentrations of pollutants. The facility shall ensure that the selected methods are able to quantify the presence of pollutants in a given discharge at concentrations that are low enough to determine compliance with Water Quality Standards in 10 CSR 20-7.031 or effluent limitations unless provisions in the permit allow for other alternatives. A method is “sufficiently sensitive” when; 1) the method minimum level is at or below the level of the applicable water quality criterion for the pollutant or, 2) the method minimum level is above the applicable water quality criterion, but the amount of pollutant in a facility’s discharge is high enough that the method detects and quantifies the level of pollutant in the discharge, or 3) the method has the lowest minimum level of the analytical methods approved under 10 CSR 20-7.015. These methods are also required for parameters that are listed as monitoring only, as the data collected may be used to determine if limitations need to be established. A permittee is responsible for working with their contractors to ensure that the analysis performed is sufficiently sensitive.
5. **Record Retention.** Except for records of monitoring information required by the permit related to the permittee’s sewage sludge use and disposal activities, which shall be retained for a period of at least five (5) years (or longer as required by 40 CFR part 503), the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by the permit, and records of all data used to complete the application for the permit, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Department at any time.

6. **Illegal Activities.**
  - a. The Federal Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under the permit shall, upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than two (2) years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than \$20,000 per day of violation, or by imprisonment of not more than four (4) years, or both.
  - b. The Missouri Clean Water Law provides that any person or who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained pursuant to sections 644.006 to 644.141 shall, upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than six (6) months, or by both. Second and successive convictions for violation under this paragraph by any person shall be punished by a fine of not more than \$50,000 per day of violation, or by imprisonment for not more than two (2) years, or both.

### Section B – Reporting Requirements

1. **Planned Changes.**
  - a. The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility when:
    - i. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b); or
    - ii. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under 40 CFR 122.42;
    - iii. The alteration or addition results in a significant change in the permittee’s sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan;
    - iv. Any facility expansions, production increases, or process modifications which will result in a new or substantially different discharge or sludge characteristics must be reported to the Department 60 days before the facility or process modification begins. Notification may be accomplished by application for a new permit. If the discharge does not violate effluent limitations specified in the permit, the facility is to submit a notice to the Department of the changed discharge at least 30 days before such changes. The Department may require a construction permit and/or permit modification as a result of the proposed changes at the facility.
2. **Non-compliance Reporting.**
  - a. The permittee shall report any noncompliance which may endanger health or the environment. Relevant information shall be provided orally or via the current electronic method approved by the Department, within 24 hours from the time the permittee becomes aware of the circumstances, and shall be reported to the appropriate Regional Office during normal business hours or the Environmental Emergency Response hotline at 573-634-2436 outside of normal business hours. A written submission shall also be provided within five (5) business days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.



STANDARD CONDITIONS FOR NPDES PERMITS  
ISSUED BY  
THE MISSOURI DEPARTMENT OF NATURAL RESOURCES  
MISSOURI CLEAN WATER COMMISSION  
REVISED  
AUGUST 1, 2014

- b. The following shall be included as information which must be reported within 24 hours under this paragraph.
    - i. Any unanticipated bypass which exceeds any effluent limitation in the permit.
    - ii. Any upset which exceeds any effluent limitation in the permit.
    - iii. Violation of a maximum daily discharge limitation for any of the pollutants listed by the Department in the permit required to be reported within 24 hours.
  - c. The Department may waive the written report on a case-by-case basis for reports under paragraph 2. b. of this section if the oral report has been received within 24 hours.
3. **Anticipated Noncompliance.** The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. The notice shall be submitted to the Department 60 days prior to such changes or activity.
  4. **Compliance Schedules.** Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of the permit shall be submitted no later than 14 days following each schedule date. The report shall provide an explanation for the instance of noncompliance and a proposed schedule or anticipated date, for achieving compliance with the compliance schedule requirement.
  5. **Other Noncompliance.** The permittee shall report all instances of noncompliance not reported under paragraphs 2, 3, and 6 of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph 2. a. of this section.
  6. **Other Information.** Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or information.
  7. **Discharge Monitoring Reports.**
    - a. Monitoring results shall be reported at the intervals specified in the permit.
    - b. Monitoring results must be reported to the Department via the current method approved by the Department, unless the permittee has been granted a waiver from using the method. If the permittee has been granted a waiver, the permittee must use forms provided by the Department.
    - c. Monitoring results shall be reported to the Department no later than the 28<sup>th</sup> day of the month following the end of the reporting period.
- b. Notice.
    - i. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass.
    - ii. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in Section B – Reporting Requirements, paragraph 5 (24-hour notice).
  - c. Prohibition of bypass.
    - i. Bypass is prohibited, and the Department may take enforcement action against a permittee for bypass, unless:
      1. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
      2. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
      3. The permittee submitted notices as required under paragraph 2. b. of this section.
    - ii. The Department may approve an anticipated bypass, after considering its adverse effects, if the Department determines that it will meet the three (3) conditions listed above in paragraph 2. c. i. of this section.
3. **Upset Requirements.**
    - a. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph 3. b. of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
    - b. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
      - i. An upset occurred and that the permittee can identify the cause(s) of the upset;
      - ii. The permitted facility was at the time being properly operated; and
      - iii. The permittee submitted notice of the upset as required in Section B – Reporting Requirements, paragraph 2. b. ii. (24-hour notice).
      - iv. The permittee complied with any remedial measures required under Section D – Administrative Requirements, paragraph 4.
    - c. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

## Section C – Bypass/Upset Requirements

1. **Definitions.**
  - a. *Bypass*: the intentional diversion of waste streams from any portion of a treatment facility, except in the case of blending.
  - b. *Severe Property Damage*: substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
  - c. *Upset*: an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
2. **Bypass Requirements.**
  - a. Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs 2. b. and 2. c. of this section.

## Section D – Administrative Requirements

1. **Duty to Comply.** The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Missouri Clean Water Law and Federal Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.
  - a. The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Federal Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.
  - b. The Federal Clean Water Act provides that any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under section 402, or any requirement imposed in a pretreatment program approved under sections 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed \$25,000 per day for each violation. The Federal Clean Water Act provides that any person who negligently violates sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, or any requirement





STANDARD CONDITIONS FOR NPDES PERMITS  
ISSUED BY  
THE MISSOURI DEPARTMENT OF NATURAL RESOURCES  
MISSOURI CLEAN WATER COMMISSION  
REVISED  
AUGUST 1, 2014

imposed in a pretreatment program approved under section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal penalties of \$2,500 to \$25,000 per day of violation, or imprisonment of not more than one (1) year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than \$50,000 per day of violation, or by imprisonment of not more than two (2) years, or both. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of \$5,000 to \$50,000 per day of violation, or imprisonment for not more than three (3) years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than \$100,000 per day of violation, or imprisonment of not more than six (6) years, or both. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than \$250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than \$500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the CWA, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than \$1,000,000 and can be fined up to \$2,000,000 for second or subsequent convictions.

- c. Any person may be assessed an administrative penalty by the EPA Director for violating section 301, 302, 306, 307, 308, 318 or 405 of this Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this Act. Administrative penalties for Class I violations are not to exceed \$10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed \$25,000. Penalties for Class II violations are not to exceed \$10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed \$125,000.
  - d. It is unlawful for any person to cause or permit any discharge of water contaminants from any water contaminant or point source located in Missouri in violation of sections 644.006 to 644.141 of the Missouri Clean Water Law, or any standard, rule or regulation promulgated by the commission. In the event the commission or the director determines that any provision of sections 644.006 to 644.141 of the Missouri Clean Water Law or standard, rules, limitations or regulations promulgated pursuant thereto, or permits issued by, or any final abatement order, other order, or determination made by the commission or the director, or any filing requirement pursuant to sections 644.006 to 644.141 of the Missouri Clean Water Law or any other provision which this state is required to enforce pursuant to any federal water pollution control act, is being, was, or is in imminent danger of being violated, the commission or director may cause to have instituted a civil action in any court of competent jurisdiction for the injunctive relief to prevent any such violation or further violation or for the assessment of a penalty not to exceed \$10,000 per day for each day, or part thereof, the violation occurred and continues to occur, or both, as the court deems proper. Any person who willfully or negligently commits any violation in this paragraph shall, upon conviction, be punished by a fine of not less than \$2,500 nor more than \$25,000 per day of violation, or by imprisonment for not more than one year, or both. Second and successive convictions for violation of the same provision of this paragraph by any person shall be punished by a fine of not more than \$50,000 per day of violation, or by imprisonment for not more than two (2) years, or both.
2. **Duty to Reapply.**
- a. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit.
  - b. A permittee with a currently effective site-specific permit shall submit an application for renewal at least 180 days before the expiration date of the existing permit, unless permission for a later date has been granted by the Department. (The Department shall not grant permission

for applications to be submitted later than the expiration date of the existing permit.)

- c. A permittee with currently effective general permit shall submit an application for renewal at least 30 days before the existing permit expires, unless the permittee has been notified by the Department that an earlier application must be made. The Department may grant permission for a later submission date. (The Department shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)
3. **Need to Halt or Reduce Activity Not a Defense.** It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
4. **Duty to Mitigate.** The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.
5. **Proper Operation and Maintenance.** The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.
6. **Permit Actions.**
- a. Subject to compliance with statutory requirements of the Law and Regulations and applicable Court Order, this permit may be modified, suspended, or revoked in whole or in part during its term for cause including, but not limited to, the following:
    - i. Violations of any terms or conditions of this permit or the law;
    - ii. Having obtained this permit by misrepresentation or failure to disclose fully any relevant facts;
    - iii. A change in any circumstances or conditions that requires either a temporary or permanent reduction or elimination of the authorized discharge; or
    - iv. Any reason set forth in the Law or Regulations.
  - b. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.
7. **Permit Transfer.**
- a. Subject to 10 CSR 20-6.010, an operating permit may be transferred upon submission to the Department of an application to transfer signed by the existing owner and the new owner, unless prohibited by the terms of the permit. Until such time the permit is officially transferred, the original permittee remains responsible for complying with the terms and conditions of the existing permit.
  - b. The Department may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Missouri Clean Water Law or the Federal Clean Water Act.
  - c. The Department, within 30 days of receipt of the application, shall notify the new permittee of its intent to revoke or reissue or transfer the permit.
8. **Toxic Pollutants.** The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Federal Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the Federal Clean Water Act within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.
9. **Property Rights.** This permit does not convey any property rights of any sort, or any exclusive privilege.





STANDARD CONDITIONS FOR NPDES PERMITS  
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MISSOURI CLEAN WATER COMMISSION  
REVISED  
AUGUST 1, 2014

10. **Duty to Provide Information.** The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish to the Department upon request, copies of records required to be kept by this permit.
11. **Inspection and Entry.** The permittee shall allow the Department, or an authorized representative (including an authorized contractor acting as a representative of the Department), upon presentation of credentials and other documents as may be required by law, to:
  - a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of the permit;
  - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
  - c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
  - d. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Federal Clean Water Act or Missouri Clean Water Law, any substances or parameters at any location.
12. **Closure of Treatment Facilities.**
  - a. Persons who cease operation or plan to cease operation of waste, wastewater, and sludge handling and treatment facilities shall close the facilities in accordance with a closure plan approved by the Department.
  - b. Operating Permits under 10 CSR 20-6.010 or under 10 CSR 20-6.015 are required until all waste, wastewater, and sludges have been disposed of in accordance with the closure plan approved by the Department and any disturbed areas have been properly stabilized. Disturbed areas will be considered stabilized when perennial vegetation, pavement, or structures using permanent materials cover all areas that have been disturbed. Vegetative cover, if used, shall be at least 70% plant density over 100% of the disturbed area.
13. **Signatory Requirement.**
  - a. All permit applications, reports required by the permit, or information requested by the Department shall be signed and certified. (See 40 CFR 122.22 and 10 CSR 20-6.010)
  - b. The Federal Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six (6) months per violation, or by both.
  - c. The Missouri Clean Water Law provides that any person who knowingly makes any false statement, representation or certification in any application, record, report, plan, or other document filed or required to be maintained pursuant to sections 644.006 to 644.141 shall, upon conviction, be punished by a fine of not more than ten thousand dollars, or by imprisonment for not more than six months, or by both.
14. **Severability.** The provisions of the permit are severable, and if any provision of the permit, or the application of any provision of the permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of the permit, shall not be affected thereby.



STANDARD CONDITIONS FOR NPDES PERMITS  
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MISSOURI CLEAN WATER COMMISSION  
REVISED  
MAY 1, 2013

PART II - SPECIAL CONDITIONS – PUBLICLY OWNED  
TREATMENT WORKS  
SECTION A – INDUSTRIAL USERS

**1. Definitions**

Definitions as set forth in the Missouri Clean Water Laws and approved by the Missouri Clean Water Commission shall apply to terms used herein.

Significant Industrial User (SIU). Except as provided in the *General Pretreatment Regulation* 10 CSR 20-6.100, the term Significant Industrial User means:

1. All Industrial Users subject to Categorical Pretreatment Standards; and
2. Any other Industrial User that: discharges an average of 25,000 gallons per day or more of process wastewater to the Publicly-Owned Treatment Works (POTW) (excluding sanitary, noncontact cooling and boiler blowdown wastewater); contributes a process wastestream which makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority on the basis that the Industrial User has a reasonable potential for adversely affecting the POTW's or for violating any Pretreatment Standard or requirement.

Clean Water Act (CWA) is the the federal Clean Water Act of 1972, 33 U.S.C. § 1251 et seq. (2002).

**2. Identification of Industrial Discharges**

Pursuant to 40 CFR 122.44(j)(1), all POTWs shall identify, in terms of character and volume of pollutants, any Significant Industrial Users discharging to the POTW subject to Pretreatment Standards under section 307(b) of the CWA and 40 CFR 403.

**3. Application Information**

Applications for renewal or modification of this permit must contain the information about industrial discharges to the POTW pursuant to 40 CFR 122.21(j)(6)

**4. Notice to the Department**

Pursuant to 40 CFR 122.42(b), all POTWs must provide adequate notice of the following:

1. Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to section 301 or 306 of CWA if it were directly discharging these pollutants; and
2. Any substantial change into the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.
3. For purposes of this paragraph, adequate notice shall include information on:
  - i. the quality and quantity of effluent introduced into the POTW, and
  - ii. any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

For POTWs without an approved pretreatment program, the notice of industrial discharges which was not included in the permit application shall be made as soon as practicable. For POTWs with an approved pretreatment program, notice is to be included in the annual pretreatment report required in the special conditions of this permit. Notice may be sent to:

Missouri Department of Natural Resources  
Water Protection Program  
Attn: Pretreatment Coordinator  
P.O. Box 176  
Jefferson City, MO 65102

**STANDARD CONDITIONS FOR NPDES PERMITS**  
**ISSUED BY**  
**THE MISSOURI DEPARTMENT OF NATURAL RESOURCES**  
**MISSOURI CLEAN WATER COMMISSION**  
**August 1, 2019**

**PART III – BIOSOLIDS AND SLUDGE FROM DOMESTIC TREATMENT FACILITIES**

**SECTION A – GENERAL REQUIREMENTS**

1. PART III Standard Conditions pertain to biosolids and sludge requirements under the Missouri Clean Water Law and regulations for domestic and municipal wastewater and also incorporates federal sludge disposal requirements under 40 CFR Part 503 for domestic wastewater. The Environmental Protection Agency (EPA) has principal authority for permitting and enforcement of the federal sludge regulations under 40 CFR Part 503 for domestic biosolids and sludge.
2. PART III Standard Conditions apply only to biosolids and sludge generated at domestic wastewater treatment facilities, including public owned treatment works (POTW) and privately owned facilities.
3. Biosolids and Sludge Use and Disposal Practices:
  - a. The permittee is authorized to operate the biosolids and sludge generating, treatment, storage, use, and disposal facilities listed in the facility description of this permit.
  - b. The permittee shall not exceed the design sludge/biosolids volume listed in the facility description and shall not use biosolids or sludge disposal methods that are not listed in the facility description, without prior approval of the permitting authority.
  - c. For facilities operating under general operating permits that incorporate Standard Conditions PART III, the facility is authorized to operate the biosolids and sludge generating, treatment, storage, use and disposal facilities identified in the original operating permit application, subsequent renewal applications or subsequent written approval by the department.
4. Biosolids or Sludge Received from other Facilities:
  - a. Permittees may accept domestic wastewater biosolids or sludge from other facilities as long as the permittee's design sludge capacity is not exceeded and the treatment facility performance is not impaired.
  - b. The permittee shall obtain a signed statement from the biosolids or sludge generator or hauler that certifies the type and source of the sludge
5. Nothing in this permit precludes the initiation of legal action under local laws, except to the extent local laws are preempted by state law.
6. This permit does not preclude the enforcement of other applicable environmental regulations such as odor emissions under the Missouri Air Pollution Control Law and regulations.
7. This permit may (after due process) be modified, or alternatively revoked and reissued, to comply with any applicable biosolids or sludge disposal standard or limitation issued or approved under Section 405(d) of the Clean Water Act or under Chapter 644 RSMo.
8. In addition to Standard Conditions PART III, the Department may include biosolids and sludge limitations in the special conditions portion or other sections of a site specific permit.
9. Exceptions to Standard Conditions PART III may be authorized on a case-by-case basis by the Department, as follows:
  - a. The Department may modify a site-specific permit following permit notice provisions as applicable under 10 CSR 20-6.020, 40 CFR § 124.10, and 40 CFR § 501.15(a)(2)(ix)(E).
  - b. Exceptions cannot be granted where prohibited by the federal sludge regulations under 40 CFR Part 503.

## **SECTION B – DEFINITIONS**

1. Best Management Practices are practices to prevent or reduce the pollution of waters of the state and include agronomic loading rates (nitrogen based), soil conservation practices, spill prevention and maintenance procedures and other site restrictions.
2. Biosolids means organic fertilizer or soil amendment produced by the treatment of domestic wastewater sludge.
3. Biosolids land application facility is a facility where biosolids are spread onto the land at agronomic rates for production of food, feed or fiber. The facility includes any structures necessary to store the biosolids until soil, weather, and crop conditions are favorable for land application.
4. Class A biosolids means a material that has met the Class A pathogen reduction requirements or equivalent treatment by a Process to Further Reduce Pathogens (PFRP) in accordance with 40 CFR Part 503.
5. Class B biosolids means a material that has met the Class B pathogen reduction requirements or equivalent treatment by a Process to Significantly Reduce Pathogens (PSRP) in accordance with 40 CFR Part 503.
6. Domestic wastewater means wastewater originating from the sanitary conveniences of residences, commercial buildings, factories and institutions; or co-mingled sanitary and industrial wastewater processed by a (POTW) or a privately owned facility.
7. Feed crops are crops produced primarily for consumption by animals.
8. Fiber crops are crops such as flax and cotton.
9. Food crops are crops consumed by humans which include, but is not limited to, fruits, vegetables and tobacco.
10. Industrial wastewater means any wastewater, also known as process wastewater, not defined as domestic wastewater. Per 40 CFR Part 122.2, process wastewater means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product. Land application of industrial wastewater, residuals or sludge is not authorized by Standard Conditions PART III.
11. Mechanical treatment plants are wastewater treatment facilities that use mechanical devices to treat wastewater, including, sand filters, extended aeration, activated sludge, contact stabilization, trickling filters, rotating biological contact systems, and other similar facilities. It does not include wastewater treatment lagoons or constructed wetlands for wastewater treatment.
12. Plant Available Nitrogen (PAN) is nitrogen that will be available to plants during the growing seasons after biosolids application.
13. Public contact site is land with a high potential for contact by the public. This includes, but is not limited to, public parks, ball fields, cemeteries, plant nurseries, turf farms, and golf courses.
14. Sludge is the solid, semisolid, or liquid residue removed during the treatment of wastewater. Sludge includes septage removed from septic tanks or equivalent facilities. Sludge does not include carbon coal byproducts (CCBs), sewage sludge incinerator ash, or grit/screenings generated during preliminary treatment of domestic sewage.
15. Sludge lagoon is part of a mechanical wastewater treatment facility. A sludge lagoon is an earthen or concrete lined basin that receives sludge that has been removed from a wastewater treatment facility. It does not include a wastewater treatment lagoon or sludge treatment units that are not a part of a mechanical wastewater treatment facility.
16. Septage is the sludge pumped from residential septic tanks, cesspools, portable toilets, Type III marine sanitation devices, or similar treatment works such as sludge holding structures from residential wastewater treatment facilities with design populations of less than 150 people. Septage does not include grease removed from grease traps at a restaurant or material removed from septic tanks and other similar treatment works that have received industrial wastewater. The standard for biosolids from septage is different from other sludges. See Section H for more information.

## **SECTION C – MECHANICAL WASTEWATER TREATMENT FACILITIES**

1. Biosolids or sludge shall be routinely removed from wastewater treatment facilities and handled according to the permit facility description and the requirements of Standard Conditions PART III or in accordance with Section A.3.c., above.
2. The permittee shall operate storage and treatment facilities, as defined by Section 644.016(23), RSMo, so that there is no biosolids or sludge discharged to waters of the state. Agricultural storm water discharges are exempt under the provisions of Section 644.059, RSMo.
3. Mechanical treatment plants shall have separate biosolids or sludge storage compartments in accordance with 10 CSR 20, Chapter 8. Failure to remove biosolids or sludge from these storage compartments on the required design schedule is a violation of this permit.

## **SECTION D – BIOSOLIDS OR SLUDGE DISPOSED AT OTHER TREATMENT FACILITY OR BY CONTRACT HAULER**

1. Permittees that use contract haulers, under the authority of their operating permit, to dispose of biosolids or sludge, are responsible for compliance with all the terms of this permit. Contract haulers that assume the responsibility of the final disposal of biosolids or sludge, including biosolids land application, must obtain a Missouri State Operating Permit unless the hauler transports the biosolids or sludge to another permitted treatment facility.
2. Testing of biosolids or sludge, other than total solids content, is not required if biosolids or sludge are hauled to a permitted wastewater treatment facility, unless it is required by the accepting facility.

## **SECTION E – INCINERATION OF SLUDGE**

1. Please be aware that sludge incineration facilities may be subject to the requirements of 40 CFR Part 503 Subpart E, Missouri Air Conservation Commission regulations under 10 CSR 10, and solid waste management regulations under 10 CSR 80, as applicable.
2. Permittee may be authorized under the facility description of this permit to store incineration ash in lagoons or ash ponds. This permit does not authorize the disposal of incineration ash. Incineration ash shall be disposed in accordance with 10 CSR 80; or, if the ash is determined to be hazardous, with 10 CSR 25.
3. In addition to normal sludge monitoring, incineration facilities shall report the following as part of the annual report, mass of sludge incinerated and mass of ash generated. Permittee shall also provide the name of the ash disposal facility and permit number if applicable.

## **SECTION F – SURFACE DISPOSAL SITES AND BIOSOLIDS AND SLUDGE LAGOONS**

1. Please be aware that surface disposal sites of biosolids or sludge from wastewater treatment facilities may be subject to other laws including the requirements in 40 CFR Part 503 Subpart C, Missouri Air Conservation Commission regulations under 10 CSR 10, and solid waste management regulations under 10 CSR 80, as applicable.
2. Biosolids or sludge storage lagoons are temporary facilities and are not required to obtain a permit as a solid waste management facility under 10 CSR 80. In order to maintain biosolids or sludge storage lagoons as storage facilities, accumulated biosolids or sludge must be removed routinely, but not less than once every two years unless an alternate schedule is approved in the permit. The amount of biosolids or sludge removed will be dependent on biosolids or sludge generation and accumulation in the facility. Enough biosolids or sludge must be removed to maintain adequate storage capacity in the facility.
  - a. In order to avoid damage to the lagoon seal during cleaning, the permittee may leave a layer of biosolids or sludge on the bottom of the lagoon, upon prior approval of the Department; or
  - b. Permittee shall close the lagoon in accordance with Section I.

## **SECTION G – LAND APPLICATION OF BIOSOLIDS**

1. The permittee shall not land apply biosolids unless land application is authorized in the facility description, the special conditions of the issued NPDES permit, or in accordance with Section A.3.c., above.
2. This permit only authorizes “Class A” or “Class B” biosolids derived from domestic wastewater to be land applied onto grass land, crop land, timber, or other similar agricultural or silviculture lands at rates suitable for beneficial use as organic fertilizer and soil conditioner.
3. Class A Biosolids Requirements: Biosolids shall meet Class A requirements for application to public contact sites, residential lawns, home gardens or sold and/or given away in a bag or other container.
4. Class B biosolids that are land applied to agricultural and public contact sites shall comply with the following restrictions:
  - a. Food crops that touch the biosolids/soil mixture and are totally above the land surface shall not be harvested for 14 months after application of biosolids.
  - b. Food crops below the surface of the land shall not be harvested for 20 months after application of biosolids when the biosolids remain on the land surface for four months or longer prior to incorporation into the soil.
  - c. Food crops below the surface of the land shall not be harvested for 38 months after application of biosolids when the biosolids remain on the land surface for less than four months prior to incorporation into the soil.
  - d. Animal grazing shall not be allowed for 30 days after application of biosolids.
  - e. Food crops, feed crops, and fiber crops shall not be harvested for 30 days after application of biosolids.
  - f. Turf shall not be harvested for one year after application of biosolids if used for lawns or high public contact sites in close proximity to populated areas such as city parks or golf courses.
  - g. After Class B biosolids have been land applied to public contact sites with high potential for public exposure, as defined in 40 CFR § 503.31, such as city parks or golf courses, access must be restricted for 12 months.
  - h. After Class B biosolids have been land applied public contact sites with low potential for public exposure as defined in 40 CFR § 503.31, such as a rural land application or reclamation sites, access must be restricted for 30 days.
5. Pollutant limits
  - a. Biosolids shall be monitored to determine the quality for regulated pollutants listed in Table 1, below. Limits for any pollutants not listed below may be established in the permit.
  - b. The number of samples taken is directly related to the amount of biosolids or sludge produced by the facility (See Section J, below). Samples should be taken only during land application periods. When necessary, it is permissible to mix biosolids with lower concentrations of biosolids as well as other suitable Department approved material to achieve pollutant concentration below those identified in Table 1, below.
  - c. Table 1 gives the ceiling concentration for biosolids. Biosolids which exceed the concentrations in Table 1 may not be land applied.

**TABLE 1**

Biosolids ceiling concentration	
Pollutant	Milligrams per kilogram dry weight
Arsenic	75
Cadmium	85
Copper	4,300
Lead	840
Mercury	57
Molybdenum	75
Nickel	420
Selenium	100
Zinc	7,500

- d. Table 2 below gives the low metal concentration for biosolids. Because of its higher quality, biosolids with pollutant concentrations below those listed in Table 2 can safely be applied to agricultural land, forest, public contact sites, lawns, home gardens or be given away without further analysis. Biosolids containing metals in concentrations above the low metals concentrations but below the ceiling concentration limits may be land applied but shall not exceed the annual loading rates in Table 3 and the cumulative loading rates in Table 4. The permittee is required to track pollutant loading onto application sites for parameters that have exceeded the low metal concentration limits.

**TABLE 2**

Biosolids Low Metal Concentration	
Pollutant	Milligrams per kilogram dry weight
Arsenic	41
Cadmium	39
Copper	1,500
Lead	300
Mercury	17
Nickel	420
Selenium	100
Zinc	2,800

- e. Annual pollutant loading rate.

**Table 3**

Biosolids Annual Loading Rate	
Pollutant	Kg/ha (lbs./ac) per year
Arsenic	2.0 (1.79)
Cadmium	1.9 (1.70)
Copper	75 (66.94)
Lead	15 (13.39)
Mercury	0.85 (0.76)
Nickel	21 (18.74)
Selenium	5.0 (4.46)
Zinc	140 (124.96)

- f. Cumulative pollutant loading rates.

**Table 4**

Biosolids Cumulative Pollutant Loading Rate	
Pollutant	Kg/ha (lbs./ac)
Arsenic	41 (37)
Cadmium	39 (35)
Copper	1500 (1339)
Lead	300 (268)
Mercury	17 (15)
Nickel	420 (375)
Selenium	100 (89)
Zinc	2800 (2499)

6. Best Management Practices. The permittee shall use the following best management practices during land application activities to prevent the discharge of biosolids to waters of the state.
- Biosolids shall not be applied to the land if it is likely to adversely affect a threatened or endangered species listed under § 4 of the Endangered Species Act or its designated critical habitat.
  - Apply biosolids only at the agronomic rate of nitrogen needed (see 5.c. of this section).
  - The applicator must document the Plant Available Nitrogen (PAN) loadings, available nitrogen in the soil, and crop

nitrogen removal when either of the following occurs: 1) When biosolids are greater than 50,000 mg/kgTN; or 2) When biosolids are land applied at an application rate greater than two dry tons per acre per year.

- i. PAN can be determined as follows:  
(Nitrate + nitrite nitrogen) + (organic nitrogen x 0.2) + (ammonia nitrogen x volatilization factor<sup>1</sup>).  
<sup>1</sup> Volatilization factor is 0.7 for surface application and 1 for subsurface application. Alternative volatilization factors and mineralization rates can be utilized on a case-by-case basis.
- ii. Crop nutrient production/removal to be based on crop specific nitrogen needs and realistic yield goals. **NOTE:** There are a number of reference documents on the Missouri Department of Natural Resources website that are informative to implement best management practices in the proper management of biosolids, including crop specific nitrogen needs, realistic yields on a county by county basis and other supporting references.
- iii. Biosolids that are applied at agronomic rates shall not cause the annual pollutant loading rates identified in Table 3 to be exceeded.
- d. Buffer zones are as follows:
  - i. 300 feet of a water supply well, sinkhole, water supply reservoir or water supply intake in a stream;
  - ii. 300 feet of a losing stream, no discharge stream, stream stretches designated for whole body contact recreation, wild and scenic rivers, Ozark National Scenic Riverways or outstanding state resource waters as listed in the Water Quality Standards, 10 CSR 20-7.031;
  - iii. 150 feet of dwellings or public use areas;
  - iv. 100 feet (35 feet if biosolids application is down-gradient or the buffer zone is entirely vegetated) of lake, pond, wetlands or gaining streams (perennial or intermittent);
  - v. 50 feet of a property line. Buffer distances from property lines may be waived with written permission from neighboring property owner.
  - vi. For the application of dry, cake or liquid biosolids that are subsurface injected, buffer zones identified in 5.d.i. through 5.d.iii above, may be reduced to 100 feet. The buffer zone may be reduced to 35 feet if the buffer zone is permanently vegetated. Subsurface injection does not include methods or technology reflective of combination surface/shallow soil incorporation.
- e. Slope limitation for application sites are as follows:
  - i. For slopes less than or equal to 6 percent, no rate limitation;
  - ii. Applied to a slope 7 to 12 percent, the applicator may apply biosolids when soil conservation practices are used to meet the minimum erosion levels;
  - iii. Slopes > 12 percent, apply biosolids only when grass is vegetated and maintained with at least 80 percent ground cover at a rate of two dry tons per acre per year or less.
  - iv. Dry, cake or liquid biosolids that are subsurface injected, may be applied on slopes not to exceed 20 percent. Subsurface injection does not include the use of methods or technology reflective of combination surface/shallow soil incorporation.
- f. No biosolids may be land applied in an area that it is reasonably certain that pollutants will be transported into waters of the state.
- g. Biosolids may be land applied to sites with soil that are snow covered, frozen, or saturated with liquid when site restrictions or other controls are provided to prevent pollutants from being discharged to waters of the state during snowmelt or stormwater runoff. During inclement weather or unfavorable soil conditions use the following management practices:
  - i. A maximum field slope of 6% and a minimum 300 feet grass buffer between the application site and waters of the state. A 35 feet grass buffer may be utilized for the application of dry, cake or liquid biosolids that are subsurface injected. Subsurface injection does not include the use of methods or technology reflective of combination surface/shallow soil incorporation;
  - ii. A maximum field slope of 2% and 100 feet grass buffer between the application site and waters of the state. A 35 feet grass buffer may be used for the application of dry, cake or liquid biosolids that are subsurface injected. Subsurface injection does not include the use of methods or technology reflective of combination surface/shallow soil incorporation;
  - iii. Other best management practices approved by the Department.

## SECTION H – SEPTAGE

1. Haulers that land apply septage must obtain a state permit. An operating permit is not required for septage haulers who transport septage to another permitted treatment facility for disposal.
2. Do not apply more than 30,000 gallons of septage per acre per year or the volume otherwise stipulated in the operating permit.
3. Septic tanks are designed to retain sludge for one to three years which will allow for a larger reduction in pathogens and vectors, as compared to mechanical treatment facilities.
4. Septage must comply with Class B biosolids regarding pathogen and vector attraction reduction requirements before it may be applied to crops, pastures or timberland. To meet required pathogen and vector reduction requirements, mix 50 pounds of hydrated lime for every 1,000 gallons of septage and maintain a septage pH of at least 12 pH standard units for 30 minutes or more prior to application.
5. Lime is to be added to the pump truck and not directly to the septic tanks, as lime would harm the beneficial bacteria of the septic tank.
6. As residential septage contains relatively low levels of metals, the testing of metals in septage is not required.

## SECTION I– CLOSURE REQUIREMENTS

1. This section applies to all wastewater facilities (mechanical and lagoons) and sludge or biosolids storage and treatment facilities. It does not apply to land application sites.
2. Permittees of a domestic wastewater facility who plan to cease operation must obtain Department approval of a closure plan which addresses proper removal and disposal of all sludges and/or biosolids. Permittee must maintain this permit until the facility is closed in accordance with the approved closure plan per 10 CSR 20 – 6.010 and 10 CSR 20 – 6.015.
3. Biosolids or sludge that are left in place during closure of a lagoon or earthen structure or ash pond shall not exceed the agricultural loading rates as follows:
  - a. Biosolids and sludge shall meet the monitoring and land application limits for agricultural rates as referenced in Section G, above.
  - b. If a wastewater treatment lagoon has been in operation for 15 years or more without sludge removal, the sludge in the lagoon qualifies as a Class B biosolids with respect to pathogens due to anaerobic digestion, and testing for fecal coliform is not required. For other lagoons, testing for fecal coliform is required to show compliance with Class B biosolids limitations. In order to reach Class B biosolids requirements, fecal coliform must be less than 2,000,000 colony forming units or 2,000,000 most probable number. All fecal samples must be presented as geometric mean per gram.
  - c. The allowable nitrogen loading that may be left in the lagoon shall be based on the plant available nitrogen (PAN) loading. For a grass cover crop, the allowable PAN is 300 pounds/acre. Alternative, site-specific application rates may be included in the closure plan for department consideration.
    - i. PAN can be determined as follows:
$$(\text{Nitrate} + \text{nitrite nitrogen}) + (\text{organic nitrogen} \times 0.2) + (\text{ammonia nitrogen} \times \text{volatilization factor}^1).$$
<sup>1</sup> Volatilization factor is 0.7 for surface application and 1 for subsurface application. Alternative volatilization factors and mineralization rates can be utilized on a case-by-case basis.
4. Domestic wastewater treatment lagoons with a design treatment capacity less than or equal to 150 persons, are “similar treatment works” under the definition of septage. Therefore the sludge within the lagoons may be treated as septage during closure activities. See Section B, above. Under the septage category, residuals may be left in place as follows:
  - a. Testing for metals or fecal coliform is not required.
  - b. If the wastewater treatment lagoon has been in use for less than 15 years, mix lime with the sludge at a rate of 50 pounds of hydrated lime per 1000 gallons (134 cubic feet) of sludge.
  - c. The amount of sludge that may be left in the lagoon shall be based on the plant available nitrogen (PAN) loading. 100 dry tons/acre of sludge may be left in the basin without testing for nitrogen. If 100 dry tons/acre or more will be left in the lagoon, test for nitrogen and determine the PAN using the calculation above. Allowable PAN loading is 300 pounds/acre.
5. Biosolids or sludge left within the domestic lagoon shall be mixed with soil on at least a 1 to 1 ratio, and unless otherwise approved, the lagoon berm shall be demolished, and the site shall be graded and contain  $\geq 70\%$  vegetative density over 100% of the site so as to avoid ponding of storm water and provide adequate surface water drainage without creating erosion. Alternative biosolids or sludge and soil mixing ratios may be included in the closure plan for department consideration.
6. Lagoon and earthen structure closure activities shall obtain a storm water permit for land disturbance activities that equal or exceed one acre in accordance with 10 CSR 20-6.200.
7. When closing a mechanical wastewater plant, all biosolids or sludge must be cleaned out and disposed of in accordance with the Department approved closure plan before the permit for the facility can be terminated.
  - a. Land must be stabilized which includes any grading, alternate use or fate upon approval by the Department, remediation, or other work that exposes sediment to stormwater per 10 CSR 20-6.200. The site shall be graded and contain  $\geq 70\%$  vegetative density over 100% of the site, so as to avoid ponding of storm water and provide adequate



- surface water drainage without creating erosion.
- b. Hazardous Waste shall not be land applied or disposed during mechanical plant closures unless in accordance with Missouri Hazardous Waste Management Law and Regulations pursuant to 10 CSR 25.
  - c. After demolition of the mechanical plant, the site must only contain clean fill defined in Section 260.200.1(6) RSMo as uncontaminated soil, rock, sand, gravel, concrete, asphaltic concrete, cinderblocks, brick, minimal amounts of wood and metal, and inert solids as approved by rule or policy of the Department for fill, reclamation, or other beneficial use. Other solid wastes must be removed.
8. If biosolids or sludge from the domestic lagoon or mechanical treatment plant exceeds agricultural rates under Section G and/or I, a landfill permit or solid waste disposal permit must be obtained if the permittee chooses to seek authorization for on-site sludge disposal under the Missouri Solid Waste Management Law and regulations per 10 CSR 80, and the permittee must comply with the surface disposal requirements under 40 CFR Part 503, Subpart C.

## SECTION J – MONITORING FREQUENCY

1. At a minimum, biosolids or sludge shall be tested for volume and percent total solids on a frequency that will accurately represent sludge quantities produced and disposed. Please see the table below.

**TABLE 5**

Biosolids or Sludge produced and disposed (Dry Tons per Year)	Monitoring Frequency (See Notes 1, and 2)		
	Metals, Pathogens and Vectors, Total Phosphorus, Total Potassium	Nitrogen TKN, Nitrogen PAN <sup>1</sup>	Priority Pollutants <sup>2</sup>
319 or less	1/year	1 per month	1/year
320 to 1650	4/year	1 per month	1/year
1651 to 16,500	6/year	1 per month	1/year
16,501+	12/year	1 per month	1/year

<sup>1</sup> Calculate plant available nitrogen (PAN) when either of the following occurs: 1) when biosolids are greater than 50,000 mg/kg TN; or 2) when biosolids are land applied at an application rate greater than two dry tons per acre per year.

<sup>2</sup> Priority pollutants (40 CFR 122.21, Appendix D, Tables II and III) are required only for permit holders that must have a pre-treatment program. Monitoring requirements may be modified and incorporated into the operating permit by the Department on a case-by-case basis.

Note 1: Total solids: A grab sample of sludge shall be tested one per day during land application periods for percent total solids. This data shall be used to calculate the dry tons of sludge applied per acre.

Note 2: Table 5 is not applicable for incineration and permit holders that landfill their sludge.

2. Permittees that operate wastewater treatment lagoons, peak flow equalization basins, combined sewer overflow basins or biosolids or sludge lagoons that are cleaned out once a year or less, may choose to sample only when the biosolids or sludge is removed or the lagoon is closed. Test one composite sample for each 319 dry tons of biosolids or sludge removed from the lagoon during the reporting year or during lagoon closure. Composite sample must represent various areas at one-foot depth.
3. Additional testing may be required in the special conditions or other sections of the permit.
4. Biosolids and sludge monitoring shall be conducted in accordance with federal regulation 40 CFR § 503.8, Sampling and analysis.

## SECTION K – RECORD KEEPING AND REPORTING REQUIREMENTS

1. The permittee shall maintain records on file at the facility for at least five years for the items listed in Standard Conditions PART III and any additional items in the Special Conditions section of this permit. This shall include dates when the biosolids or sludge facility is checked for proper operation, records of maintenance and repairs and other relevant information.
2. Reporting period
  - a. By February 19<sup>th</sup> of each year, applicable facilities shall submit an annual report for the previous calendar year period for all mechanical wastewater treatment facilities, sludge lagoons, and biosolids or sludge disposal facilities.
  - b. Permittees with wastewater treatment lagoons shall submit the above annual report only when biosolids or sludge are removed from the lagoon during the report period or when the lagoon is closed.
3. Report Form. The annual report shall be prepared on report forms provided by the Department or equivalent forms approved by the Department.
4. Reports shall be submitted as follows:  
Major facilities, which are those serving 10,000 persons or more or with a design flow equal to or greater than 1 million gallons per day or that are required to have an approved pretreatment program, shall report to both the Department and EPA if the facility land applied, disposed of biosolids by surface disposal, or operated a sewage sludge incinerator. All other facilities shall maintain their biosolids or sludge records and keep them available to Department personnel upon request. State reports shall be submitted to the address listed as follows:

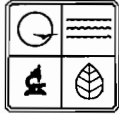
DNR regional or other applicable office listed in the  
permit (see cover letter of permit)  
ATTN: Sludge Coordinator

Reports to EPA must be electronically submitted online via the Central Data Exchange at: <https://cdx.epa.gov/> Additional information is available at: <https://www.epa.gov/biosolids/compliance-and-annual-reporting-guidance-about-clean-water-act-laws>

5. Annual report contents. The annual report shall include the following:
  - a. Biosolids and sludge testing performed. If testing was conducted at a greater frequency than what is required by the permit, all test results must be included in the report.
  - b. Biosolids or sludge quantity shall be reported as dry tons for the quantity produced and/or disposed.
  - c. Gallons and % solids data used to calculate the dry ton amounts.
  - d. Description of any unusual operating conditions.
  - e. Final disposal method, dates, and location, and person responsible for hauling and disposal.
    - i. This must include the name and address for the hauler and sludge facility. If hauled to a municipal wastewater treatment facility, sanitary landfill, or other approved treatment facility, give the name of that facility.
    - ii. Include a description of the type of hauling equipment used and the capacity in tons, gallons, or cubic feet.
  - f. Contract Hauler Activities:

If using a contract hauler, provide a copy of a signed contract from the contractor. Permittee shall require the contractor to supply information required under this permit for which the contractor is responsible. The permittee shall submit a signed statement from the contractor that he has complied with the standards contained in this permit, unless the contract hauler has a separate biosolids or sludge use permit.
  - g. Land Application Sites:
    - i. Report the location of each application site, the annual and cumulative dry tons/acre for each site, and the landowners name and address. The location for each spreading site shall be given as a legal description for nearest ¼, ¼, Section, Township, Range, and county, or UTM coordinates. The facility shall report PAN when either of the following occurs: 1) When biosolids are greater than 50,000 mg/kg TN; or 2) when biosolids are land applied at an application rate greater than two dry tons per acre per year.
    - ii. If the “Low Metals” criteria are exceeded, report the annual and cumulative pollutant loading rates in pounds per acre for each applicable pollutant, and report the percent of cumulative pollutant loading which has been reached at each site.
    - iii. Report the method used for compliance with pathogen and vector attraction requirements.
    - iv. Report soil test results for pH and phosphorus. If no soil was tested during the year, report the last date when tested and the results.

SEP 23 2016



MISSOURI DEPARTMENT OF NATURAL RESOURCES

WATER PROTECTION PROGRAM, WATER POLLUTION CONTROL BRANCH

**FORM B2 – APPLICATION FOR CONSTRUCTION OR OPERATING PERMIT FOR FACILITIES WHICH RECEIVE PRIMARILY DOMESTIC WASTE AND HAVE A DESIGN FLOW MORE THAN 100,000 GALLONS PER DAY**

FACILITY NAME

GLASGOW WWTF

PERMIT NO.

MO -0034240

COUNTY

Howard

**APPLICATION OVERVIEW**

Form B2 has been developed in a modular format and consists of Parts A, B and C and a Supplemental Application Information (Parts D, E, F and G) packet. All applicants must complete Parts A, B and C. Some applicants must also complete parts of the Supplemental Application Information packet. The following items explain which parts of Form B2 you must complete. Submittal of an incomplete application may result in the application being returned.

**BASIC APPLICATION INFORMATION**

- A. Basic Application Information for all Applicants. All applicants must complete Part A.
- B. Additional Application Information for all Applicants. All applicants must complete Part B.
- C. Certification. All applicants must complete Part C.

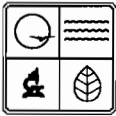
**SUPPLEMENTAL APPLICATION INFORMATION**

- D. Expanded Effluent Testing Data. A treatment works that discharges effluent to surface water of the United States and meets one or more of the following criteria must complete *Part D - Expanded Effluent Testing Data*:
  - 1. Has a design flow rate greater than or equal to 1 million gallons per day.
  - 2. Is required to have or currently has a pretreatment program.
  - 3. Is otherwise required by the permitting authority to provide the information.
- E. Toxicity Testing Data. A treatment works that meets one or more of the following criteria must complete *Part E - Toxicity Testing Data*:
  - 1. Has a design flow rate greater than or equal to 1 million gallons per day.
  - 2. Is required to have or currently has a pretreatment program.
  - 3. Is otherwise required by the permitting authority to provide the information.
- F. Industrial User Discharges and Resource Conservation and Recovery Act / Comprehensive Environmental Response, Compensation and Liability Act Wastes. A treatment works that accepts process wastewater from any significant industrial users, also known as SIUs, or receives a Resource Conservation and Recovery Act or CERCLA wastes must complete *Part F - Industrial User Discharges and Resource Conservation and Recovery Act /CERCLA Wastes*.  
 SIUs are defined as:
  - 1. All Categorical Industrial Users, or CIUs, subject to Categorical Pretreatment Standards under 40 Code of Federal Regulations 403.6 and 40 Code of Federal Regulations 403.6 and 40 CFR Chapter 1, Subchapter N.
  - 2. Any other industrial user that meets one or more of the following:
    - i. Discharges an average of 25,000 gallons per day or more of process wastewater to the treatment works (with certain exclusions).
    - ii. Contributes a process waste stream that makes up five percent or more of the average dry weather hydraulic or organic capacity of the treatment plant.
    - iii. Is designated as an SIU by the control authority.
- G. Combined Sewer Systems. A treatment works that has a combined sewer system must complete *Part G - Combined Sewer Systems*.

**ALL APPLICANTS MUST COMPLETE PARTS A, B and C**

N10-0034240

C1704/1



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
WATER PROTECTION PROGRAM, WATER POLLUTION CONTROL BRANCH  
**FORM B2 – APPLICATION FOR CONSTRUCTION OR OPERATING  
PERMIT FOR FACILITIES WHICH RECEIVE PRIMARILY DOMESTIC  
WASTE AND HAVE A DESIGN FLOW MORE THAN 100,000 GALLONS  
PER DAY**

*AP 25286*

FOR AGENCY USE ONLY	
CHECK NUMBER <i>17349</i>	
DATE RECEIVED <i>9-23-16</i>	FEE SUBMITTED <i>\$200.00</i>

*8B*

**PART A – BASIC APPLICATION INFORMATION**

1. This application is for:

- ☐ An operating permit and antidegradation review public notice.
- ☐ A construction permit following an appropriate operating permit and antidegradation review public notice.
- ☒ A construction permit, a concurrent operating permit and antidegradation review public notice.
- ☐ A construction permit (submitted before Aug. 30, 2008 or antidegradation review is not required).
- ☐ An operating permit for a new or unpermitted facility. Construction Permit # \_\_\_\_\_
- ☐ An operating permit renewal: Permit #MO- \_\_\_\_\_ Expiration Date \_\_\_\_\_
- ☐ An operating permit modification: Permit #MO- \_\_\_\_\_ Reason: \_\_\_\_\_

1.1 Is this a Federal/State Funded Project? ☐ Yes ☒ No Funding Agency/Project #: \_\_\_\_\_

1.2 Is the appropriate fee included with the application (See instructions for appropriate fee)? ☒ Yes ☐ No

**2. FACILITY**

NAME GLASGOW WWTF		TELEPHONE NUMBER WITH AREA CODE 6603382377	
ADDRESS (PHYSICAL) 1 MI SW OF HWYS 87 & 240 INTERSECTIONS	CITY GLASGOW	STATE MO	ZIP 65254

2.1 **LEGAL DESCRIPTION** (Plant Site): NW ¼, SW ¼, SW ¼, Sec. 20, T 2456, R HOWARD County

2.2 UTM Coordinates Easting (X): 512639.64 Northing (Y): 4339893.92  
For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

**3. OWNER**

NAME CITY OF GLASGOW		TITLE CITY ADMINISTRATOR		TELEPHONE NUMBER WITH AREA CODE 6603382377	
ADDRESS 100 MARKET STREET		CITY GLASGOW		STATE MO	ZIP 65254

3.1 Request review of draft permit prior to Public Notice? ☒ Yes ☐ No

**4. CONTINUING AUTHORITY:** Permanent organization which will serve as the continuing authority for the operation, maintenance and modernization of the facility.

NAME CITY OF GLASGOW		CITY GLASGOW	
ADDRESS 100 MARKET STREET	CERTIFICATE NUMBER (IF APPLICABLE) N/A	STATE MO	ZIP 65254

**5. OPERATOR**

NAME STEVE BOSS, certification No. 9206	TITLE WASTEWATER OPERATOR	TELEPHONE NUMBER WITH AREA CODE 6603382377
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**6. FACILITY CONTACT**

NAME KEVIN ATWOOD	TITLE CITY ADMINISTRATOR
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FACILITY NAME GLASGOW WWTF		PERMIT NO. MO- 34240		OUTFALL NO. 1
<b>PART A – BASIC APPLICATION INFORMATION</b>				
<b>7. ADDITIONAL FACILITY INFORMATION</b>				
7.1 BRIEF DESCRIPTION OF FACILITIES CURRENT: 3-CELL FLOW-THROUGH LAGOON, FUTURE: 3-CELL CONTROLLED DISCHARGE LAGOON. MOVING OUTFALL FROM HURRICANE CREEK TO THE MISSOURI RIVER.				
7.2 TOPOGRAPHIC MAP. ATTACH TO THIS APPLICATION A TOPOGRAPHIC MAP OF THE AREA EXTENDING AT LEAST ONE MILE BEYOND FACILITY PROPERTY BOUNDARIES. THIS MAP MUST SHOW THE OUTLINE OF THE FACILITY AND THE FOLLOWING INFORMATION. (YOU MAY SUBMIT MORE THAN ONE MAP IF ONE MAP DOES NOT SHOW THE ENTIRE AREA.) a. The area surrounding the treatment plant, including all unit processes. b. The location of the downstream landowner(s). (See Item 10.) c. The major pipes or other structures through which wastewater enters the treatment works and the pipes or other structures through which treated wastewater is discharged from the treatment plant. Include outfalls from bypass piping, if applicable. d. The actual point of discharge. e. Wells, springs, other surface water bodies and drinking water wells that are: 1) within ¼ mile of the property boundaries of the treatment works, and 2) listed in public record or otherwise known to the applicant. f. Any areas where the sewage sludge produced by the treatment works is stored, treated or disposed. g. If the treatment works receives waste that is classified as hazardous under the Resource Conservation and Recovery Act, or RCRA, by truck, rail or special pipe, show on the map where that hazardous waste enters the treatment works and where it is treated, stored or disposed.				
7.3 PROCESS FLOW DIAGRAM OR SCHEMATIC. PROVIDE A DIAGRAM SHOWING THE PROCESSES OF THE TREATMENT PLANT. ALSO, PROVIDE A WATER BALANCE SHOWING ALL TREATMENT UNITS, INCLUDING DISINFECTION (E.G. CHLORINATION AND DECHLORINATION). THE WATER BALANCE MUST SHOW DAILY AVERAGE FLOW RATES AT INFLUENT AND DISCHARGE POINTS AND APPROXIMATE DAILY FLOW RATES BETWEEN TREATMENT UNITS. INCLUDE A BRIEF NARRATIVE DESCRIPTION OF THE DIAGRAM.				
7.4 FACILITY SIC CODE 4952.	DISCHARGE SIC CODE: 4952.	FACILITY NAICS CODE: 221320.	DISCHARGE NAICS CODE: 221320.	
7.5 NUMBER OF SEPARATE DISCHARGE POINTS 1				
7.6 NUMBER OF PEOPLE PRESENTLY CONNECTED OR POPULATION EQUIVALENT 1103			DESIGN POPULATION EQUIVALENT 1798	
NUMBER OF UNITS PRESENTLY CONNECTED HOMES _____ APARTMENTS _____ TRAILERS _____ OTHER 522				
TOTAL DESIGN FLOW (ALL OUTFALLS) 0.13 MGD		ACTUAL FLOW 0.033 MGD		
7.7 DOES ANY BYPASSING OCCUR ANYWHERE IN THE COLLECTION SYSTEM OR AT THE TREATMENT FACILITY? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If Yes, attach an explanation.)				
7.8 LENGTH OF THE SANITARY SEWER COLLECTION SYSTEM IN MILES _____				
7.9 IS INDUSTRIAL WASTE DISCHARGED TO THE FACILITY IDENTIFIED IN ITEM 2? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
7.10 WILL THE DISCHARGE BE CONTINUOUS THROUGH THE YEAR? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
A. DISCHARGE WILL OCCUR DURING THE FOLLOWING MONTHS JANUARY TO DECEMBER		B. HOW MANY DAYS OF THE WEEK WILL THE DISCHARGE OCCUR? 7		
7.11 IS WASTEWATER LAND APPLIED? (If Yes, Attach Form I) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		7.12 DOES THIS FACILITY DISCHARGE TO A LOSING STREAM OR SINKHOLE? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
7.13 HAS A WASTE LOAD ALLOCATION STUDY BEEN COMPLETED FOR THIS FACILITY? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
7.14 LIST ALL PERMIT VIOLATIONS, INCLUDING EFFLUENT LIMIT EXCEEDANCES IN THE LAST FIVE YEARS. ATTACH A SEPARATE SHEET IF NECESSARY. IF NONE, WRITE NONE. EXCEEDED TSS IN 10/12, 4/13, 1/15; PH IN 3/15; FECAL COLIFORM IN 4/13, 5/13; BOD IN 4/30				
<b>8. LABORATORY CONTROL INFORMATION</b>				

8.1 LABORATORY WORK CONDUCTED BY PLANT PERSONNEL

Lab work conducted outside of plant.

Yes ☒

No ☐

Push-button or visual methods for simple test such as pH, settleable solids.

Yes ☒

No ☐

Additional procedures such as Dissolved Oxygen, Chemical Oxygen Demand, Biological Oxygen Demand, titrations, solids, volatile content.

Yes ☒

No ☐

More advanced determinations such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc.

Yes ☐

No ☒

Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph.

Yes ☐

No ☒

MO 780-1805 (09-08)

FACILITY NAME <b>GLASGOW WWTF</b>	PERMIT NO. <b>MO- 0034240</b>	OUTFALL NO. <b>1</b>	
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**PART A – BASIC APPLICATION INFORMATION**

**9. SLUDGE HANDLING, USE AND DISPOSAL**

9.1 IS THE SLUDGE A HAZARDOUS WASTE AS DEFINED BY 10 CSR 25?  
 Yes ☐ No ☒

9.2 SLUDGE PRODUCTION, INCLUDING SLUDGE RECEIVED FROM OTHERS  
 Design Dry Tons/Year **27** Actual Dry Tons/Year **17**

9.3 CAPACITY OF SLUDGE HOLDING STRUCTURES

9.4 SLUDGE STORAGE PROVIDED  
 1 mill Cubic Feet **1626** Days of Storage **24** Average Percent Solids of Sludge **24** ☐ No Sludge Storage is Provided

9.5 TYPE OF STORAGE  
☐ Holding Tank ☐ Basin ☐ Building ☐ Concrete Pad ☒ Other (Describe) Retained in lagoon

9.6 SLUDGE TREATMENT  
☐ Anaerobic Digester ☐ Storage Tank ☐ Lime Stabilization ☒ Lagoon  
☐ Aerobic Digester ☐ Air or Heat Drying ☐ Composting ☐ Other (Attach Description)

9.7 SLUDGE USE OR DISPOSAL  
☐ Land Application ☒ Contract Hauler ☐ Hauled to Another Treatment Facility ☐ Solid Waste Landfill  
☐ Surface Disposal (Sludge Disposal Lagoon, Sludge Held For More Than Two Years) ☐ Incineration  
☐ Other (Attach Explanation Sheet) \_\_\_\_\_

9.8 PERSON RESPONSIBLE FOR HAULING SLUDGE TO DISPOSAL FACILITY  
 NAME  
**TBD**

ADDRESS	CITY	STATE	ZIP

CONTACT PERSON	TELEPHONE NUMBER WITH AREA CODE	PERMIT NO
		<b>MO-</b>

9.9 SLUDGE USE OR DISPOSAL FACILITY  
☐ By Applicant ☒ By Others (Complete Below)

NAME  
**TBD**

ADDRESS	CITY	STATE	ZIP

CONTACT PERSON	TELEPHONE NUMBER WITH AREA CODE	PERMIT NO
		<b>MO-</b>

9.10 DO THE SLUDGE OR BIOSOLIDS DISPOSAL COMPLY WITH FEDERAL SLUDGE REGULATIONS UNDER 40 CFR 503?  
☒ Yes ☐ No (Attach Explanation)

**10. DOWNSTREAM LANDOWNER(S). (ATTACH ADDITIONAL SHEETS AS NECESSARY.)**

NAME  
**TOM TURNER**

ADDRESS	CITY	STATE	ZIP
<b>6531 WENONGA ROAD</b>	<b>SHAWNEE MISSION</b>	<b>KS</b>	<b>66208</b>

**11. DRINKING WATER SUPPLY INFORMATION**

11.1 SOURCE OF YOUR DRINKING WATER SUPPLY  
 A. PUBLIC SUPPLY (MUNICIPAL OR WATER DISTRICT WATER) (IF PUBLIC, PLEASE GIVE NAME OF PUBLIC SUPPLY)  
**City of Glasgow**  
 B. PRIVATE WELL  
 C. SURFACE WATER (LAKE, POND OR STREAM)

11.2 DOES YOUR DRINKING WATER SOURCE SERVE AT LEAST 25 PEOPLE AT LEAST 60 DAYS PER YEAR (NOT NECESSARILY CONSECUTIVE DAYS)?  
 Yes ☒ No ☐

11.3 DOES YOUR SUPPLY SERVE HOUSING THAT IS OCCUPIED YEAR ROUND BY THE SAME PEOPLE? THIS DOES NOT INCLUDE HOUSING THAT IS OCCUPIED SEASONALLY?  
 Yes ☒ No ☐

**END OF PART A**

<b>MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL</b>			
FACILITY NAME Glasgow WWTF		PERMIT NO. MO- 0034240	OUTFALL NO. 1
<b>PART B – ADDITIONAL APPLICATION INFORMATION</b>			
<b>20. INFLOW AND INFILTRATION</b>			
ESTIMATE THE AVERAGE NUMBER OF GALLONS PER DAY THAT FLOW INTO THE TREATMENT WORKS FROM INFLOW AND INFILTRATION. 4000 Gallons Per Day			
BRIEFLY EXPLAIN ANY STEPS UNDERWAY OR PLANNED TO MINIMIZE INFLOW AND INFILTRATION. Annual smoke testing and followup repairs of problem areas, ongoing maintenance as needed.			
<b>20.1 OPERATION AND MAINTENANCE PERFORMED BY CONTRACTOR(S)</b>			
ARE ANY OPERATIONAL OR MAINTENANCE ASPECTS (RELATED TO WASTEWATER TREATMENT AND EFFLUENT QUALITY) OF THE TREATMENT WORKS THE RESPONSIBILITY OF A CONTRACTOR? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, list the name, address, telephone number and status of each contractor and describe the contractor's responsibilities. (Attach additional pages if necessary.)			
NAME			
MAILING ADDRESS			
TELEPHONE NUMBER WITH AREA CODE			
RESPONSIBILITIES OF CONTRACTOR			
<b>20.2 SCHEDULED IMPROVEMENTS AND SCHEDULES OF IMPLEMENTATION. PROVIDE INFORMATION ABOUT ANY UNCOMPLETED IMPLEMENTATION SCHEDULE OR UNCOMPLETED PLANS FOR IMPROVEMENTS THAT WILL AFFECT THE WASTEWATER TREATMENT, EFFLUENT QUALITY OR DESIGN CAPACITY OF THE TREATMENT WORKS. IF THE TREATMENT WORKS HAS SEVERAL DIFFERENT IMPLEMENTATION SCHEDULES OR IS PLANNING SEVERAL IMPROVEMENTS, SUBMIT SEPARATE RESPONSES FOR EACH. (IF NONE, GO TO QUESTION B-20.3.)</b>			
<b>A. List the outfall number that is covered by this implementation schedule</b> Outfall No. 1		<b>B. Indicate whether the planned improvements or implementation schedule are required by local, state or federal agencies.</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
<b>20.3 WASTEWATER DISCHARGES:</b> COMPLETE QUESTIONS 20.4 THROUGH 20.7 ONCE FOR EACH OUTFALL (INCLUDING BYPASS POINTS) THROUGH WHICH EFFLUENT IS DISCHARGED. DO NOT INCLUDE INFORMATION ON COMBINED SEWER OVERFLOWS IN THIS SECTION.			
<b>20.4 DESCRIPTION OF OUTFALL</b>			
OUTFALL NUMBER 1			
<b>A. LOCATION</b> ¼ NW ¼ SW ¼ SW Section 20 Township 24S Range 6 <input type="checkbox"/> E <input type="checkbox"/> W UTM Coordinates Easting (X): 512639.64 Northing (Y): 4339893.92 For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)			
<b>B. Distance from Shore (If Applicable)</b> N/A ft.		<b>C. Depth Below Surface (If Applicable)</b> N/A ft.	<b>D. Average Daily Flow Rate</b> 0.130 mgd
<b>E. Does this outfall have either an intermittent or periodic discharge?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes, Provide the following information:			
Number of Days Per Year Discharge Occurs: 150	Average Duration of Each Discharge: 24H	Average Flow Per Discharge: 0.3 mgd	Months in Which Discharge Occurs: November-March
Is Outfall Equipped with a Diffuser? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
<b>20.5 DESCRIPTION OF RECEIVING WATER</b>			
<b>B. Name of Receiving Water</b> MISSOURI RIVER			
<b>B. Name of Watershed (If Known)</b>		<b>U.S. Soil Conservation Service 14-Digit Watershed Code (If Known)</b>	
<b>B. Name of State Management/River Basin (If Known)</b>		<b>U.S. Geological Survey 8-Digit Hydrologic Cataloging Unit Code (If Known)</b> 10300102	
<b>B. Critical Flow of Receiving Stream (If Applicable)</b> Acute 18400 cfs Chronic 22077 cfs		<b>B. Total Hardness of Receiving Stream at Critical Low Flow (If Applicable)</b> mg/L of CaCO <sub>3</sub>	



FACILITY NAME <b>GLASGOW WWTF</b>	PERMIT NO. <b>MO- 0034240</b>	OUTFALL NO. <b>1</b>						
<b>PART B – ADDITIONAL APPLICATION INFORMATION (CONTINUED)</b>								
<b>20.6 DESCRIPTION OF TREATMENT</b>								
A. WHAT LEVELS OF TREATMENT ARE PROVIDED? Check All That Apply <input type="checkbox"/> Primary <input checked="" type="checkbox"/> Secondary <input type="checkbox"/> Advanced <input type="checkbox"/> Other (Describe)								
B. INDICATE THE FOLLOWING REMOVAL RATES (AS APPLICABLE) Design BOD <sub>5</sub> Removal Or Design CBOD <sub>5</sub> Removal                      65_%                      Design SS Removal                      65_% Design P Removal                      N/A_%                      Design N Removal                      N/A_%                      Other                      N/A                      ____%								
C. What type of disinfection is used for the effluent from this outfall? If disinfection varies by season, please describe: N/A								
If disinfection is by chlorination, is dechlorination used for this outfall? <input type="checkbox"/> Yes <input type="checkbox"/> No								
Does the treatment plant have post aeration? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No								
<b>20.7 EFFLUENT TESTING DATA. ALL APPLICANTS THAT DISCHARGE TO WATERS OF THE U.S. MUST PROVIDE EFFLUENT TESTING DATA FOR THE FOLLOWING PARAMETERS. PROVIDE THE INDICATED EFFLUENT DATA FOR EACH OUTFALL THROUGH WHICH EFFLUENT IS DISCHARGED. DO NOT INCLUDE INFORMATION OF COMBINED SEWER OVERFLOWS IN THIS SECTION. ALL INFORMATION REPORTED MUST BE BASED ON DATA COLLECTED THROUGH ANALYSIS CONDUCTED USING 40 CFR PART 136 METHODS. IN ADDITION, THIS DATA MUST COMPLY WITH QA/QC REQUIREMENTS OF 40 CFR PART 136 AND OTHER APPROPRIATE QA/QC REQUIREMENTS FOR STANDARD METHODS FOR ANALYTES NOT ADDRESSED BY 40 CFR PART 136.</b>								
OUTFALL NUMBER <b>1</b>								
PARAMETER	MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE					
	VALUE	UNITS	VALUE	UNITS	NO. OF SAMPLES			
pH (Minimum)	6	S.U.	6	S.U.	60			
pH (Maximum)	6	S.U.	6	S.U.	60			
FLOW RATE	0	MGD	0	MGD	55			
TEMPERATURE (Winter)	14	°C	9	°C	9			
TEMPERATURE (Summer)	30	°C	22	°C	26			
*For pH report a minimum and a maximum daily value.								
POLLUTANT	MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML/MDL	
	CONC.	UNITS	CONC.	UNITS	NO. OF SAMPLES			
<b>Conventional and Nonconventional Compounds</b>								
BIOCHEMICAL OXYGEN DEMAND (Report One)	BOD <sub>5</sub>	63	mg/L	18	mg/L	60	SM5210	2
	CBOD <sub>5</sub>		mg/L		mg/L			
FECAL COLIFORM	9500	#/100 mL	1518	#/100 mL	16	SM9222D		
TOTAL SUSPENDED SOLIDS (TSS)	136	mg/L	25	mg/L	60	SM2540D		
AMMONIA (AS N)	10	mg/L	2	mg/L	47	SM4500NH3C		
CHLORINE (TOTAL RESIDUAL, TRC)		mg/L		mg/L				
DISSOLVED OXYGEN		mg/L		mg/L		Titration		
TOTAL KJELDAHL NITROGEN (TKN)		mg/L		mg/L				
NITRATE PLUS NITRITE NITROGEN		mg/L		mg/L				
OIL AND GREASE	8	mg/L	5	mg/L	52	EPA1664A		
PHOSPHORUS (TOTAL)		mg/L		mg/L				
TOTAL DISSOLVE SOLIDS (TDS)		mg/L		mg/L				
OTHER		mg/L		mg/L				

**END OF PART B**

**PART C - CERTIFICATION****30. CERTIFICATION**

All applicants must complete the Certification Section. This certification must be signed by an officer of the company or city official. All applicants must complete all applicable sections as explained in the Application Overview. By signing this certification statement, applicants confirm that they have reviewed the entire form and have completed all sections that apply to the facility for which this application is submitted.

ALL APPLICANTS MUST COMPLETE THE FOLLOWING CERTIFICATION.

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 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.

PRINTED NAME AND OFFICIAL TITLE (MUST BE AN OFFICER OF THE COMPANY OR CITY OFFICIAL)

Kevin Atwood, City Administrator

SIGNATURE



TELEPHONE NUMBER WITH AREA CODE

6603382377

DATE SIGNED

9-20-16

Upon request of the permitting authority, you must submit any other information necessary to assess wastewater treatment practices at the treatment works or identify appropriate permitting requirements.

For Design Flows Less than 1 Million Gallons Per Day,  
Send Completed Form to:

**Appropriate Regional Office**

Map of regional offices with addresses and phone numbers is available on the Web at [www.dnr.mo.gov/regions/ro-map.pdf](http://www.dnr.mo.gov/regions/ro-map.pdf).

For Design Flows of 1 Million Gallons Per Day or Greater,  
Send Completed Form to:

Department of Natural Resources  
Water Protection Program  
ATTN: NPDES Permits and Engineering Section  
P.O. Box 176  
Jefferson City, MO 65102

**END OF PART C.**

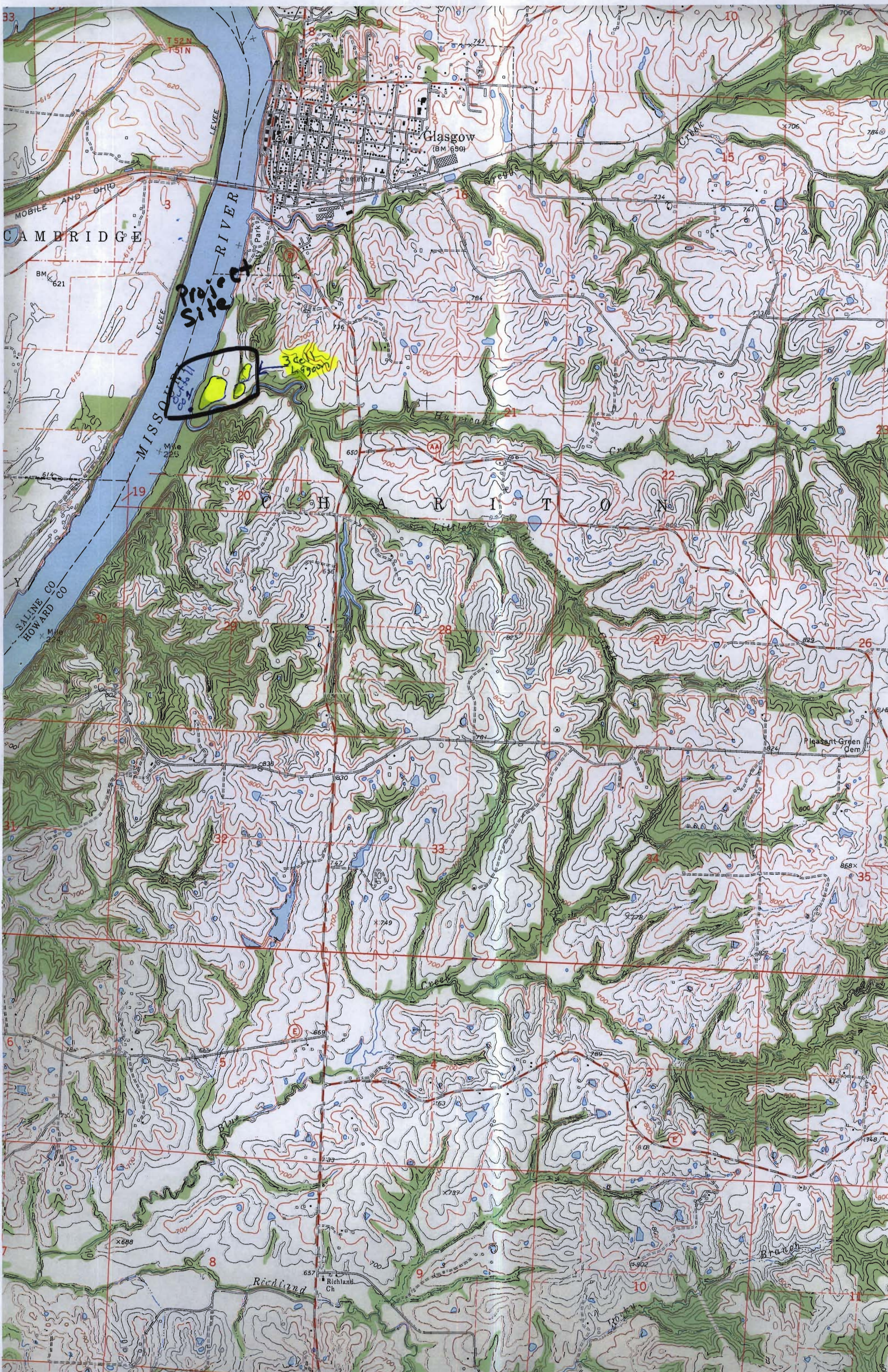
**REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM B2 YOU MUST COMPLETE.**

Do not complete the remainder of this application, unless:

1. Your facility design flow is equal to or greater than 1,000,000 gallons per day.
2. Your facility is a pretreatment treatment works.
3. Your facility is a combined sewer system.

Submittal of an incomplete application may result in the application being returned. Permit fees for returned applications shall be forfeited. Permit fees for applications being processed by the department that are withdrawn by the applicant shall be forfeited.





MOBILE AND OHIO  
CAMBRIDGE

MISSISSIPPI RIVER  
LEVEE

SALINE CO  
HOWARD CO

Glasgow  
(BM 650)

Project Site  
3000

NASHVILLE

Richland Ch  
Pleasant Green Cem

Branch