MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law (Chapter 644 RSMo, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No.: MO-0129763
Owner: Duckett Creek Sanitary District (DCSD)
Address: 3550 Highway K, O’Fallon, MO 63368
Continuing Authority: Same as above
Address: Same as above
Facility Name: DCSD, Steven A. Rogers Wastewater Treatment Plant
Facility Address: 7001 South Highway 94, St. Charles, MO 63304
Legal Description: Sec. 32, T46N, R03E, St. Charles County
UTM Coordinates: X = 698798, Y = 4286506
Receiving Stream: Crooked Creek (C) (3960)
First Classified Stream and ID: 100K Extent-Remaining Streams (C) (3960)
USGS Basin & Sub-watershed No.: (07110009-0104)

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
The use or operation of this facility shall be by or under the supervision of a Certified “C” Operator.
Equalization tank / Lift station / Anoxic Tanks for Nitrification- Denitrification / Membrane bioreactor / sludge hauled to DCSD Treatment Plant #2 for treatment
Design population equivalent is 270.
Design flow is 25,000 gallons per day.
Actual flow is 9,011 gallons per day.
Design sludge production is 4.0 dry tons/year.

Permitted Feature INF – Influent Monitoring Location – Headworks

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.

December 1, 2021
Effective Date

June 30, 2025
Expiration Date

Chris Wieberg, Director, Water Protection Program
The permittee is authorized to discharge from outfall number(s) as specified in the application for this permit. The final effluent limitations in Table A-1 shall become effective on December 1, 2021 and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

<table>
<thead>
<tr>
<th>EFFLUENT PARAMETER(S)</th>
<th>UNITS</th>
<th>FINAL EFFLUENT LIMITATIONS</th>
<th>MONITORING REQUIREMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>DAILY MAXIMUM</td>
<td>WEEKLY AVERAGE</td>
</tr>
<tr>
<td><strong>Limit Set: Q</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flow</td>
<td>MGD</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Biochemical Oxygen Demand</td>
<td>mg/L</td>
<td>10.0</td>
<td>6.7</td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td>mg/L</td>
<td>10.0</td>
<td>6.7</td>
</tr>
<tr>
<td>E. coli (Note 1, Page 3)</td>
<td>#/100mL</td>
<td>1030</td>
<td>206</td>
</tr>
<tr>
<td>Ammonia as N</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(May 1 – Oct 31)</td>
<td>mg/L</td>
<td>4.3</td>
<td>1.2</td>
</tr>
<tr>
<td>(Nov 1 – April 31)</td>
<td>mg/L</td>
<td>5.5</td>
<td>1.3</td>
</tr>
<tr>
<td>Oil &amp; Grease</td>
<td>mg/L</td>
<td>15</td>
<td>10</td>
</tr>
</tbody>
</table>

### pH – Units***

<table>
<thead>
<tr>
<th>EFFLUENT PARAMETER(S)</th>
<th>UNITS</th>
<th>MINIMUM</th>
<th>MAXIMUM</th>
<th>MEASUREMENT FREQUENCY</th>
<th>SAMPLE TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH – Units***</td>
<td>SU</td>
<td>6.0</td>
<td>9.0</td>
<td>once/quarter****</td>
<td>grab</td>
</tr>
</tbody>
</table>

### Biochemical Oxygen Demand5 – Percent Removal (Note 2, Page 3)

<table>
<thead>
<tr>
<th>EFFLUENT PARAMETER(S)</th>
<th>UNITS</th>
<th>MONTHLY AVERAGE MINIMUM</th>
<th>MEASUREMENT FREQUENCY</th>
<th>SAMPLE TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biochemical Oxygen Demand5 – Percent Removal</td>
<td>%</td>
<td>85</td>
<td>once/quarter****</td>
<td>calculated</td>
</tr>
<tr>
<td>Total Suspended Solids – Percent Removal</td>
<td>%</td>
<td>85</td>
<td>once/quarter****</td>
<td>calculated</td>
</tr>
</tbody>
</table>

**Monitoring Requirement Only.**

**A composite sample made up from a minimum of four grab samples collected within a 24 hour period with a minimum of two hours between each grab sample.**

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

**** See table below for quarterly sampling.

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**Quarterly Minimum Sampling Requirements**

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Months</th>
<th>E. coli</th>
<th>All Other Parameters</th>
<th>Report is Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>January, February, March</td>
<td>Not required to sample.</td>
<td>Sample at least once during any month of the quarter</td>
<td>April 28th</td>
</tr>
<tr>
<td>Second</td>
<td>April, May, June</td>
<td>Sample at least once during any month of the quarter</td>
<td>Sample at least once during any month of the quarter</td>
<td>July 28th</td>
</tr>
<tr>
<td>Third</td>
<td>July, August, September</td>
<td>Sample at least once during any month of the quarter</td>
<td>Sample at least once during any month of the quarter</td>
<td>October 28th</td>
</tr>
<tr>
<td>Fourth</td>
<td>October</td>
<td>Sample once during October</td>
<td>Sample at least once during any month of the quarter</td>
<td>January 28th</td>
</tr>
</tbody>
</table>
The monitoring requirements in Table B-1 shall become effective on December 1, 2021 and remain in effect until expiration of the permit. The influent wastewater shall be monitored by the permittee as specified below:

<table>
<thead>
<tr>
<th>PARAMETER(S)</th>
<th>UNITS</th>
<th>MONITORING REQUIREMENTS</th>
<th>SAMPLE TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>DAILY MAXIMUM</td>
<td>WEEKLY AVERAGE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Limit Set: IQ

Biochemical Oxygen Demand\(_5\) (Note 2)  mg/L  |  *  | once/quarter****  | grab  |
Total Suspended Solids (Note 2)  mg/L  |  *  | once/quarter****  | grab  |

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE APRIL 28, 2022.

* Monitoring requirement only.
** A composite sample made up from a minimum of four grab samples collected within a 24 hour period with a minimum of two hours between each grab sample.
**** See table below for quarterly sampling requirements.

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 for BOD\(_5\) and TSS 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: 

\[
\text{Percent Removal} = \left(\frac{\text{Average Influent} - \text{Average Effluent}}{\text{Average Influent}}\right) \times 100% 
\]

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 composite sample made up from a minimum of four grab samples collected within a 24 hour period with a minimum of two hours between each grab sample.

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Months</th>
<th>Quarterly Influent Parameters</th>
<th>Report is Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>January, February, March</td>
<td>Sample at least once during any month of the quarter</td>
<td>April 28(^{th})</td>
</tr>
<tr>
<td>Second</td>
<td>April, May, June</td>
<td>Sample at least once during any month of the quarter</td>
<td>July 28(^{th})</td>
</tr>
<tr>
<td>Third</td>
<td>July, August, September</td>
<td>Sample at least once during any month of the quarter</td>
<td>October 28(^{th})</td>
</tr>
<tr>
<td>Fourth</td>
<td>October, November, December</td>
<td>Sample at least once during any month of the quarter</td>
<td>January 28(^{th})</td>
</tr>
</tbody>
</table>

C. 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.
D. SPECIAL CONDITIONS

1. **Electronic Discharge Monitoring Report (eDMR) Submission System.** Per 40 CFR Part 127 National Pollutant Discharge Elimination System (NPDES) Electronic Reporting Rule, reporting of effluent monitoring data and any report required by the permit (unless specifically directed otherwise by the permit) shall be submitted by the permittee via an electronic system to ensure timely, complete, accurate, and nationally consistent set of data about the NPDES program.
   (a) **eDMR Registration Requirements.** The permittee must register with the Department’s eDMR system through the Missouri Gateway for Environmental Management (MoGEM) before the first report is due. Registration and other information regarding MoGEM can be found at [https://dnr.mo.gov/data-e-services/missouri-gateway-environmental-management-mogem](https://dnr.mo.gov/data-e-services/missouri-gateway-environmental-management-mogem). Information about the eDMR system can be found at [https://dnr.mo.gov/water/business-industry-other-entities/reporting/electronic-discharge-monitoring-reporting-system-edmr](https://dnr.mo.gov/water/business-industry-other-entities/reporting/electronic-discharge-monitoring-reporting-system-edmr). The first user shall register as an Organization Official and the association to the facility must be approved by the Department. Regarding Standard Conditions Part I, Section B, #7, the eDMR system is currently the only Department approved reporting method for this permit unless a waiver is granted by the Department. See paragraph (c) below.
   (b) **Electronic Submissions.** To access the eDMR system, use the following link in your web browser: [https://apps5.mo.gov/mogems/welcome.action](https://apps5.mo.gov/mogems/welcome.action). If you experience difficulties with using the eDMR system you may contact edm@dnr.mo.gov or call 855-789-3889 or 573-526-2082 for assistance.
   (c) **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: [https://dnr.mo.gov/document-search/electronic-discharge-monitoring-report-waiver-request-form-mo-780-2692](https://dnr.mo.gov/document-search/electronic-discharge-monitoring-report-waiver-request-form-mo-780-2692). The Department will either approve or deny this electronic reporting waiver request within 120 calendar days.

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 Clean Water Act (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 CWA, 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 or modification thereto pursuant to 40 CFR 403.8(c) or 40 CFR 403.18(e), respectively.

3. All outfalls must be clearly marked in the field.

4. Report as no-discharge when a discharge does not occur during the report period.

5. 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.

6. It is a violation of the Missouri Clean Water Law to fail to pay fees associated with this permit (644.055 RSMo).
D. SPECIAL CONDITIONS (continued)

7. 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.

8. The permittee shall develop and implement a program for maintenance and repair of its collection system. The permittee may compare collection system performance results and other data with the benchmarks used in the Departments’ Capacity, Management, Operation, And Maintenance (CMOM) Model located at https://dnr.mo.gov/document-search/capacity-management-operations-maintenance-plan-editable-template. Additional information regarding the Departments’ CMOM Model is available at https://dnr.mo.gov/print/document-search/pub2574.

The permittee shall also submit a report via the Electronic Discharge Monitoring Report (eDMR) Submission System annually, by January 28th, for the previous calendar year. The report shall contain the following information:
   (a) A summary of the efforts to locate and eliminate specific 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.

9. 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. Bypasses are to be reported to the St. Louis Regional Office during normal business hours or by using the online Sanitary Sewer Overflow/Facility Bypass Application located at: https://dnr.mo.gov/data-e-services/missouri-gateway-environmental-management-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.

10. The facility must be sufficiently secured to restrict entry by children, livestock and unauthorized persons as well as to protect the facility from vandalism.

11. 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.

12. An all-weather access road to the treatment facility shall be maintained.

13. The outfall sewer shall be protected and maintained against the effects of floodwater, ice, or other hazards as to reasonably insure its structural stability, freedom from stoppage, and 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.
D. SPECIAL CONDITIONS (continued)

14. Sewer Extension Authority Supervised Program

The Department approved the Sewer Extension Authority Supervised Program for the Duckett Creek Sanitary District to regulate and approve construction of sanitary sewers and pump stations, which are tributary to this wastewater treatment facility on December 5, 2016. The Duckett Creek Sanitary District shall act as the continuing authority for the operation, maintenance, and modernization of the constructed collection system. This approval may be modified or revoked by the Department if the wastewater collection, transportation, or treatment facilities reach their design capacity, if the treatment facility falls into chronic noncompliance with the permit, or if the permittee fails to follow the terms and conditions of the submitted and approved program.

This permit may be reopened and modified or alternatively revoked and reissued to incorporate new or modified conditions to the Sewer Extension Authority Supervised Program, if information indicates changes are necessary to assure compliance with Missouri’s Clean Water Law and associated regulations. When any of the above mentioned conditions occur, the permittee will be notified prior to any modifications of this permit condition. Plans and specifications for all projects which include a proposed sanitary sewer overflow must be submitted to the Department to provide record information for location and size of the sanitary sewer overflow.

An annual report on the Sewer Extension Authority Supervised Program must be submitted by January 28 of each year to the Missouri Department of Natural Resources’ Water Protection Program’s Engineering Section. Please see Appendix – Sewer Extension Authority Supervised Program Reauthorization Letter for applicable conditions.

The Department’s Water Protection Program’s Engineering Section will reevaluate the City’s/District’s Sewer Extension Authority Supervised Program for reauthorization when they file an application for permit renewal to determine if it is current, complete, and meets the requirements of 10 CSR 20-8 Minimum Design Standards. Once the Sewer Extension Authority Supervised Program is reauthorized or denied, this condition will be updated accordingly.

E. NOTICE OF RIGHT TO APPEAL

If you were adversely affected by this decision, you may be entitled to pursue an appeal before the administrative hearing commission (AHC) pursuant to Sections 621.250 and 644.051.6 RSMo. To appeal, you must file a petition with the AHC within thirty days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC. Any appeal should be directed to:

Administrative Hearing Commission
U.S. Post Office Building, Third Floor
131 West High Street, P.O. Box 1557
Jefferson City, MO 65102-1557
Phone: 573-751-2422
Fax: 573-751-5018
Website: https://ahc.mo.gov
MISSOURI DEPARTMENT OF NATURAL RESOURCES
FACT SHEET
FOR THE PURPOSE OF RENEWAL
MO-0129763
DCSD, STEVEN A. ROGERS WWTP

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.

Part I – Facility Information

Application Date: 12/20/19
Expiration Date: 06/30/20

Facility Type and Description: POTW

OUTFALL(S) TABLE:

<table>
<thead>
<tr>
<th>OUTFALL</th>
<th>DESIGN FLOW (CFS)</th>
<th>TREATMENT LEVEL</th>
<th>EFFLUENT TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>#001</td>
<td>0.0388</td>
<td>Secondary</td>
<td>Domestic</td>
</tr>
</tbody>
</table>

Comments:
Changes in this permit for Outfall #001 includes the removal of the once per permit cycle Acute WET test, and pH limits will be between 6.0 and 9.0.

Additionally, this permit will reinstate the limits established in an antidegradation review. An Antidegradation review was completed for this facility on Oct. 30, 2009 and establishedPreferred Alternative Limits (PAL) for Total Ammonia as Nitrogen. Antidegradation aims to not only maintain water quality standards but maintain and preserve existing water quality. Although the Department incorrectly did not retained the PAL for Ammonia as Nitrogen in previous permits, these limits must be reinstated in the current draft, as Antidegradation limits shall be retained. The limits in this permit for Ammonia as Nitrogen will be 4.3 mg/L as Daily Maximum and 1.2 mg/L as a Monthly Average for Summer (May 1-Oct 31), and 5.5 mg/L as a Daily Maximum and 1.3 mg/L as a Monthly Average for Winter (Nov 1 – April 31).

See Part II of the Fact Sheet for further information regarding the addition, revision, and removal of effluent parameters.

Special conditions were updated to include the removal of the following special conditions for:

- general criteria as a special condition as the permit writer evaluated each narrative statement in Part VI – Effluent Limits Determination for reasonable potential to cause or contribute to an excursion of the criteria and established numeric effluent limitations where necessary
- special conditions requiring gates and warning signs, but the facility must remain sufficiently secured to restrict access per special condition 10
- notifications for changes in discharges of toxic substances
- the special condition for a once per permit cycle Acute WET test
Part II – Effluent Limitations and Monitoring Requirements

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.

OUTFALL #001 - RECEIVING STREAM INFORMATION

RECEIVING STREAM(S) TABLE:

<table>
<thead>
<tr>
<th>WATER-BODY NAME</th>
<th>CLASS</th>
<th>WBID</th>
<th>DESIGNATED USES*</th>
<th>12-DIGIT HUC</th>
<th>DISTANCE TO CLASSIFIED SEGMENT (MI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crooked Creek</td>
<td>C</td>
<td>3960</td>
<td>AQL, HPP, IRR, LWW, SCR, WBC-B</td>
<td>07110009-0104</td>
<td>0</td>
</tr>
</tbody>
</table>

*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 1st 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); 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:

<table>
<thead>
<tr>
<th>RECEIVING STREAM</th>
<th>1Q10</th>
<th>7Q10</th>
<th>30Q10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crooked Creek</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

MIXING CONSIDERATIONS

Mixing Zone: Not Allowed [10 CSR 20-7.031(5)(A)4.B.(I)(a)].
Zone of Initial Dilution: Not Allowed [10 CSR 20-7.031(5)(A)4.B.(I)(b)].

Receiving Water Body’s Water Quality

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 does not discharge to a 303(d) listed stream or to a stream with an EPA approved TMDL.
- The Department conducted a stream survey on August 27, 2020 at three locations near this facility: in Stream approximately 20 yards upstream from Outfall #001, in Stream approximately 20 yards downstream from Outfall #001, and at Outfall #001. No use designations of the receiving stream were impaired.

### CHANGES TO EFFLUENT LIMITATIONS TABLE:

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>Unit</th>
<th>Basis for Limits</th>
<th>Daily Maximum</th>
<th>Weekly Average</th>
<th>Monthly Average</th>
<th>Previous Permit Limit</th>
<th>Sampling Frequency</th>
<th>Reporting Frequency</th>
<th>Sample Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonia as N</td>
<td>mg/L</td>
<td>2, 3</td>
<td>12.1</td>
<td>10.1</td>
<td>3.1</td>
<td>Apr – Sep: 5.8/1.1 Oct - Mar: 12.0/2.6</td>
<td>1/quarter</td>
<td>quarterly</td>
<td>C</td>
</tr>
<tr>
<td>(May 1 – Oct 31)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>(Nov 1 – April 31)</td>
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</tr>
<tr>
<td>pH</td>
<td>SU</td>
<td>1</td>
<td>6.0</td>
<td></td>
<td>9.0</td>
<td>6.5/9.0</td>
<td>1/quarter</td>
<td>quarterly</td>
<td>G</td>
</tr>
</tbody>
</table>

* - 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

#### Basis for Limitations Codes:

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

### 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 (BOD5).** Operating permit retains 10.0 mg/L as a Daily Maximum and 6.7 mg/L as a Monthly Average. Please see the attached Antidegradation Review Sheet/Permit In Lieu of TMDL.

- **Total Suspended Solids (TSS).** Operating permit retains 10.0 mg/L as a Daily Maximum and 6.7 mg/L as a Monthly Average. Please see the attached Antidegradation Review Sheet/Permit In Lieu of TMDL.

- **Escherichia coli (E. coli).** Monthly average of 206 per 100 mL as a geometric mean and Weekly Average of 1,030 per 100 mL as a geometric mean during the recreational season (April 1 – October 31), for discharges within two miles upstream of segments or lakes with Whole Body Contact Recreation (B) designated use of the receiving stream, as per 10 CSR 20-7.015(9)(B). 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 = 5th root of (1)(4)(6)(10)(5) = 5th root of 1,200 = 4.1 #/100mL.

- **Total Ammonia Nitrogen.** Operating permit implements Summer limits (May 1-Oct 31) 4.3 mg/L as a Daily Maximum and 1.2 mg/L as a Monthly Average and Winter limits (Nov1 – April 31) 5.5 mg/L as a Daily Maximum and 1.3 mg/L as a Monthly Average. Please see the attached Antidegradation Review Sheet.

- **Oil & Grease.** Conventional pollutant, effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.
• **pH**: 6.0-9.0 SU. The permit writer has made a reasonable potential determination based on effluent data submitted to the department stream that the discharge will not cause or contribute to the excursion of the water quality standard for pH instream. Therefore, effluent limitations as required by 10 CSR 20-7.015 are substituted for the pH water quality criteria of 6.5-9.0 SU.

• **Biochemical Oxygen Demand (BOD₅) Percent Removal**: In accordance with 40 CFR Part 133, removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to BOD₅ and TSS for Publicly Owned Treatment Works (POTWs)/municipals. This facility is required to meet 85% removal efficiency for BOD₅.

• **Total Suspended Solids (TSS) Percent Removal**: In accordance with 40 CFR Part 133, removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to BOD₅ and TSS for Publicly Owned Treatment Works (POTWs)/municipals. This facility is required to meet 85% removal efficiency for TSS.

**Sampling Frequency Justification**: The Department has determined that previously established sampling and reporting frequency is sufficient to characterize the facility’s effluent and be protective of water quality. Sampling for *E. coli* is set at quarterly per 10 CSR 20-7.015(9)(D)7.C.

**Sampling Type Justification**: As per 10 CSR 20-7.015, samples collected for mechanical plants shall be a 24 hour modified composite sample. Grab samples, however, must be collected for pH, *E. coli*, and Oil & Grease in accordance with recommended analytical methods. For further information on sampling and testing methods please review 10 CSR 20-7.015(9)(D) 2.

**PERMITTED FEATURE INF – INFLUENT MONITORING**

The monitoring requirements established in the below Monitoring Requirements 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 the monitoring requirements listed in this table.

**Influent Parameters**

• **Biochemical Oxygen Demand (BOD₅) and Total Suspended Solids (TSS)**. An influent sample is required to determine the removal efficiency. In accordance with 40 CFR Part 133, removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to BOD₅ and TSS for Publicly Owned Treatment Works (POTWs)/municipals.

**Sampling Frequency Justification**: The Department has determined that previously established sampling and reporting frequency is sufficient to characterize the facility’s influent BOD₅ and TSS and be protective of water quality.

**Sampling Type Justification**: Sample types for influent parameters were established to match the required sampling type of these parameters in the effluent. Samples should be analyzed as soon as possible after collection and/or properly preserved according to method requirements.

**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. Based upon review of the Report of Compliance Inspection for the inspection conducted on November 24, 2014, the facility was found to be in noncompliance with Missouri Clean Water Law and MSOP. 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. This facility utilizes secondary treatment technology and this discharge is subject to Standard Conditions Part III, which contains requirements for the management and disposal of sludge to prevent its discharge. Based on the information reviewed during the drafting of this permit, it has been determined if the facility meets final effluent
limitations as well as Standard and Special Conditions 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) Waters shall provide for the attainment and maintenance of water quality standards downstream including waters of another state. Please see (D) above as justification is the same.
(F) There shall be no significant human health hazard from incidental contact with the water. Please see (D) above as justification is the same.
(G) There shall be no acute toxicity to livestock or wildlife watering. Please see (D) above as justification is the same.
(H) 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.
(I) 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 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 III – 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.

- 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.

  - **Acute Whole Effluent Toxicity (WET) test.** The previous permit included requirements to conduct an Acute WET test once during the permit cycle. The permit writer conducted a reasonable potential determination for all anticipated pollutants and established numeric effluent limitations where reasonable potential exists. Also, the facility has passed previous Acute WET tests. The permit writer determined the facility does not have reasonable potential to exceed narrative water quality standards for acute toxicity at this time and the acute WET testing requirements have been removed from this permit. This determination will be reevaluated during the next permit renewal.

  - **pH.** The previous permit contained final effluent limits of 6.5-9.0 SU. During the drafting of this permit, the permit writer made a reasonable potential determination based on effluent data submitted to the department that the discharge will not cause or contribute to an excursion of the water quality standard for pH instream. As a result, final effluent limits
of 6.0-9.0 SU as required by 10 CSR 20-7.015 are substituted for the pH water quality criteria of 6.5-9.0 SU. The permit remains protective of water quality and this determination will be reevaluated during the next permit renewal.

✓ 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 https://dnr.mo.gov/document-search/antidegradation-implementation-procedure.

✓ No degradation proposed and no further review necessary. Facility did not apply for authorization to increase pollutant loading or to add additional pollutants to their discharge.

For stormwater discharges, the stormwater BMP chosen for the facility, through the antidegradation analysis performed by the facility, must be implemented and maintained at the facility. Failure to implement and maintain the chosen BMP alternative is a permit violation; see SWPPP.

✓ The facility does not have stormwater discharges or the stormwater outfalls onsite have no industrial exposure.

**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 when a higher level authority is available by submitting information as part of the application 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.

✓ Permittee is not authorized to land apply biosolids. Sludge is removed by DCSD to another facility they own for treatment.

**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.

**Facility Performance History:**

The facility is not currently under Water Protection Program enforcement action. The inspection showed the following unsatisfactory features. The facility failed to submit the annual Form S sludge report.
**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 optional and found on the Department’s website at the following locations:

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: [https://dnr.mo.gov/document-search/electronic-discharge-monitoring-report-waiver-request-form-mo-780-2692](https://dnr.mo.gov/document-search/electronic-discharge-monitoring-report-waiver-request-form-mo-780-2692). Each facility must make a request. If a single entity owns or operates more than one facility, 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 currently using the eDMR data reporting system.

**Numeric Lake Nutrient Criteria**

- This facility does not discharge into a lake watershed where numeric lake nutrient criteria are applicable.

**Operator Certification Requirements**

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 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 with population equivalents greater than 200 and are owned or operated by or for municipalities, public sewer districts, counties, public water supply districts, private sewer companies regulated by the Public Service Commission and state or federal agencies.

- This facility is required to have a certified operator as it has a population equivalent greater than 200 and is owned or operated by or for a municipality, public sewer district, county, public water supply district, private sewer company regulated by the PSC, state or federal agency.

This facility currently requires a chief operator with a (C) Certification Level. Please see [Appendix - Classification Worksheet](#). Modifications made to the wastewater treatment facility may cause the classification to be modified.

- Operator’s Name: David A. Banks
- Certification Number: 5399
- Certification Level: WW-A

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.

**Operational Control Testing**

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 mechanical plant and is required to conduct operational control monitoring as follows:

<table>
<thead>
<tr>
<th>Operational Monitoring Parameter</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Precipitation</td>
<td>Daily (M-F)</td>
</tr>
<tr>
<td>Flow – Influent or Effluent</td>
<td>Daily (M-F)</td>
</tr>
<tr>
<td>pH – Influent</td>
<td>Daily (M-F)</td>
</tr>
<tr>
<td>Temperature (Aeration basin)</td>
<td>Daily (M-F)</td>
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<tr>
<td>TSS – Influent</td>
<td>Weekly</td>
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<tr>
<td>TSS – Mixed Liquor</td>
<td>Weekly</td>
</tr>
<tr>
<td>Settleability – Mixed Liquor</td>
<td>Daily (M-F)</td>
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<tr>
<td>Dissolved Oxygen – Mixed Liquor</td>
<td>Daily (M-F)</td>
</tr>
<tr>
<td>Dissolved Oxygen – Aerobic Digester</td>
<td>Daily (M-F)</td>
</tr>
</tbody>
</table>

**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.

An RPA was conducted on appropriate parameters. Please see Appendix – Antidegradation Analysis.

**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 (BOD₅) 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.

This facility is not required to develop or implement a program for maintenance and repair of the collection system; however, it is a violation of Missouri State Environmental Laws and Regulations to allow untreated wastewater to discharge to waters of the state.

**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 Act, 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 that may result in site-specific criteria or alternative effluent limits. 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 SOCs, and attain a greater level of consistency, on April 9, 2015 the Department issued an updated policy on development of SOCs. 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 an 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 [https://dnr.mo.gov/water/business-industry-other-entities/permits-certification-engineering-fees/wastewater/construction-engineering](https://dnr.mo.gov/water/business-industry-other-entities/permits-certification-engineering-fees/wastewater/construction-engineering).

The permittee’s Sewer Extension Authority Supervised Program has been reauthorized. Please see Appendix – Sewer Extension Authority Supervised Program Reauthorization Letter for applicable conditions.
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(86)], 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:

\[
Ce = \frac{(Qe + Qs)C - (Qs \times Cs)}{Qe} \quad \text{ (EPA/505/2-90-001, Section 4.5.5)}
\]

Where
- \( C \) = downstream concentration
- \( Ce \) = effluent concentration
- \( Cs \) = upstream concentration
- \( Qe \) = effluent flow
- \( Qs \) = 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 Water Quality and Antidegradation Review was conducted by MEC Water Resources on behalf of the Duckett Creek Sanitary District and the Frances Howell School District in March, 2009. This study is included in the appendix and was used as the basis of the effluent limitations in this draft operating permit.

WET TOXICITY TEST:
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 BOD₅ 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 NH₃)
- Facility is a municipality with a Design Flow ≥ 22,500 gpd.
- Other – please justify.

At this time, the permittee is not required to conduct WET test for this facility. The permit writer conducted a reasonable potential determination for all anticipated pollutants and established numeric effluent limitations where reasonable potential exists. Also, the facility has passed previous Acute WET tests. The permit writer determined the facility does not have reasonable potential to exceed narrative water quality standards for acute toxicity at this time and the acute WET testing requirements have been removed from this permit. This determination will be reevaluated during the next permit renewal.

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.

Part IV – 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 publicly-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.

The Department is not required to determine Cost Analysis for Compliance because the permit contains no new conditions or requirements that convey a new cost to the facility.
Part V – 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.

WATER QUALITY STANDARD REVISION:
In accordance with section 644.058, RSMo, the Department is required to utilize an evaluation of the environmental and economic impacts of modifications to water quality standards of twenty-five percent or more when making individual site-specific permit decisions.

✓ This operating permit does not contain requirements for a water quality standard that has changed twenty-five percent or more since the previous operating permit.

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 will 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 resubmitted 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 2nd Quarter of calendar year 2025.

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 June 25, 2021 to July 26, 2021. Responses to the Public Notice of this operating permit warrant the modification of effluent limits and/or the terms and conditions of this permit. This permit will reinstate the limits established in an Antidegradation review. An Antidegradation review was completed for this facility on Oct. 30, 2009 and established Preferred Alternative Limits (PAL) for Total Ammonia as Nitrogen. Although the Department incorrectly did not retain the PAL for Ammonia as Nitrogen in previous permits, these limits must be reinstated in the current draft, as Antidegradation limits shall be retained. The Department has updated the typo on page 4 for the influent sampling requirements; the note is listed as “Note 2.” Minor changes were made after public notice to update all hyperlinks to the new MO DNR website. Due to the major modifications of this permit, this operating permit is to be placed on Public Notice again, which is tentatively scheduled to begin in October

DATE OF FACT SHEET: MAY 19, 2021

COMPLETED BY:

HEATHER MARTIN, ENVIRONMENTAL SPECIALIST
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
OPERATING PERMITS SECTION - DOMESTIC WASTEWATER UNIT
(573)751-6569
Heather.martin@dnr.mo.gov
### APPENDIX - CLASSIFICATION WORKSHEET:

<table>
<thead>
<tr>
<th>Item</th>
<th>Points Possible</th>
<th>Points Assigned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Population Equivalent (P.E.) served , peak day</td>
<td>1 pt./10,000 PE or major fraction thereof. (Max 10 pts.)</td>
<td>0</td>
</tr>
<tr>
<td>Design Flow (avg. day) or peak month’s flow (avg. day) whichever is larger</td>
<td>1 pt. / MGD or major fraction thereof. (Max 10 pts.)</td>
<td>0</td>
</tr>
<tr>
<td><strong>Effluent Discharge</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Missouri or Mississippi River</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>All other stream discharges except to losing streams and stream reaches supporting whole body contact recreation</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Discharge to lake or reservoir outside of designated whole body contact recreational area</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Discharge to losing stream, or stream, lake or reservoir area supporting whole body contact recreation</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Direct reuse or recycle of effluent</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td><strong>Land Application/Irrigation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drip Irrigation</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Land application/irrigation</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Overland flow</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td><strong>Variation in Raw Wastes (highest level only)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variations do not exceed those normally or typically expected</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Reoccurring deviations or excessive variations of 100 to 200 percent in strength and/or flow</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Reoccurring deviations or excessive variations of more than 200 percent in strength and/or flow</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Department-approved pretreatment program</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td><strong>Preliminary Treatment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STEP systems (operated by the permittee)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Screening and/or comminution</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Grit removal</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Plant pumping of main flow</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Flow equalization</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td><strong>Primary Treatment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary clarifiers</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Chemical addition (except chlorine, enzymes)</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td><strong>Secondary Treatment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trickling filter and other fixed film media with or without secondary clarifiers</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>Activated sludge (including aeration, oxidation ditches, sequencing batch reactors, membrane bioreactors, and contact stabilization)</td>
<td></td>
<td>15/15</td>
</tr>
<tr>
<td>Stabilization ponds without aeration</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Aerated lagoon</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Advanced Lagoon Treatment – Aerobic cells, anaerobic cells, covers, or fixed film</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>Biological, physical, or chemical</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Carbon regeneration</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td><strong>Total from page ONE (1)</strong></td>
<td></td>
<td>24</td>
</tr>
</tbody>
</table>
### APPENDIX - CLASSIFICATION WORKSHEET (CONTINUED):

<table>
<thead>
<tr>
<th>ITEM</th>
<th>POINTS POSSIBLE</th>
<th>POINTS ASSIGNED</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Solids Handling</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sludge Holding</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Anaerobic digestion</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Aerobic digestion</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Evaporative sludge drying</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Mechanical dewatering</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Solids reduction (incineration, wet oxidation)</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Land application</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td><strong>Disinfection</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chlorination or comparable</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>On-site generation of disinfectant (except UV light)</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Dechlorination</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>UV light</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Required Laboratory Control Performed by Plant Personnel (highest level only)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lab work done outside the plant</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Push – button or visual methods for simple test such as pH, settleable solids</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Additional procedures such as DO, COD, BOD, titrations, solids, volatile content</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>More advanced determinations, such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc.</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td><strong>Total from page TWO (2)</strong></td>
<td>---</td>
<td>7</td>
</tr>
<tr>
<td><strong>Total from page ONE (1)</strong></td>
<td>---</td>
<td>24</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td>---</td>
<td>31</td>
</tr>
</tbody>
</table>

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

Outfall #001

DCSD, Steven A. Rodgers WWTP

School
Water Quality and Antidegradation Review

For the Protection of Water Quality
and Determination of Effluent Limits for Discharge to
Crooked Creek (U) to Dardenne Creek (P)

by
Francis Howell High School WWTP
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Facility Information

**FACILITY NAME:** Francis Howell High School WWTP  
**NPDES #:** MO0129763

**FACILITY TYPE/DESCRIPTION:** Facility is currently a Membrane Bioreactor with a design flow of 12,500 GPD discharging to Crooked Creek (U) then to Dardenne Creek (P). The proposed expansion would double the current design flow to 25,000 GPD. Facility also uses ultraviolet disinfection for year round treatment.

**EDU:** Central Plains/Cuivre/Salt  
**8-DIGIT HUC:** 07110009  
**COUNTY:** St. Charles

**LEGAL DESCRIPTION:** NW ¼, NW ¼, Sec. 32, T46N, R03E  
**LATITUDE/LONGITUDE:** N +3842165 / W -9043053

Water Quality Information

In accordance with Missouri’s Water Quality Standard [10 CSR 20-7.031(2)] 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, a facility is required to use Missouri’s Antidegradation Rule and Implementation Procedure (AIP) for new and expanded wastewater discharges.

**Water Quality History:**
The current membrane bioreactor treatment facility discharges to an unclassified stream that does not have a permanent flow. There are multiple instances (2) where the Francis Howell High School WWTF failed to report DMR data. There were 4 instances where recorded effluent values were in violation of the effluent limits set forth in the previous permit (MO-0129763):

1. October 31, 2004 – BOD₅ – AML violation
2. September 30, 2006 – pH – below minimum
4. October 31, 2007 – NH₄ – MDL and AML violation

Outfall Characteristics

<table>
<thead>
<tr>
<th>OUTFALL</th>
<th>DESIGN FLOW (CFS)</th>
<th>TREATMENT TYPE</th>
<th>RECEIVING WATERBODY</th>
<th>DISTANCE TO CLASSIFIED SEGMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>0.03875</td>
<td>Advanced</td>
<td>Crooked Creek (U)</td>
<td>5.83 miles</td>
</tr>
</tbody>
</table>

Receiving Waterbody Information

<table>
<thead>
<tr>
<th>WATERBODY</th>
<th>CLASS</th>
<th>WBID</th>
<th>1Q10 (CFS)</th>
<th>7Q10 (CFS)</th>
<th>30Q10 (CFS)</th>
<th>*DESIGNATED USES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crooked Creek</td>
<td>U</td>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>General Criteria</td>
</tr>
<tr>
<td>Dardenne Creek</td>
<td>P</td>
<td>0221</td>
<td>0.1</td>
<td>0.1</td>
<td>1.0</td>
<td>AWL, LWW, WBC(B), SCR</td>
</tr>
</tbody>
</table>

*Cool Water Fishery (CLF), Cold Water Fishery (CDF), Irrigation (IRR), Industrial (IND), Boating & Canoeing (BTG), Drinking Water Supply (DWS), Whole Body Contact Recreation (WBC), Protection of Warm water Aquatic Life and Human Health (AQL), Livestock & Wildlife Watering (LWW)*

**RECEIVING WATER BODY SEGMENT #1:** Crooked Creek (U)

Upper end segment* UTM or Lat/Long coordinates: N +3842165 / W -9043053 (Outfall)
Lower end segment* UTM or Lat/Long coordinates: N +03845056 / W -9039119 (Confluence with Dardenne Creek)

**RECEIVING WATER BODY SEGMENT #2:** Dardenne Creek (P)

Upper end segment* UTM or Lat/Long coordinates: N +03845056 / W -9039119 (Confluence with Crooked Creek)
Lower end segment* UTM or Lat/Long coordinates: No mixing / No lower end segment

*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.
General Comments
MEC Water Resources (MEC) prepared, on behalf of Francis Howell School District and Duckett Creek Sanitary Sewer District the Francis Howell Antidegradation Review dated March 2009. There was no geohydrological evaluation submitted with the request. This is an existing facility. A copy of the National Heritage Review was submitted with the report (Appendix D). The report assumed Tier 2 with Significant Degradation for all Pollutants of Concern. The dissolved oxygen modeling analysis submitted with the report shows that the effluent will be within an acceptable range at the confluence of Crooked Creek and Dardenne Creek. Information found in the submitted report and in the summary forms provided by the applicant in Appendix E were used to develop this review document. A topographic map was included with the submission and is located in Appendix A.

Applicants used an alternate technology as a base case technology although this would require a complete replacement of the existing plant. This was done to show that the chosen technology is not only the most economically efficient and affordable; it provides the highest level of treatment available. No WLA study was conducted for the stream. A Use Attainability Analysis (UAA) was conducted for Dardenne Creek but no change was made to the streams designated uses. Dardenne Creek is a Metropolitan No-Discharge stream. To discharge to such a stream “Existing interim discharges may be allowed until interceptors are available within two thousand feet (2000’) or a distance deemed feasible by the department…” [10 CSR 20-7.031(6)]. There are no interceptors within a feasible distance of the current plant and expansion is needed to accommodate growth in the local community. Connection to a regional sewer system is required when interceptors are available.

Antidegradation Review Information
In accordance with Missouri’s Water Quality Standard [10 CSR 20-7.031(2)] and federal antidegradation policy at Title 40 Code of Federal Regulation (CFR) Section 131.12 (a), the department was to develop 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, a facility is required to use Missouri’s Antidegradation Rule and Implementation Procedure (AIP). This procedure is applicable to new and expanded wastewater facilities. The following is a review of the Francis Howell Antidegradation Review dated March 2009. All information presented is summarized from the Francis Howell Antidegradation Review dated March 2009. This is kept on file at the Department of Natural Resources Central Office. All references to the aforementioned document were made based on the assumption that the information provided by the applicant or representative of the applicant was accurate to the best of their knowledge.

Tier Determination
Below is a list of pollutants of concern reasonably expected to be in the discharge (see Appendix C: Tier Determination and Effluent Limit Summary). 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).

<table>
<thead>
<tr>
<th>POLLUTANTS OF CONCERN</th>
<th>TIER</th>
<th>DEGRADATION</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonia as Nitrogen*</td>
<td>2</td>
<td>Significant</td>
<td></td>
</tr>
<tr>
<td>Biochemical Oxygen Demand*/</td>
<td>2</td>
<td>Significant</td>
<td></td>
</tr>
<tr>
<td>Dissolved Oxygen*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bacteria* (E. Coli &amp; Fecal Coliform)</td>
<td>2</td>
<td>Significant</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>2</td>
<td>Significant</td>
<td></td>
</tr>
<tr>
<td>Total Suspended Solids*</td>
<td>2</td>
<td>Significant</td>
<td></td>
</tr>
</tbody>
</table>

* Assumed Tier Two

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

- Tier Determination and Effluent Summary
- For pollutants of concern, the attachments are:
  - Attachment A, Tier 2 with significant degradation.
  - Attachment B, Tier 2 with minimal degradation.
  - Attachment D, Tier 1 Review. Additionally, a Tier 2 review must be conducted for each pollutant of concern on the appropriate water body segment.
Existing Water Quality
No existing water quality data was submitted.

Assimilative Capacity Calculations
This antidegradation review assumed significant degradation for all Pollutants of Concern so there is no need to calculate the assimilative capacity for this review.

Alternatives Analysis
This antidegradation review assumed significant degradation for all Pollutants of Concern, so there is a demonstration of necessity (i.e., alternatives analysis) and a determination of social and economic importance included in the Francis Howell Antidegradation Review dated March 2009. There were a total of four (4) no discharge alternatives and three (3) discharging alternatives reviewed in the report. The no discharge alternatives were: Land application, sub-surface disposal, recycling, and discharge to a regional wastewater collection and treatment system. Land application was considered impracticable because the only available land where the effluent could be applied currently serves as sport fields, and there is no available land close enough for land application to be practicable. The soil is classified as Harvester Type C by the Soil Survey of St. Charles County, which has a poor percolation rate, so subsurface disposal is not considered practicable. Recycling was not considered practicable because the effluent volume would be much higher than the demand and the remaining effluent would still have to be treated for discharge. Discharging to a regional wastewater treatment facility was also infeasible due to distance and construction costs. The four (4) discharging alternatives are, extended aeration activated sludge with disinfection (with and without filtration as separate alternatives), discharge to a different watershed, and membrane bioreactor. Extended aeration activated sludge and disinfection without filtration was considered the base case as it met the Water Quality Standards and was the least expensive. The same treatment with filtration would offer a higher level of treatment for a fractional cost increase. Both Extended aeration activated sludge designs were considered practicable, although due to their footprint they would be considered to have some safety concerns. Watershed 10300200140004 is located .17 miles south of the discharge. The closest stream (Wildhorse Creek) (C) (losing) is .47 miles south of the discharge. However, to discharge to Wildhorse Creek, piping would have to be constructed through Weldon Spring State Wildlife Area. This option is not feasible, and circumventing the area would require over 3 miles of piping which was not determined to be economically efficient. The expansion of the current Membrane Bioreactor as an alternative would cost 40% of the base case cost and provide significantly better treatment than both of the other less degrading options. This alone would make the Membrane Bioreactor the preferred option, but it also has a smaller footprint which will alleviate additional concerns. As stated earlier all treatment technologies meet Water Quality Standards. The preferred alternative is the expansion of the current Membrane Bioreactor. It was chosen because the environmental benefits from this treatment far exceeded the expected performance of the alternative treatments and this is achieved at a lower cost than the alternatives. Information from the preceding discussion can be found in Section 4 pages seven (7) thru ten (10) of the Francis Howell Antidegradation Review dated March 2009.

Demonstration of Necessity and Social and Economic Importance
This antidegradation review assumed significant degradation for all Pollutants of Concern so a demonstration of necessity (i.e., alternatives analysis) and a determination of social and economic importance was included in the Francis Howell Antidegradation Review dated March 2009. With the growth of the local community and the population of the school, there is a need for the current WWTF to be expanded/upgraded/replaced with a facility that will be able to adequately treat the effluent quantity that is expected to be seen in the near future. Providing adequate treatment is a necessity for the growth of the school’s population. Another important aspect to consider is that Francis Howell WWTP is the sole contributor to this portion of Crooked Creek. The effluent limits based on the preferred technology are considerably more protective of water quality in the unclassified section than those that would be based solely on protecting to Water Quality Standards. These two factors are the main considerations of the Social and Economic Importance Section (Section 5) included in the Francis Howell Antidegradation Review dated March 2009.

Preliminary Determination
The proposed expansion of the Francis Howell High School WWTF (0.025 MGD) is assumed to result in significant degradation for all POCs in both Crooked Creek (U) and Dardenne Creek(P). The effluent limits in this review were developed to be protective of beneficial uses and to retain the remaining assimilative capacity.
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] 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 supercede 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.

Mixing Considerations

Mixing Zone (MZ): No mixing allowed, 7Q10 less than 0.1 cfs [10 CSR 20-7.031(4).B.(I).(a)].

Zone of Initial Dilution (ZID): Not allowed [10 CSR 20-7.031(4).B.(I).(b)].

\[ A.E.C.\% = \left( \frac{DesignFlow + ZIDFlow}{DesignFlow} \right)^{-1} \times 100 \]

Permit Limits and Information

<table>
<thead>
<tr>
<th>TMDL WATERSHED:</th>
<th>Y or N</th>
<th>W.L.A. STUDY CONDUCTED:</th>
<th>Y or N</th>
<th>DISINFECTION REQUIRED:</th>
<th>Y or N</th>
<th>USE ATTAINABILITY ANALYSIS:</th>
<th>Y or N</th>
</tr>
</thead>
</table>

The UAA has not resulted in any recommendations for designated use removal

OUTFALL #001– Main Facility Outfall

<table>
<thead>
<tr>
<th>WET TEST (Y or N):</th>
<th>Y</th>
<th>FREQUENCY:</th>
<th>ONCE/CYCLE</th>
<th>A.E.C.</th>
<th>METHOD:</th>
<th>MULTIPLE</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>UNITS</th>
<th>DAILY MAXIMUM</th>
<th>WEEKLY AVERAGE</th>
<th>MONTHLY AVERAGE</th>
<th>LIMIT TYPE (NOTE 1)</th>
<th>MONITORING FREQUENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLOW</td>
<td>MGD</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>FSR</td>
<td>ONCE/MONTH</td>
</tr>
<tr>
<td>BIOCHEMICAL OXYGEN DEMAND (BOD₅)</td>
<td>MG/L</td>
<td>10.1</td>
<td>6.7</td>
<td>6.7</td>
<td>PAL</td>
<td>ONCE/MONTH</td>
</tr>
<tr>
<td>TOTAL SUSPENDED SOLIDS</td>
<td>MG/L</td>
<td>10.1</td>
<td>6.7</td>
<td>6.7</td>
<td>PAL</td>
<td>ONCE/MONTH</td>
</tr>
<tr>
<td>pH</td>
<td>SU</td>
<td>6.0-9.0</td>
<td>6.0-9.0</td>
<td></td>
<td>FSR</td>
<td>ONCE/MONTH</td>
</tr>
<tr>
<td>FECAL COLIFORM</td>
<td>**</td>
<td>1000</td>
<td>400</td>
<td></td>
<td>WQBEL</td>
<td>ONCE/MONTH</td>
</tr>
<tr>
<td>ESCHERICHIA COLIFORM (E. coli)</td>
<td>PLEASE SEE THE E. COLI DISCUSSION IN THE DERIVATION &amp; DISCUSSION OF LIMITS SECTION OF THIS WQAR BELOW.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL AMMONIA N (SUMMER) MAY 1 – OCT 31</td>
<td>MG/L</td>
<td>4.3</td>
<td>1.2</td>
<td>PAL</td>
<td>ONCE/MONTH</td>
<td></td>
</tr>
<tr>
<td>TOTAL AMMONIA N (WINTER) NOV 1 – APRIL 31</td>
<td>MG/L</td>
<td>5.5</td>
<td>1.3</td>
<td>PAL</td>
<td>ONCE/MONTH</td>
<td></td>
</tr>
</tbody>
</table>

Note 1– Water Quality-based Effluent Limitation--WQBEL; or Minimally Degrading Effluent Limit--MDEL; or Preferred Alternative Limit-PAL; or No Degradation Limit--NDL; or FSR--Federal/State Regulation; or N/A--Not Applicable. Also, please see the General Assumptions of the WQAR #4 & #5.

* – Monitoring Requirement Only
** – colonies/100 mL
*** - Both limits are given in terms of minimum not maximum
Receiving Water Monitoring Requirements
No receiving water monitoring requirements recommended at this time.

Derivation and Discussion of Limits
Wasteload allocations were calculated using water quality criteria or water quality model results and the dilution equation below:

\[ C = \frac{(Cs \times Qs) + (Ce \times Qe)}{(Qe + Qs)} \]

(EPA/505/2-90-001, Section 4.5.5)

Where

- \( C \) = downstream concentration
- \( Cs \) = upstream concentration
- \( Qs \) = upstream flow
- \( Ce \) = effluent concentration
- \( Qe \) = 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).

Outfall #001 – Main Facility Outfall

- **Biochemical Oxygen Demand (BODs).** Preferred Alternative Limit (PAL) proposed of 6.7 mg/L monthly average, 10.1 mg/L maximum daily limit. Proposed Average Monthly Limit (AML) of 6.7 was provided by applicant which is significantly lower than Water Quality Standard. Standard derivation for Maximum Daily Limits (MDL) is one and one half (1.5) times the AML. Therefore a MDL of 10.1 was developed.

- **Total Suspended Solids (TSS).** Preferred Alternative Limit (PAL) proposed of 6.7 mg/L monthly average, 10.1 mg/L maximum daily limit. Proposed Average Monthly Limit (AML) of 6.7 was provided by applicant which is significantly lower than Water Quality Standard. Standard derivation for Maximum Daily Limits (MDL) is one and one half (1.5) times the AML. Therefore a MDL of 10.1 was developed.

- **pH.** pH shall be maintained in the range from six to nine (6.0 – 9.0) standard units [10 CSR 20-7.015 (8)(B)2.]

- **Fecal Coliform.** Discharge shall not contain more than a monthly geometric mean of 400 colonies/100 mL and a daily maximum of 1000 colonies/100 mL during the recreational season (April 1 – October 31) [10 CSR 20-7.015(8)(B)4.A.] Future renewals of the facility operating permit will contain effluent limitations for E. coli which will replace fecal coliform as the applicable bacteria criteria in Missouri’s water quality standards.

- **Escherichia Coliform (E. Coli).** In the near future, the operating permit for this facility will contain effluent limitations for E. coli. E. coli will replace fecal coliform as the applicable bacteria criteria in Missouri’s water quality standards when Missouri adopts the implementation of the E. coli standards. Also, please see **GENERAL ASSUMPTIONS OF THE WQRS #7.**
**Total Ammonia Nitrogen.** Water Quality Based Effluent Limits with decay were proposed, however, ammonia limits were calculated using guidance from EPA 505/2-90-001. Lognormal distributions were used to calculate the Maximum Daily Limits and Average Monthly Limits.

The data was separated into seasons (summer and winter) and the data was analyzed following the procedures found in the EPA document referenced above. The specific sections used were: Daily Maximum Permit Limits Based on the Lognormal Distribution and Table E-3: Monthly Average Permit Limit Calculations for More Than Ten Samples.

The data was assumed to fit a lognormal distribution. The lognormal distribution can be used for all sample sizes, with slightly different equations used when the sample size surpasses $n = 10$. The delta-lognormal distribution is used when there is a mixture of non-detect and detectable values. However, this distribution is best to be used with sample sizes $n < 10$. A total of 62 samples were available to be considered making the lognormal distribution the model of choice.

After the data is separated according to season there are two data points for each season that are potential outliers. A lognormal distribution follows the assumption that the log of each data point, when considered as a group, is normally distributed. When the data is log transformed, these two points for both summer and winter are still considered outliers. Including these points in the ammonia limit derivation would raise the limits between 290% and 467%. Therefore, these points would typically be eliminated from standard statistical analysis. However, in modeling effluent and determining limits these outliers represent the variability inherent in many wastewater treatment systems. While both these outliers are extreme, to eliminate both outliers would essentially try to eliminate the variability that is unavoidable in treatment systems, handcuffing the flexibility of the system. Therefore only the most extreme outlier for each season was eliminated.

The following tables show the values using the lognormal distribution for both AML and MDL, with the extreme outlier removed from the data set:

**Table 2: Ammonia Average Monthly Limit**

<table>
<thead>
<tr>
<th></th>
<th>Summer</th>
<th>Winter</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\mu_Y$</td>
<td>-6.517</td>
<td>-6.527</td>
</tr>
<tr>
<td>$\sigma_Y$</td>
<td>0.718</td>
<td>0.921</td>
</tr>
<tr>
<td>$E(Y) = E(X_N)$</td>
<td>0.084</td>
<td>0.096</td>
</tr>
<tr>
<td>$V(Y) = V(X_N)$</td>
<td>0.766</td>
<td>1.325</td>
</tr>
<tr>
<td>$cv(Y) = V(Y) / E(Y)$</td>
<td>0.036</td>
<td>0.044</td>
</tr>
<tr>
<td>$z = 1.645$</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

95th %ile AML: 1.116  
99th %ile AML: 1.281

**Table 3: Ammonia Maximum Daily Limit**

<table>
<thead>
<tr>
<th></th>
<th>Summer</th>
<th>Winter</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\mu_Y$</td>
<td>-6.517</td>
<td>-6.527</td>
</tr>
<tr>
<td>$\sigma_Y$</td>
<td>0.718</td>
<td>0.921</td>
</tr>
<tr>
<td>$E(Y) = E(X_N)$</td>
<td>0.064</td>
<td>LTA</td>
</tr>
<tr>
<td>$V(Y) = V(X_N)$</td>
<td>0.634</td>
<td>0.636</td>
</tr>
<tr>
<td>$cv(Y) = V(Y) / E(Y)$</td>
<td>1.0248</td>
<td>1.2849</td>
</tr>
<tr>
<td>$z = 2.306$</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

99th %ile MDL: 4.279  
99th %ile MDL: 5.806

Where:

$\mu_Y =$ log transformed average  
$\sigma_Y^2 =$ log transformed variance  
$E(X) = E(X_N) =$ estimated mean of data  
$V(X) =$ estimated variance of data  
$V(X_N) =$ n-day estimated variance of data $(n = 30)$  
$cv(X_N) =$ n-day estimated coefficient of variation $(n=30)$
**Antidegradation Review Summary**

The proposed facility discharge, Francis Howell High School WWTF, 0.03875 (cfs) will discharge to Crooked Creek (U) and Dardenne Creek (P). MEC Water Resources assumed significant degradation for the segments mentioned above and provided an alternatives analysis which showed an expansion to the current membrane bioreactor plant would be the most economically efficient and practicable. This treatment will also provide the highest level of effluent available from the proposed alternatives. The proposed facility will discharge a higher quality effluent and will have a net decrease in POC loadings. Effluent flow is the dominate source of flow for the unclassified segment, with a net decrease in loadings the overall stream quality is improved. Also due to population increases in the area, a larger treatment facility is required in order to accommodate the increase in student and faculty population. This document is in accordance with the AIP, and the limits derived in the provided document are protective of beneficial uses and attain the highest statutory and regulatory requirements. The Department has determined that the submitted review is sufficient and meets the requirements of the AIP.

Reviewer: Greg Brossier
Date: 11/10/2021
Unit Chief: John Rustige
Section Chief: Refaat Mefrakis

Monitoring and effluent limits contained within this document have been developed in accordance with EPA guidelines using the best available data and are believed to be consistent with Missouri's Water Quality Standards and Effluent Regulations. If additional water quality data or anecdotal information are available that may affect the recommended monitoring and effluent limits, please forward these data and information to the author.
Appendix A

Francis Howell High School WWTF
Antidegradation Review

MEC Water Resources, Inc.

FIGURE 1. Francis Howell High School Wastewater Treatment Facility Site Vicinity Map

Francis Howell School District | Bax Engineering | March 2009
Appendix B

Francis Howell High School WWTF
Antidegradation Review

MEC Water Resources, Inc.

Ammonia as Nitrogen
Summer and winter ammonia wasteload allocations (WLAs) were calculated utilizing the following exponential decay formula:

\[ [\text{NH}_3\text{N}]_t = [\text{NH}_3\text{N}]_{\text{in}} \cdot e^{-kt} \]

Where
- \([\text{NH}_3\text{N}]_t\) = ammonia concentration at confluence with classified segment;
- \([\text{NH}_3\text{N}]_{\text{in}}\) = ammonia concentration at pipe;
- \(k\) = NH3 oxidation per day \((k_{1,20} = 0.3 \text{ (day}^{-1}\text{)})\);
- \(\Theta\) = temperature correction factor = 1.083; and
- \(t\) = time for effluent to travel to first classified segment (in days)

\([\text{NH}_3\text{N}]_t\) (i.e., the ammonia concentration at the confluence) was set equal to seasonal criteria (Table 2).

| TABLE 2. Summer and Winter Ammonia Criteria |
|------------------------------|----------------|----------|
| Season                        | Temperature (°C) | pH (SU) | Total Ammonia as Nitrogen (mg/L) |
| Summer (May 1 – October 31)   | 26              | 7.8      | 1.5 12.1                         |
| Winter (November 1 – April 30)| 6               | 7.8      | 3.1 12.1                         |

Travel time within the 6.3 mile Crooked Creek was calculated to be 10.7 days using an empirical relationship based on flow and slope (i.e., see model documentation in Appendix A for further details).

**Summer Chronic WLA**

\([\text{NH}_3\text{N}]_{\text{LTA}} = [\text{NH}_3\text{N}]_{\text{in}} \cdot e^{-k_{\text{T}} \cdot \Theta} = 266.5 \text{ mg/L} \]

Chronic long-term average (LTA) = 266.5 mg/L \((0.780) = 207.9 \text{ mg/L} \]

\([CV=0.6, \text{99th Percentile, } n=30]\)

**Summer Acute WLA**

\([\text{NH}_3\text{N}]_{\text{LTAa}} = 12.1 \text{ mg/L} \text{ (i.e., acute criteria must be met "end-of-pipe")} \]

Acute LTA (LTAa) = 12.1 mg/L \((0.321) = 3.9 \text{ mg/L} \]

\([CV=0.6, \text{99th Percentile}]\)

**Summer Limits**

\(\text{MDL} = 3.9 \text{ mg/L (3.11) = 12.1 mg/L} \text{ [CV = 0.6, } \text{99th Percentile]}\)

\(\text{AML} = 3.9 \text{ mg/L (1.19) = 4.6 mg/L} \text{ [CV = 0.6, } \text{95th Percentile, } n=30]\)

**Winter Chronic WLA**

\([\text{NH}_3\text{N}]_{\text{LTA}} = [\text{NH}_3\text{N}]_{\text{in}} \cdot e^{-k_{\text{T}} \cdot \Theta} = 8.9 \text{ mg/L} \]

LTAc = 8.9 mg/L \((0.780) = 6.9 \text{ mg/L} \]

\([CV=0.6, \text{99th Percentile, } n=30]\)

**Winter Acute WLA**
Francis Howell High School WWTF
Antidegradation Review

\[ [\text{NH}_3\text{N}]_{\text{aq}} = 12.1 \text{ mg/L} \text{ (i.e., acute criteria must be met "end-of-pipe")} \]
\[ \text{LTAa} = 12.1 \text{ mg/L (0.321)} = 3.9 \text{ mg/L} \]
\[ \text{CV=0.6, 99}\text{th Percentile} \]

*Winter Limits*

\[ \text{MDL} = 3.9 \text{ mg/L (3.11)} = 12.1 \text{ mg/L} \quad [\text{CV = 0.6, 99}\text{th Percentile}] \]
\[ \text{AML} = 3.9 \text{ mg/L (1.19)} = 4.6 \text{ mg/L} \quad [\text{CV = 0.6, 95}\text{th Percentile, } n=30] \]

*Escherichia coli*

MEC is proposing a base case *E. coli* AML equal to criteria for whole body contact recreation – category B (i.e., 206 cfu/100 mL).

*PH*

PH is measured in pH units and is not to be averaged. pH shall be maintained in the range from 6.0-9.0 standard units [10 CSR 20-7.015(8)(B)2].

*Oil and Grease*

Per MDNR standard practice, MEC is proposing an oil and grease AML and MDL of 10 mg/L and 15 mg/L, respectively.
Appendix C

![Diagram showing Oxygen mg/L over Time in days with labels: Deficit curve, D.O. sag, Saturation]
Natural Heritage Review
On-line LEVEL 1 REPORT

Print this page and use/attach as documentation that your project has consulted with the Missouri Department of Conservation and the U.S. Fish and Wildlife Service about species of conservation concern. No further consultation about this project is necessary.

March 6, 2009

Your login and project information below:

User ID:
First Name:
Last Name:
Email Address:
Business:

Your query information below:

User Response ID Level Township Range Section Direction Latitude Longitude Point Line UTM North UTM East Rectangle Time Stamp
1037 0 0 4288733 701034 3/6/2009 9:05:28 AM

Cautions related to species/habitats of concern or project type. Please reflect these concerns and recommendations in your plans:

- Even if records of species/habitats of concern do not exist, there is a possibility that your project will encounter a species of concern that is not on record. In Missouri, 93% of the land is in private ownership, and most of that has never been checked for endangered species. Animals move over varying ranges, and in time both animal and plant populations can move.

- If your project encounters and potentially affects a federally-listed species, immediately report it to the U.S. Fish and Wildlife Service or Missouri Department of Conservation.

No further consultation with the U.S. Fish and Wildlife Service or the Missouri Department of Conservation is necessary. Print this document to establish compliance with requirements to consult with U.S. Fish and Wildlife Service and the Missouri Department of Conservation about this project.

If you need additional information, please contact:

MDC Natural Heritage Review Policy Coordination Unit or U.S. Fish and Wildlife Service Ecological Services 101 Park Deville Drive, Suite A

http://mdcgis.mdc.mo.gov/heritage/docs/response/l1.asp

3/6/2009
A HERITAGE REVIEW provides information about species and habitats of concern that could be affected by the project. Heritage records note things that were positively identified at some date and time, marked at a location that may be more or less precise. Animals move quickly but plant communities can move also. To say, there is a record, does not mean the species/habitat is still there. To say that, there is no record, does not mean the project may not encounter something. Because of this, reports include information about records near but not necessarily on the project site. Three different kinds of information are provided.

• 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 573-234-2161) for consultation.

• STATE Concerns are species/habitats known to exist near enough to the project site to warrant concern and protected under the Wildlife Code of Missouri (RSMo 3 CSR 10). State Endangered Status is determined by the Missouri Conservation Commission under constitutional authority, with requirements expressed in the Missouri Wildlife Code, rule 3CSR10-4.111. State Rank is numeric rank of relative rarity, protected under general provisions of the Wildlife Code but not endangered.

• Concerns & management recommendations are things for which one might prudently look. There is no specific heritage record, but our knowledge of the surrounding landscape suggests consideration. 93% of Missouri’s land is in private ownership, so most sites have never been carefully inspected by conservation professionals.

This report is not a site clearance letter. Rather, 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 our Heritage Database into project plans is an important step that can help reduce unnecessary impacts to Missouri’s sensitive natural resources. However, the Heritage Database is only one reference that should be used to evaluate potential adverse 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 species of conservation concern are appropriately identified and addressed.

Additional information on rare, endangered and watched species may be found at http://www.mdc.mo.gov/nathis/endangered/. Detailed information about species mentioned may be accessed at 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 us.

http://mdegis.mdc.mo.gov/heritage/docs/response/11.asp

3/6/2009
### MISSOURI DEPARTMENT OF NATURAL RESOURCES
### WATER PROTECTION PROGRAM
### PERMITS AND ENGINEERING SECTION

## WATER QUALITY REVIEW ASSISTANCE (WQRA)/ANTIDEGRADATION REVIEW REQUEST
(PRE-CONSTRUCTION REVIEW FOR DEVELOPING WATER QUALITY-BASED EFFLUENT LIMITS)

<table>
<thead>
<tr>
<th>TYPE OF PROJECT</th>
<th>GRANT/SRF LOAN</th>
<th>ALL OTHER PROJECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>REQUESTER</td>
<td>MEC Water Resources, Inc.</td>
<td></td>
</tr>
<tr>
<td>PERMITTED</td>
<td>Duckets Creek Sanitary Sewer District</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### REASON FOR REQUEST
- NEW FACILITY (See Instruction #6)
- UPGRADE (No expansion) (see AIP, Section II.B.1)
- EXPANSION

**DESCRIPTION OF PROPOSED ACTIVITY:**
Upgrade membrane bioreactor plant to accommodate anticipated growth in Francis Howell High School enrollment.

### FACILITY INFORMATION
- FACILITY NAME: DCSD, Francis Howell High School Wastewater Treatment Facility
- NPPES NUMBER (IF APPLICABLE): MO-0129763
- COUNTY: St. Charles
- METHOD OF BACTERIA COMPLIANCE:
  - Chlorine Disinfection
  - Ultraviolet Disinfection
  - Ozone, or
  - N/A

### WATER QUALITY ISSUES
- Water quality issues include: effluent limit compliance issues, notice(s) of violation (NOVs), water body beneficial uses not attained/ supported, etc.

### OUTFALL

<table>
<thead>
<tr>
<th>OUTFALL</th>
<th>LOCATION (LAT/LONG OR LEGAL DESCRIPTION)</th>
<th>MAPPED</th>
<th>RECEIVING WATEROBODY</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>NW 4¼, NW ¼, Sec. 32, T46N, R3E, St. Charles County</td>
<td></td>
<td>Crooked Creek (U)</td>
</tr>
</tbody>
</table>

1. Please attach topographic map (see http://www.dnr.mo.gov/internetmapviewer/) with outfall location(s) clearly marked. For additional outfalls, attach a separate form.

2. Please see general instructions for discharges to streams.

### NEW DESIGN FLOW

<table>
<thead>
<tr>
<th>OUTFALL</th>
<th>NEW DESIGN FLOW **</th>
<th>TREATMENT TYPE</th>
<th>EFFLUENT TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>0.025</td>
<td>Membrane bioreactor/offsite sludge processing</td>
<td>Domestic Wastewater</td>
</tr>
</tbody>
</table>

* Describe predominating character of effluent. Example: Domestic Wastewater, Municipal Wastewater, Industrial Wastewater, Storm water, Mining Leachate, etc.
** If Expansion, please indicate new design flow.

### ANTIDEGRADATION REVIEW SUBMISSION:

- Check for rare or endangered species and provide determination with this request. See Instruction #7.
- See Antidegradation Instructions (attached). Applicant supplied a summary within:
  - Tier Determination and Effluent Limit Summary
  - Attachment A – Significant Degradation
  - Attachment B – Minimal Degradation
  - Attachment C – Temporary degradation
  - Attachment D – Tier 1 Review
  - No Degradation Evaluation – Conclusion of Antidegradation Review
GENERAL INSTRUCTIONS

1) Please attach: A) a list of pollutants expected to be discharged, and 
   B) the location of each outfall clearly shown on map(s). A USGS topographic map can be obtained at: http://www.dnr.mo.gov/InternetMapviewer/.

2) Discharge(s) to all gaining streams: Applicant must submit dissolved oxygen (DO) analysis (i.e., using Missouri Department of Natural Resources (Department) approved models such as Streeter Phelps (http://www.ecy.wa.gov/programs/eap/pws/pws/pws.html) or Qual2K/Qual2E (Q2K/Q2E) stream water quality study (http://www.epa.gov/athens/wwqtc/index.html)) indicating that the preferred alternative’s BOD₅ effluent limitations from the alternative analysis or the technology-based/regulatory BOD₅ effluent limits are protective of Missouri’s water quality standard for DO. NOTE: If Q2K/Q2E is used, wasteload allocation for ammonia must be assumed. All Q2K/Q2E studies must have DNR approved Quality Assurance Project Plans. Starting points (may differ with type of degradation) for this analysis are available upon request.

3) 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 Total Ammonia Nitrogen Criteria Implementation Guidance Policy at http://www.dnr.mo.gov/env/wpp/permits/antidog-implementation.htm). 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 (Natural Resource Conservation Service (NRCS), Urban Hydrology for Small Watersheds, Technical Release No. 55, June 1986) for time of travel determination (http://www.info.usda.gov/ced/ftp/ced/tr55.pdf). Please include a map, schematic, or description of flow segments with your calculations. A worksheet with instructions is available upon request.

4) 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 (7)-day Q10 low flow less than 0.1 cfs (10 CSR 20: 7.031 (4B)(ii)), while mixing is allowed for streams seven (7)-day Q10 low flow greater than 0.1 cfs (10 CSR 20-7.031 (4B)(ii)).

5) 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.

6) Do not submit water quality review assistance requests for renewals. All water quality-based effluent limits will be determined during the renewal process.

7) 10 CSR 20-7.015(8) 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.

8) Applicant must check for rare and endangered aquatic species that may be affected by the discharge by using the following web link: http://mdcgs.mdc.mo.gov/heritage/newheritage/heritage.htm.

9) Additional requirements:
   A) DGLS Geohydrologic Evaluations must be submitted with the request.
   B) Coordinates of outfall(s) in lat/long and/or in the public land survey system must be provided.
   C) Please submit a letter with project timeframe and requester name and address clearly written.

Note: Lack of response for additional information within a reasonable timeframe will result in return of request.
ANTIDEGRADATION INSTRUCTIONS:

For more detailed instructions, the applicant should refer to Missouri’s Antidegradation Rule and Implementation Procedure (AIP), which is available at: http://www.dnr.mo.gov/env/wpp/permits/antideg-implementation.htm. All waters of the state are subject to the AIP. All applicants must submit determination of assigned tier(s) of protection to water quality for all waters of the state on a pollutant-by-pollutant basis. The applicant should consult AIP, Section 1.B. for the process of assigning Tier Protection Levels. Both Tier 1 and 2 Reviews are conducted on a pollutant-by-pollutant basis. Outstanding national and state water resources listed on Table D and E in the Water Quality Standards (WQS) at 10 CSR 20-7.031 automatically are assigned Tier 3 Reviews.

As an overview, AIP requires the new or expanded facility either:
1) demonstrate that the loading is below allowed facility assimilative capacity and segment assimilative capacity,
2) demonstrate that loading will be maintained or decreased, or
3) assume degradation with alternative analysis.

For minimally degrading activities as defined in AIP, no alternative analysis or socio-economic importance demonstration is required. If the activity is degrading or assumed to be degrading, then in order to complete the Administrative Record of Decision the applicant must submit:
1) an alternative analysis that demonstrates the non-degrading and minimally degrading discharging options are either impracticable, non-cost efficient, or unaffordable and
2) an evaluation of socio-economic importance of the proposed degrading discharging activity for social and economic development of the community. Applicants must summarize the review using the attached summary sheets (see below).

Tier 1 Reviews: Pollutants of concern (POC) that qualify for Tier 1 Reviews may be discharged in accordance with WQS without performing the alternative analysis or socio-economic importance demonstration; however, for a POC with Tier 1 designation, the applicant must provide existing receiving water quality data (EWQ), or an appropriate water quality model¹, or MDNR Section 303(d) listings (facilities with waterbodies having 305(b) listed POCs should contact the department). Appendix 2 of the AIP demonstrates the statistical process (90% percentile value is significantly more than 95% of the WQS for POC) that applicants must use to designate POC as Tier 1 (below, at or near WQS). If POC is not MDNR Section 303(d) listed for that water body. Finally, for Tier 1 POC’s the total maximum daily load process must be followed to maintain or improve water quality. The applicant must demonstrate that discharge will not violate the water quality criterion for that pollutant. For a list of other activities that are considered not to result in significant degradation, please see AIP, Section II.A.

Tier 2 Reviews: By default, and in the absence of existing water quality data, all waters of the state must have a Tier 2 review before an application for a permit to discharge is filed. If an applicant is assuming all POCs cause degradation, alternative analysis and socio-economic demonstration is required. Worksheets for evaluating alternative to discharge (see AIP, Section II.B) and socio-economic importance to the community (see AIP, Section II.E), as provided in 10 CSR 20-7.031, must be provided for review (see Attachment A). For POC with Tier 2 designation, applicant must provide basis for determination by providing EWQ or an appropriate water quality model¹. The applicant must consider the current EWQ value in the administrative record from previous sampling events (see AIP, Water Quality Assessment Procedures). If degradation is minimal or temporary, no alternative analysis and socio-economic demonstration is required but applicant must provide basis for minimal determination. Degradation is considered minimal if the proposed new or expanded loading is less than 10% of the facility assimilative capacity (FAC) and the cumulative degradation is less than 20% of the segment assimilative capacity (SAC) as a result of all discharges combined. Minimal degradation as defined by AIP must be supported by summary worksheet in Attachment B for facility assimilative capacity and segment assimilative capacity demonstrating that water body has assimilative capacity.

Tier 3 Reviews: Tier 3 water bodies shall receive no degradation of water quality. If hydrologic connection to Tier 3 water bodies has been or is demonstrated, then the applicant must demonstrate that water quality in the Tier 3 segment will not be lowered. Applicants in watersheds with significant losing segments should contact the MDNR’s Division of Geology and Land Survey for a Geohydrologic Evaluation and available dye tracings information. Temporary degradation of water receiving with Tier 3 protection may be allowed by the department on a case-by-case basis as explain in Section II.A of AIP document. Applicant must provide information stated below for evaluation of temporary degradation (see Attachement C).

Temporary degradation is defined in the AIP document on Pages 8 and 23. If degradation is temporary, describe the nature of the temporary impact by providing:
1) Length of time during which water quality will be lowered;
2) Percent change in ambient conditions;
3) Parameters affected;
4) Likelihood for long-term water quality benefits to the segment;
5) Degree to which achieving the applicable water quality standards during the proposed activity maybe at risk;
6) Potential for any residual long-term influences on existing uses.

¹ Quality Assurance Project Plan (QAPP) must be provided to the MDNR Water Protection Program for review well in advance (i.e., at least six months) of the proposed data collection activity and well before submittal of the Antidegradation Review. A pre-applicant conference is highly recommended. Important: Applicant must follow the EPA’s Quality Assurance Project planning document, which is available at: http://www.epa.gov/quality/qas-docs/6-final.pdf.
### 1.00 FACILITY

**Name:** DCSD, Francis Howell High School Wastewater Treatment Facility  
**Address (Primary):** 7001 S. Highway 94  
**City:** St. Charles  
**State:** MO  
**Zip:** 63304  
**Phone:** (636) 441-1244

### 2.00 RECEIVING WATER BODY SEGMENT #1

**Name:** Crooked Creek (U)  
**Latitude:** 38.76416  
**Longitude:** -90.71735  
**UTM (NORTHERN REFERENCE LINE):**  
**UTM (EASTERN REFERENCE LINE):**

### 3.00 WATER BODY SEGMENT #2 (IF APPLICABLE)

**Name:** Dardenne Creek (P) (WBD 0221)  
**Latitude:** 38.73612  
**Longitude:** -90.78561  
**UTM (NORTHERN REFERENCE LINE):**  
**UTM (EASTERN REFERENCE LINE):**

### 4.00 WATER BODY SEGMENT #3 (IF APPLICABLE)

**Name:**  
**Latitude:**  
**Longitude:**

### 5.00 PROJECT INFORMATION

**Is the receiving water body an Outstanding National Resource Water (ONRW), an Outstanding State Resource Water (OSRW), or drainage thereto?**  
☐ YES  ☒ NO  
In Tables D and E of 10 CFR 202.7.3A, ONRWs and OSRWs are listed. For the Missouri Antidegradation Rule and Implementation Procedure (API) Section 1.8.3, "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.

**Will the proposed discharge of all pollutants of concern (POCs) result in no net increase in the ambient water quality concentration of the receiving water after mixing?**  
☐ YES  ☒ NO  
If yes, submit a summary table showing the levels of each POC before and after the proposed discharge in the receiving water and then complete Attachment B for the first section/zone class/first Water Body Segment. Although the proposed discharge will not result in a net increase in the ambient water quality, the proposed expansion was assumed significant for purposes of the antidegradation review.

**Will the discharge result in temporary degradation?**  
☐ YES  ☒ NO  
If yes, complete Attachment C.

**Has the project been determined as non-degrading?**  
☐ YES  ☒ NO  
If yes complete No Degradation Evaluation – Conclusion of Antidegradation Review Form.

**Is Tier 2 with significant degradation assumed for all Pollutants of Concern?**  
☐ YES  ☒ NO  
If yes, complete Tier 2 Analysis Form.

### 6.00 WET WEATHER ANTICIPATIONS

If an applicant anticipates wetweather flow and/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)(c). Please attach the feasibility analysis to this report.

**What is the Wet Weather Flow Peaking Factor in relation to Design Flow?** 2.3

---

**Wet Weather Design Summary:**  
Excess wet-weather flows that exceed the normal plant treatment flow rate are contained in the treatment plant’s 20,000 gallon storage/equalization basin and treated through the plant when flows recede. Under extreme wetweather conditions, the District hauls water from the storage/equalization basin by a tanker truck to assure that by-passes do not occur. The District has conducted smoke testing to locate and repair sources of inflow and infiltration (I and I). The school expansion will consist of further enclosing the campus which should result in further reducing I and I.
If yes to one of the above questions, skip the Existing Water Quality Data (EWQ) or Model Summary Section and the Pollutants of Concern (POCs) and the Tier Determination(s) Section (Page 2).
Continue on Page 3.

7.00 EXISTING WATER QUALITY (EWQ) DATA OR MODEL SUMMARY

Obtaining EWQ is possible by three methods according to the AIP Section II.A.1.: (1) using previously collected data with an appropriate Quality Assurance Project Plan (QAPP) (2) collecting water quality data by approved the Missouri Department of Natural Resources (department) 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. Please provide all the appropriate corresponding data and reports which were approved by the department Water Quality Monitoring and Assessment Section (WQMA).

Date EWQ data was provided by the department WQMA: NA
Approval date of the QAPP by the department WQMA: NA
Approval date of the project sampling plan by the department WQMA: NA
Approval date of the data collected for all appropriate pollutants of concern (POC) by the department WQMA: NA

Comments/Discussion:
Section 7.0 is not applicable.

8.00 POLLUTANTS OF CONCERN (POCs) AND TIER DETERMINATION(S)

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

<table>
<thead>
<tr>
<th>Water Body Segment One</th>
<th>Pollutants of Concern and Tier Determination(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tier 1</td>
<td>Tier 2 with Minimal Degradation</td>
</tr>
<tr>
<td>BOD/DO</td>
<td>TSS</td>
</tr>
<tr>
<td>* Assumed Tier 2 with Significant Degradation.</td>
<td></td>
</tr>
<tr>
<td>Escherichia coli</td>
<td>pH</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Water Body Segment Two</th>
<th>Pollutants of Concern and Tier Determination(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tier 1</td>
<td>Tier 2 with Minimal Degradation</td>
</tr>
</tbody>
</table>

- 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.
### 8.00 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:

<table>
<thead>
<tr>
<th>Pollutant of Concern</th>
<th>Units</th>
<th>Wasteload Allocation</th>
<th>Average Monthly Limit</th>
<th>Daily Maximum Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOD₅</td>
<td>mg/L</td>
<td></td>
<td>6.7</td>
<td>10</td>
</tr>
<tr>
<td>TSS</td>
<td>mg/L</td>
<td></td>
<td>6.7</td>
<td>10</td>
</tr>
<tr>
<td>Ammonia as N</td>
<td>mg/L</td>
<td></td>
<td>4.6</td>
<td>12.1</td>
</tr>
<tr>
<td>Bacteria (E. Coli)</td>
<td>cfu/100 mL</td>
<td></td>
<td>206*</td>
<td>Not applicable</td>
</tr>
<tr>
<td>pH</td>
<td>SU</td>
<td></td>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td>Oil &amp; Grease</td>
<td>mg/L</td>
<td></td>
<td>10</td>
<td>15</td>
</tr>
</tbody>
</table>

* Final limitations and monitoring requirements for E. coli are applicable only during the recreational season from April 1 through October 31 and shall be measured as geometric mean. **pH is limited to the range of 6.0-9.0 pH units.

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

Please attach the Antidegradation Review report and all supporting documentation.

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

**SIGNATURE**

**DATE**

3-17-09

**NAME AND OFFICIAL TITLES**

Tom Wallace, Principal

**COMPANY NAME**

MEC Water Resources, Inc.

**ADDRESS**

1123 Wilkes Blvd. Suite 400

Columbia

MO

65201

**TELEPHONE NUMBER**

573-449-4100

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

**SIGNATURE**

**DATE**

3-20-2009

**NAME AND OFFICIAL TITLES**

Richard D. Higgins, Dir. of Ops.

**ADDRESS**

3550 Hwy-K

O’Fallon

MO

63368

**TELEPHONE NUMBER**

636-494-1244

**CONTINUING AUTHORITY:** Continuing Authority is the permanent organization which will be responsible for the operation, maintenance and modernization of the facility. The regulatory requirement regarding continuing authority is available at http://www.scs.moe.gov/strules/csr/current/10csr/10x20-6a.pdf.

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

**SIGNATURE**

**DATE**

3-20-2008

**NAME AND OFFICIAL TITLES**

**ADDRESS**

**TELEPHONE NUMBER**
STATE OF MISSOURI
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER POLLUTION CONTROL PROGRAM
ANTIDEGRADATION REVIEW SUMMARY
ATTACHMENT A: TIER 2 – SIGNIFICANT DEGRADATION
UNDER MISSOURI CLEAN WATER LAW

1.00 FACILITY

<table>
<thead>
<tr>
<th>NAME</th>
<th>PHONE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCSD, Francis Howell High School Wastewater Treatment Facility</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ADDRESS (PHYSICAL)</th>
<th>CITY</th>
<th>STATE</th>
<th>ZIP</th>
</tr>
</thead>
<tbody>
<tr>
<td>7001 S. Highway 94</td>
<td>St. Charles</td>
<td>MO</td>
<td>63304</td>
</tr>
</tbody>
</table>

2.00 RECEIVING WATER BODY SEGMENT (WBS) #1

<table>
<thead>
<tr>
<th>NAME</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Crooked Creek (U)</td>
<td></td>
</tr>
</tbody>
</table>

3.00 WATER BODY SEGMENT (WBS) #2 (IF APPLICABLE)

<table>
<thead>
<tr>
<th>NAME</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dardenne Creek (P)</td>
<td></td>
</tr>
</tbody>
</table>

4.00 IDENTIFYING ALTERNATIVES:

Please supply a summary of the alternatives considered and the level of treatment attainable with regards to the alternative. "For Discharges likely to cause significant degradation, an analysis of non-degrading and less-degrading alternatives must be provided," as stated in the AIP Section II.B.1. Per 10 CSR 20-6.010(4)(D)(1), the feasibility of a no-discharge system must be considered. Please attach all supportive documentation in the Antidegradation Review report.

Non-degrading alternatives: Land application, subsurface disposal, recycling, and discharge to regional sewer system.

Alternatives ranging from less-degrading to degrading including Preferred Alternative (All must meet Water Quality Standards):

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Level of treatment attainable for each POC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BOD</td>
</tr>
<tr>
<td></td>
<td>(mg/L)</td>
</tr>
<tr>
<td>Extended aeration activated sludge with disinfection</td>
<td>25</td>
</tr>
<tr>
<td>Extended aeration activated sludge with filtration and disinfection</td>
<td>10</td>
</tr>
<tr>
<td>Membrane bioreactor</td>
<td>6.7</td>
</tr>
</tbody>
</table>

Identifying Alternatives Summary: see report
### 5.00 DETERMINATION FOR THE REASONABLE ALTERNATIVE:

Per the AIP Section II.B.2, "a reasonable alternative is one that is practicable, economically efficient, and affordable." Please provide basis and supporting documentation in the Antidegradation Review report.

**Practicability Summary:**

"The practicability of an alternative is considered by evaluating the effectiveness, reliability, and potential environmental impacts," according to the AIP Section II.B.2.a. Examples of factors to consider, including secondary environmental impacts, are given in the AIP Section II.B.2.a.

- **Extended aeration activated sludge with disinfection (base case), base case plus filtration, and membrane bioreactor are all considered practicable. None of the non-deteriorating options are considered practicable. See antidegradation report for further details.**

**Economic Efficiency Summary:**

Alternatives that are deemed practicable must undergo a direct cost comparison in order to determine economic efficiency. Means to determine economic efficiency are provided in the AIP Section II.B.2.b.

- **All the practicable options were economically efficient. See antidegradation report for further details.**

**Affordability Summary:**

Alternatives identified as most practicable and economically efficient are considered affordable if the applicant does not supply an affordability analysis. An affordability analysis per the AIP Section II.B.2.c, "may be used to determine if the alternative is too expensive to reasonably implement."

- **An affordability analysis is not required and was not conducted.**

**Preferred Chosen Alternative:**

- **Membrane bioreactor is the preferred alternative. See antidegradation report for further details.**

**Reasons for Rejecting the other Evaluated Alternatives:**

- **Other alternatives with either not practicable or less effective. See antidegradation report for further details.**

**Comments/Discussion:**

- ****
SOCIAL AND ECONOMIC IMPORTANCE (SEI) OF THE PREFERRED ALTERNATIVE:

If the preferred alternative will result in significant degradation, then it must be demonstrated that it will allow important economic and social development in accordance with the AIP Section II.E. SEI is defined as the social and economic benefits to the community that will occur from any activity involving a new or expanding discharge.

Identify the affected community:
The affected community is defined in 10 CSR 20-7.031(2)(B) as the community "in the geographical area in which the waters are located." Per the AIP Section II.E.1, "the affected community should include those living near the site of the proposed project as well as those in the community that are expected to directly or indirectly benefit from the project."

The boundaries of the Francis Howell High School define the affected community. See the antidegradation report for a map of these boundaries.

Identify relevant factors that characterize the social and economic conditions of the affected community:
Examples of social and economic factors are provided in the AIP Section II.E.1, but specific community examples are encouraged.

Providing an necessary public service (i.e., public education).

Describe the important social and economic development associated with the project:
Determining benefits for the community and the environment should be site specific and in accordance with the AIP Section II.E.1

Expansion of the WWTF is necessary for expected growth in campus population.

PROPOSED PROJECT SUMMARY:

Francis Howell High School is currently served by a 12,500 gpd membrane bioreactor WWTF. The Francis Howell School District is pursuing a $65 million upgrade to the high school campus. As part of these upgrades, the WWTF needs to be expanded to a design flow of 25,000 gpd.

Please attach the Antidegradation Review report and all supporting documentation. This is a technical document, which must be signed, sealed, and dated by a registered professional engineer of Missouri.

CONSULTANT: I have prepared/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

3-18-09

PRINT NAME

Cliff Heitmann

LICENSE #:

E-29817

E-MAIL ADDRESS:

chentlich@baxengineering.com

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

SIGNATURE

DATE

3-20-2009

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

SIGNATURE

DATE

3-20-2009
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 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.

   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.
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 28th day of the month following the end of the reporting period.

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.

   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).
   iii. Prohibition of bypass.
      a. 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.

   b. Notice.
      i. Anticipated bypass. If the permittee submits 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).

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
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 permittees 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.
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.
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.


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
PART III – BIO SOLIDS 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:
   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 required 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), RS Mo, 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, RS Mo.
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

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Milligrams per kilogram dry weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>75</td>
</tr>
<tr>
<td>Cadmium</td>
<td>85</td>
</tr>
<tr>
<td>Copper</td>
<td>4,300</td>
</tr>
<tr>
<td>Lead</td>
<td>840</td>
</tr>
<tr>
<td>Mercury</td>
<td>57</td>
</tr>
<tr>
<td>Molybdenum</td>
<td>75</td>
</tr>
<tr>
<td>Nickel</td>
<td>420</td>
</tr>
<tr>
<td>Selenium</td>
<td>100</td>
</tr>
<tr>
<td>Zinc</td>
<td>7,500</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Milligrams per kilogram dry weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>41</td>
</tr>
<tr>
<td>Cadmium</td>
<td>39</td>
</tr>
<tr>
<td>Copper</td>
<td>1,500</td>
</tr>
<tr>
<td>Lead</td>
<td>300</td>
</tr>
<tr>
<td>Mercury</td>
<td>17</td>
</tr>
<tr>
<td>Nickel</td>
<td>420</td>
</tr>
<tr>
<td>Selenium</td>
<td>100</td>
</tr>
<tr>
<td>Zinc</td>
<td>2,800</td>
</tr>
</tbody>
</table>

e. Annual pollutant loading rate.

### TABLE 3

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Kg/ha (lbs./ac) per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>2.0 (1.79)</td>
</tr>
<tr>
<td>Cadmium</td>
<td>1.9 (1.70)</td>
</tr>
<tr>
<td>Copper</td>
<td>75 (66.94)</td>
</tr>
<tr>
<td>Lead</td>
<td>15 (13.39)</td>
</tr>
<tr>
<td>Mercury</td>
<td>0.85 (0.76)</td>
</tr>
<tr>
<td>Nickel</td>
<td>21 (18.74)</td>
</tr>
<tr>
<td>Selenium</td>
<td>5.0 (4.46)</td>
</tr>
<tr>
<td>Zinc</td>
<td>140 (124.96)</td>
</tr>
</tbody>
</table>

f. Cumulative pollutant loading rates.

### TABLE 4

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Kg/ha (lbs./ac)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>41 (37)</td>
</tr>
<tr>
<td>Cadmium</td>
<td>39 (35)</td>
</tr>
<tr>
<td>Copper</td>
<td>1500 (1339)</td>
</tr>
<tr>
<td>Lead</td>
<td>300 (268)</td>
</tr>
<tr>
<td>Mercury</td>
<td>17 (15)</td>
</tr>
<tr>
<td>Nickel</td>
<td>420 (375)</td>
</tr>
<tr>
<td>Selenium</td>
<td>100 (89)</td>
</tr>
<tr>
<td>Zinc</td>
<td>2800 (2499)</td>
</tr>
</tbody>
</table>

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.
   a. 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.
   b. Apply biosolids only at the agronomic rate of nitrogen needed (see 5.c. of this section).
   c. 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.

- **PAN** can be determined as follows:
  \[(\text{Nitrate + nitrite nitrogen}) + (\text{organic nitrogen} \times 0.2) + (\text{ammonia nitrogen} \times \text{volatilization factor})\].
  
  1 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.

- **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.

- **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:

- 300 feet of a water supply well, sinkhole, water supply reservoir or water supply intake in a stream;
- 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;
- 150 feet of dwellings or public use areas;
- 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);
- 50 feet of a property line. Buffer distances from property lines may be waived with written permission from neighboring property owner.

- 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:

- For slopes less than or equal to 6 percent, no rate limitation;
- 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;
- 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.
- 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:

- 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;
- 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 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;
- 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:
         \[
         \text{PAN} = \frac{\text{Nitrate} + \text{Nitrite nitrogen}}{0.2} + (\text{ammonia nitrogen} \times \text{volatilization factor})
         \]
         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 ≥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 ≥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>
<thead>
<tr>
<th>Biosolids or Sludge</th>
<th>Monitoring Frequency (See Notes 1, and 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>produced and</td>
<td>Metals, Pathogens and Vectors, Total</td>
</tr>
<tr>
<td>disposed (Dry Tons</td>
<td>Phosphorus, Total Potassium</td>
</tr>
<tr>
<td>per Year)</td>
<td></td>
</tr>
<tr>
<td>319 or less</td>
<td>1/year</td>
</tr>
<tr>
<td>320 to 1650</td>
<td>4/year</td>
</tr>
<tr>
<td>1651 to 16,500</td>
<td>6/year</td>
</tr>
<tr>
<td>&gt;16,501</td>
<td>12/year</td>
</tr>
</tbody>
</table>

¹Calculate 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.

²Priority 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 sludges 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 19th 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:
   a. 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
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.
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

FORM B: APPLICATION FOR OPERATING PERMIT FOR
FACILITIES THAT RECEIVE PRIMARILY DOMESTIC WASTE AND
HAVE A DESIGN FLOW LESS THAN OR EQUAL TO 100,000
GALLONS PER DAY

READ THE ACCOMPANYING INSTRUCTIONS BEFORE COMPLETING THIS FORM

1. THIS APPLICATION IS FOR:
☐ An operating permit for a new or unpermitted facility. Construction Permit #_____
  (Include completed antidegradation review or request for antidegradation review, see instructions)
☐ A new site-specific operating permit formerly general permit #MOG _____
☑ A site-specific operating permit renewal: Permit #MOG- 0129763 Expiration Date 06/30/2020
☐ A site-specific operating permit modification: Permit #MOG- ________ Reason: ______
☐ General permit (NON-POTWs) (MOGD – discharging < 50,000 GPD or MOG823 – Land Application of Domestic Wastewater):
  Permit #MO- __________ Expiration Date _____

1.1 Is the appropriate fee included with the application (see instructions for appropriate fee)? ☐ YES ☐ NO

2. FACILITY

NAME: DCSD, Steven A Rogers Wastewater Treatment Plant

ADDRESS (PHYSICAL): 7001 South Highway 94

CITY: St Charles

STATE: MO

ZIP CODE: 63304

2.1 Legal description: Sec. 32 , T 46N , R 3E

County: St Charles

2.2 UTM Coordinates Easting (X): 699498 Northing (Y): 4286506

For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

2.3 Name of receiving stream: Tributary to Crooked Creek

2.4 Number of outfalls: 1 Wastewater outfalls: 1 Stormwater outfalls: 0 Instream monitoring sites: 0

3. OWNER: The owner of the regulated activity/discharge being applied for and is not necessarily the owner of the real property on which the activity or discharge is occurring.

NAME: Duckett Creek Sanitary District

ADDRESS: 3550 Highway K

CITY: O'Fallon

STATE: MO

ZIP CODE: 63368

3.1 Request review of draft permit prior to public notice? ☑ YES ☐ NO

3.2 Are you a publicly owned treatment works? ☑ YES ☐ NO

If yes, please attach the Financial Questionnaire. See: https://dnr.mo.gov/forms/780-2511-f.pdf

3.3 Are you a privately owned treatment works? ☑ YES ☐ NO

3.4 Are you a privately owned treatment facility regulated by the Public Service Commission? ☑ YES ☐ NO

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

NAME: Duckett Creek Sanitary District

ADDRESS: 3550 Highway K

CITY: St. Charles

STATE: MO

ZIP CODE: 63368

If the continuing authority is different than the owner, include a copy of the contract agreement between the two parties and a description of the responsibilities of both parties within the agreement.

5. OPERATOR

NAME: Richard D Higgins

TITLE: Director of Operations

CERTIFICATE NUMBER: 1094

EMAIL ADDRESS: TELEPHONE NUMBER WITH AREA CODE 636-447-4944

6. FACILITY CONTACT

NAME: Same

EMAIL ADDRESS: TELEPHONE NUMBER WITH AREA CODE

ADDRESS: CITY: STATE: ZIP CODE:

MO 760-1512 (02-19)
7. DESCRIPTION OF FACILITY

7.1 Process Flow Diagram or Schematic: Provide a diagram showing the processes of the treatment plant. Show all of the treatment units, including disinfection (e.g. – chlorination and dechlorination), influents, and outfalls. Specify where samples are taken. Indicate any treatment process changes in the routing of wastewater during dry weather and peak wet weather. Include a brief narrative description of the diagram.
Attach sheets as necessary.

see attached diagram

Membrane bioreactor
Sludge is hauled to DCSD Treatment Plant #1
Design population is 270
Design flow is 25,000 gpd
Actual flow is approx 16,000 gpd (school day)
Design sludge production is 4.0 dry tons per year

7.2 Attach an aerial photograph or USGS topographic map showing the location of the facility and outfall.
Please see the following website:
https://modnr.maps.arcgis.com/apps/webappviewer/index.html?id=1d81212e0854478ca00ae87c33c8c5ce
This MBR is the first (circa 2004) MBR in the State of Missouri. It uses Kubota “flat plate technology”. It has undergone one upgrade (circa 2011). Notably, this MBR has consistently met its disinfection limit without UV, chlorine or any other active form of disinfection.
8. ADDITIONAL FACILITY INFORMATION

8.1 Facility SIC code: 4952  Discharge SIC code: ______________

8.2 Number of people presently connected or population equivalent (P.E.) 2800  Design P.E. 2863

8.3 Connections to the facility: one high school
   Number of units presently connected:
   Residential: _____  Commercial: 1  Industrial: _____

8.4 Design flow: 25000  Actual flow: 16000 (school day)  9693 (annual flow)

8.5 Will discharge be continuous through the year?  ☑ Yes  ☐ No
   Discharge will occur during the following months: ____________________________
   How many days of the week will discharge occur? ____________________________

8.6 Is industrial wastewater discharged to the facility?  ☐ Yes  ☑ No
   If yes, attach a list of the industries that discharge to your facility

8.7 Does the facility accept or process leachate from landfills?  ☐ Yes  ☑ No

8.8 Is wastewater land applied?  ☑ Yes  ☐ No
   If yes, attach Form I.  See: https://dnr.mo.gov/forms/780-1686-f.pdf

8.9 Does the facility discharge to a losing stream or sinkhole?  ☐ Yes  ☑ No

8.10 Has a wasteload allocation study been completed for this facility?  ☐ Yes  ☑ No

9. LABORATORY CONTROL INFORMATION

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/E. coli, nutrients (including Ammonia), Oil & Grease, \ total oils, phenols, etc.  ☑ Yes  ☐ No
Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph.  ☑ Yes  ☐ No

10. COLLECTION SYSTEM

10.1 Are there any municipal satellite collection systems connected to this facility?  ☑ Yes  ☐ No
   If yes, please list all connected to this facility, contact phone number and length of each collection system

<table>
<thead>
<tr>
<th>FACILITY NAME</th>
<th>CONTACT PHONE NUMBER</th>
<th>LENGTH OF SYSTEM (FEET OR MILES)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10.2 Length of pipe in the sewer collection system? (If available, include totals from satellite collection systems)
   2500 Feet, or _______ Miles (either unit is appropriate)

10.3 Does significant infiltration occur in the collection system?  ☐ Yes  ☑ No
   If yes, briefly explain any steps underway or planned to minimize inflow and infiltration:

   n/a
11. BYPASSING
Does any bypassing occur in the collection system or at the treatment facility? ☐ Yes ☑ No
If yes, explain:

12. SLUDGE HANDLING, USE AND DISPOSAL
12.1 Is the sludge a hazardous waste as defined by 10 CSR 25? ☐ Yes ☑ No

12.2 Sludge production, including sludge received from others: 4.0 Design dry tons/year 2.11 Actual dry tons/year

12.3 Capacity of sludge holding structures:
   Sludge storage provided: _____ cubic feet; _____ days of storage; _____ average percent solids of sludge;
   ☑ No sludge storage is provided  ☐ Sludge is stored in lagoon.

12.4 Type of Storage:
   ☐ Holding tank  ☐ Building
   ☐ Basin  ☐ Lagoon
   ☐ Concrete Pad  ☐ Other (Describe) ____

12.5 Sludge Treatment:
   ☐ Anaerobic Digester  ☐ Lagoon  ☐ Composting
   ☐ Storage Tank  ☐ Aerobic Digester  ☐ Other (Attach description)
   ☐ Lime Stabilization  ☐ Air or Heat Drying

12.6 Sludge Use or Disposal:
   ☑ Land Application  ☐ Surface Disposal (Sludge Disposal Lagoon, Sludge held for more than two years)
   ☐ Contract Hauler  ☐ Hauled to Another treatment facility
   ☐ Incineration  ☐ Sludge Retained in Wastewater treatment lagoon
   ☐ Solid waste landfill

12.7 Person responsible for hauling sludge to disposal facility:
   ☑ By applicant  ☐ By others (complete below)

NAME: ______________________  EMAIL ADDRESS: ______________________

ADDRESS: ______________________  CITY: ______________________  STATE: ______  ZIP CODE: ______

CONTACT PERSON: ______________________  TELEPHONE NUMBER WITH AREA CODE: ______  PERMIT NO. MO: ___

12.8 Sludge use or disposal facility
   ☑ By applicant  ☐ By others (Complete below.)

NAME: ______________________  EMAIL ADDRESS: ______________________

ADDRESS: ______________________  CITY: ______________________  STATE: ______  ZIP CODE: ______

CONTACT PERSON: ______________________  TELEPHONE NUMBER WITH AREA CODE: ______  PERMIT NO. MO: ___

12.9 Does the sludge or biosolids disposal comply with federal sludge regulations under 40 CFR 503?
   ☑ Yes  ☐ No (Explain)
13. ELECTRONIC DISCHARGE MONITORING REPORT (eDMR) SUBMISSION SYSTEM

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 timely, complete, accurate, and nationally-consistent set of data. **One of the following must be checked in order for this application to be considered complete.** Please complete the eDMR Registration by clicking on the following link: https://dnr.mo.gov/forms/780-2204-1.pdf.

- You have completed and submitted with this permit application the required documentation to participate in the eDMR system.
- You have previously submitted the required documentation to participate in the eDMR system and/or you are currently using the eDMR system.
- You have submitted a written request for a waiver from electronic reporting. See instructions for further information regarding waivers.

14. JETPAY

Permit fees may be payed online by credit card or eCheck through a system called JetPay. Use the URL provided to access JetPay and make an online payment.

- New Site Specific Permit: https://magic.collectorsolutions.com/magic-ui/payments/mo-natural-resources/591/
- Construction Permits: https://magic.collectorsolutions.com/magic-ui/payments/mo-natural-resources/592/
- Modification Fee: https://magic.collectorsolutions.com/magic-ui/payments/mo-natural-resources/596/
- New General Domestic WW: https://magic.collectorsolutions.com/magic-ui/payments/mo-natural-resources/772/

15. 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 submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

<table>
<thead>
<tr>
<th>NAME (TYPE OR PRINT)</th>
<th>OFFICIAL TITLE</th>
<th>TELEPHONE NUMBER WITH AREA CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Richard D Higgins</td>
<td>Director of Operations</td>
<td>636-447-4944</td>
</tr>
</tbody>
</table>

SIGNATURE: Rick Higgins

DATE SIGNED: 12-10-2019
INSTRUCTIONS FOR COMPLETING FORM B: APPLICATION FOR OPERATING PERMIT FOR FACILITIES THAT RECEIVE PRIMARILY DOMESTIC WASTE AND HAVE A DESIGN FLOW LESS THAN OR EQUAL TO 100,000 GALLONS PER DAY
(Facilities over 100,000 gallons per day of domestic waste must use FORM B2)
(Facilities that receive wastes other than domestic contact the department)

1. Check the appropriate box. Do not check more than one item. Operating permit refers to a permit issued by the Department of Natural Resources' Water Protection Program. If an Antidegradation Review has not been conducted, submit the application located at the following link to the Missouri Department of Natural Resources, Water Protection Program, P.O. Box 176, Jefferson City, MO 65102: dnr.mo.gov/forms/780-1693-f.pdf.

1.1 Fees Information:

DOMESTIC OPERATING PERMIT FEES – PRIVATE

<table>
<thead>
<tr>
<th>Annual fee/Design flow</th>
<th>Annual fee/Design flow</th>
<th>Annual fee/Design flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>$150</td>
<td>$1,000-----------------</td>
<td>$4,000-----------------</td>
</tr>
<tr>
<td>≤5,000 gpd</td>
<td>15,000–24,999 gpd</td>
<td>100,000–249,999 gpd</td>
</tr>
<tr>
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<tr>
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<td>25,000–29,999 gpd</td>
<td>≥250,000</td>
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<tr>
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<td>30,000–99,999 gpd</td>
</tr>
<tr>
<td>10,000–14,999 gpd</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

New domestic wastewater treatment facilities must submit the annual fee with the original application.

If the application is for a site-specific permit re-issuance, send no fees. You will be invoiced separately by the department on the anniversary date of the original permit. Permit fees must be current for the department to reissue the operating permit. Late fees of two percent per month are charged and added to outstanding annual fees.

PUBLIC SEWER SYSTEM OPERATING PERMIT FEES (city, public sewer district, public water district, or other publicly owned treatment works). Annual fee is based on number of service connections. Fees listings are found in 10 CSR 20-6.011 which is available at http://s1.sos.mo.gov/cmsimages/adrules/csr/current/10csr/10csp-20-6.pdf. New public sewer system facilities should not submit any fee as the department will invoice the permittee.

OPERATING PERMIT MODIFICATIONS, including transfers, are subject to the following fees:

a. Publicly Owned Treatment Works (POTWs) - $200 each.

b. Non-POTWs – $100 each for a minor modification (name changes, address changes, other non-substantive changes) or a fee equal to 25% of the facility's annual operating fee for a major modification.

2. Name of Facility – Include the name by which this facility is locally known. Example: Southwest Sewage Treatment Plant, Country Club Mobile Home Park, etc. Provide the street address or location of the facility. If the facility lacks a street name or route number, provide the names of the closest intersection, highway, country road, etc.

2.1 Self-explanatory

2.2 Global Positioning System, or GPS, is a satellite-based navigation system. The department prefers that a GPS receiver is used at the outfall pipe and the displayed coordinates submitted. If access to a GPS receiver is not available, use a mapping system to approximate the coordinates; the department's mapping system is available at https://www mo drn maps.arcgis.com/apps/webappviewer/index.html?id=1d81212e0854478ca0dae87c33c865ca.

2.3-2.4 Self-explanatory

3. Owner – Provide the legal name, mailing address, phone number, and email address of the owner. The owner identified in this section and subsequently reflected on the certificate page of the operating permit, is the owner of the regulated activity/discharge being applied for and is not necessarily the owner of the real property on which the activity or discharge is occurring. Prior to submitting a permit to public notice, the Department of Natural Resources shall provide the permit applicant 10 days to review the draft permit for nonsubstantive drafting errors. In the interest of expediting permit issuance, permit applicants may waive the option to review draft permits prior to public notice.

3.2-3.4 Self-explanatory. The Financial Questionnaire is available at: https://dnr.mo.gov/forms/780-2511-f.pdf

4. Continuing Authority - A continuing authority is a company, business, entity or person(s) that will be operating the facility and/or ensuring compliance with the permit requirements. A continuing authority is not, however, an entity or individual that is contrarily hired by the permitting to sample or operate and maintain the system for a defined time period, such as a certified operator or analytical laboratory. To access the regulatory requirement regarding continuing authority, 10 CSR 20-6.010(2), please visit https://s1.sos.mo.gov/cmsimages/adrules/csr/current/10csr/10csp-20-5.pdf. If the continuing authority is not an individual(s), government, or otherwise required to register with the Missouri Secretary of State (SoS), then the business name must be listed exactly as it appears on the SoS's webpage: https://bsd.sos.mo.gov/BusinessEntity/BESearch.aspx?SearchType=0

5. Operator – Provide the name, certificate number, title, mailing address, primary phone number, and e-mail address of the operator of the facility

6. Provide the name, title, mailing address, primary phone number, and e-mail address of a person who is thoroughly familiar with the operation of the facility and with the facts reported in this application and who can be contacted by the department.
7.2 A topographic map is available on the Web at https://modnr.maps.arcgis.com/apps/webappviewer/index.html?id=1d81212e0854478ca0dae87c33c865ce or from the Department of Natural Resources' Geological Survey Division in Rolla at 573-368-2125.

8.1 For Standard Industrial Codes visit www.osha.gov/pls/imis/sicsearch.html or contact the Department of Natural Resources' Water Protection Program. For example, a family style restaurant has a Facility SIC code of 5812.

8.2-8.7 Self-explanatory.

8.8 If wastewater is land applied submit for Form I: www.dnr.mo.gov/forms/780-1686-f.pdf.

8.9-8.10 Self-explanatory
INSTRUCTIONS FOR COMPLETING FORM B: APPLICATION FOR OPERATING PERMIT FOR FACILITIES
THAT RECEIVE PRIMARILY DOMESTIC WASTE AND HAVE A DESIGN FLOW
LESS THAN OR EQUAL TO 100,000 GALLONS PER DAY (continued)

10.1 Self-explanatory.
10.2 Self-explanatory.
10.3 If inflow and infiltration (I&I) is a problem at the facility, list possible actions to be taken to repair the collection and treatment facility.
11. Include overflows of combined sewers and lift stations or bypassing of the wastewater treatment facility. Provide a detailed description of the circumstances that sewage bypassing occurs and the frequency of occurrence.
12.1-12.8 Self-explanatory.
13. Electronic Discharge Monitoring Report (eDMR) Submission System – Visit the eDMR site at https://dnr.mo.gov/env/wpp/edmr.htm and click on the "Facility Participation Package" link. The eDMR Permit Holder and Certifier Registration Form and Information about the eDMR system can be found in the Facility Participation Package. Waivers to electronic reporting may be granted by the Department per 40 CFR 127.15 under certain, special circumstances. A written request must be submitted to the Department for approval. Waivers may be granted to facilities owned or operated by:
a. members of religious communities that choose not to use certain technologies or
b. permittees located in areas with limited broadband access. The National Telecommunications and Information Administration (NTIA) in collaboration with the Federal Communications Commission (FCC) have created a broadband internet availability map: https://broadbandmap.fcc.gov/#/. Please contact the Department if you need assistance.
14. JETPAY
Applicants can pay fees online by credit card or eCheck through a system called JetPay.
a. Per Section 37.001, RSMo, a transaction fee will be included. The transaction fee is paid to the third party vendor JetPay, not the Department of Natural Resources.
b. Be sure to select the correct fee type and corresponding URL to ensure your payment is applied appropriately. If you are unsure what type of fee to pay, please contact the Water Protection Program's Budget, Fees, and Grants Management Unit by phone at (573) 522-1485 for assistance.
c. Upon successful completion of your payment, JetPay provides a payment confirmation. Submit this form with a copy of the payment confirmation if requesting a new permit or a permit modification. For permit renewals of active permits, the Department will invoice fees annually in a separate request.
d. If you are unable to make your payment online, but want to pay with credit card, you may email your name, phone number, and invoice number, if applicable, to WPPFees@dnr.mo.gov. The Budget, Fees, and Grants Management Unit will contact you to assist with the credit card payment. Please do not include your credit card information in the email.
e. Applicants can find fee rates in 10 CSR 20-6.011 (https://dnr.mo.gov/pubs/pub2564.htm).
15. CERTIFICATION
Signature - All applications must be signed as follows and the signatures must be original:
a. For a corporation, by an officer having responsibility for the overall operation of the regulated facility or activity or for environmental matters.
b. For a partnership or sole proprietorship, by a general partner or the proprietor.
c. For a municipal, state, federal or other public facility, by either a principal executive officer or by an individual having overall responsibility for environmental matters at the facility.

Submittal of an incomplete application may result in the application being returned.

This completed form and any attachments along with the applicable permit fees, should be submitted to:

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

Map of regional offices with addresses and phone numbers are available on the Web at https://dnr.mo.gov/regions/. If there are any questions concerning this form, contact the appropriate regional office or the Department of Natural Resources, Water Protection Program, Operating Permits Section at 800-361-4827 or 573-522-4502.