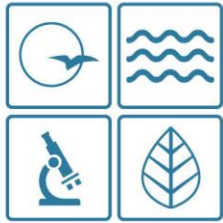


Addendum #3 RFQ 2024-014 Central Plant Design Build

Diffuser information-it is from SSI(Haynes) tube and retrieval is lifting winch.

Central Design/Build Info meeting

| Printed Company Name | Name | Email | Phone # |
|-----------------------------|---------------------|--------------------------------|--------------------------------------|
| CMT | Hayley Wright | hwright@cmtengr.com | 402-360-8356 816-272-8356 |
| CMT | Julie Jensen | jjensen@cmtengr.com | 816-272-8318 |
| GOODWIN BROTHERS | MAT HARPER | MHARPER@GOODWINBROS.COM | 816-560-1139 |
| HDR | Jessica Adams-Weber | jessica.adams-weber@hdrinc.com | 816-805-9608 |
| R/H/C | KELLAN COMTE | KCOMTE@ROBINSONIHC.COM | 573-517-5152 |
| R/H/C | NICHOLE MITCHELL | nmitchell@RCCO.COM | 573-517-5159 |
| HDR | LISA O'DELL | Lisa.odell@hdrinc.com | 816-854-0257 |
| Radmacher Bros | Willie Cammisano | williec@RBE.miderst.com | 816-865-1528 |
| OLSSON | Brooke Hudlemeyer | bhudlemeyer@olsson.com | 816-442-6005 |
| BURNS & MCDONNELL | Cliff Cate | ckcate@burnsmed.com | 816-823-7628 |
| Engineering Surveys & Svcs. | John Frerking | jfrerking@ess-inc.com | (816) 916-2896 |
| MMC Contractors | Dayton Snyder | dsnyder@mmcontractors.com | 620-768-9727 |
| MMC CONTRACTORS | WES CHAMBERS | WCHAMBERS@MMCCONTRACTORS.COM | 1-816-469-5300 |
| Enviro-Line | MARK MAYER | MARK.MAYER@ENVIRO-LINE.COM | |
| Jaeger Aviation | MARK MAYER | MARK.MAYER@JAEGER-AVIATION.COM | 816-863-6313 |
| Hornor & Shiprin | Sean Mickey | smickey@hornorshiprin.com | 314-335-8667 |



MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

Michael L. Parson
Governor

Dru Buntin
Director

November 8, 2023

City of Sedalia
200 South Osage Avenue
Sedalia, MO 65301

Dear Permittee:

Pursuant to the Federal Water Pollution Control Act, under the authority granted to the State of Missouri and in compliance with the Missouri Clean Water Law, we have issued and are enclosing your State Operating Permit to discharge from Sedalia North WWTP.

Please read your permit and enclosed Standard Conditions. They contain important information on monitoring requirements, effluent limitations, sampling frequencies and reporting requirements.

Monitoring reports required by the special conditions must be submitted on a periodic basis via the Missouri Department of Natural Resources' electronic Discharge Monitoring Report (eDMR) system unless waived, or can be submitted on the enclosed forms if you are subject to an eDMR registration schedule as established in the permit. Upon registration, please access the eDMR system via the following link: [Missouri Gateway for Environmental Management \(MoGEM\) | Missouri Department of Natural Resources](#). If you experience difficulties with using the eDMR system, you may contact edmr@dnr.mo.gov or call 855-789-3889 or 573-526-2082 for assistance.

This permit may include requirements with which you may not be familiar. If you would like the Department to meet with you to discuss how to satisfy the permit requirements, an appointment can be set up by contacting the Northeast Regional Office by phone at 660-385-8000, by email at NERO@dnr.mo.gov, or by mail at 1709 Prospect Drive, Macon, MO 63552-2602. These visits are called Compliance Assistance Visits and focus on explaining the requirements to the permit holder.

This permit is both your Federal National Pollutant Discharge Elimination System Permit and your new Missouri State Operating Permit and replaces all previous State Operating Permits issued for this facility under this permit number. In all future correspondence regarding this facility, please refer to your State Operating Permit number and facility name as shown on page one of the permit.



If you were adversely affected by this decision, you may be entitled to an appeal before the Administrative Hearing Commission (AHC) pursuant to Section 621.250, RSMo. To appeal, you must file a petition with the AHC within 30 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. Contact information for the AHC is: Administrative Hearing Commission, United States Post Office Building, Third Floor, 131 West High Street, P.O. Box 1557, Jefferson City, MO 65102, phone: 573-751-2422, fax: 573-751-5018, and website: www.ao.mo.gov/ahc.

Please be aware that this facility may also be subject to any applicable county or other local ordinances or restrictions.

If you have any questions concerning this permit, please do not hesitate to contact the Department's Water Protection Program at P.O. Box 176, Jefferson City, MO 65102, or by phone at 573-751-1300. Thank you.

Sincerely,

WATER PROTECTION PROGRAM



John Hoke
Director

JH/vs

Enclosure

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



MISSOURI STATE OPERATING PERMIT

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

Permit No.: MO-0023027

Owner: City of Sedalia
Address: 200 S. Osage Avenue, Sedalia, MO 65301

Continuing Authority: Same as above
Address: Same as above

Facility Name: Sedalia North WWTP
Facility Address: 23985 Georgetown Road, Sedalia, MO 65301

Legal Description: See Page 2
UTM Coordinates: See Page 2

Receiving Stream: See Page 2
First Classified Stream and ID: See Page 2
USGS Basin & Sub-watershed No.: See Page 2

authorizes activities pursuant to the terms and conditions of this permit in accordance with the Missouri Clean Water Law and/or the National Pollutant Discharge Elimination System; it does not apply to other regulated activities.

FACILITY DESCRIPTION

See Page 2

November 1, 2023
Effective Date

October 31, 2028
Expiration Date



John Hoke, Director, Water Protection Program

FACILITY DESCRIPTION (continued):

Outfall #001 – POTW

The use or operation of this facility shall be by or under the supervision of a Certified “A” Operator.

Trash grinder / manual bar screen / aerated grit chamber / flow equalization basin / 2 primary clarifiers / 2 high rate trickling filters / 1 final clarifier / defoamer / 4 sludge drying beds / 2 anaerobic digesters / sludge belt press / biosolids are land applied or are composted.

Design population equivalent is 25,000.

Design flow is 2.5 million gallons per day.

Actual flow is 1.2 million gallons per day.

Design sludge production is 2,016 dry tons/year.

| | |
|---------------------------------|------------------------------------|
| Legal Description: | Sec. 28, T46N, R21W, Pettis County |
| UTM Coordinates: | X=479120, Y=4286815 |
| Receiving Stream: | Sewer Branch (C) |
| First Classified Stream and ID: | Sewer Branch (C) (860) |
| USGS Basin & Sub-watershed No.: | (10300103-0406) |

Outfall #002 – Discharge from this outfall is no longer authorized, and shall be subject to 40 CFR 122.41(m) and reported according to 40 CFR 122.41(m)(3)(i) & (ii).

Permitted Feature INF – Influent Monitoring Location – Headworks

| | |
|--------------------|------------------------------------|
| Legal Description: | Sec. 28, T46N, R21W, Pettis County |
| UTM Coordinates: | X=479125, Y=4286630 |

Permitted Feature SM1 – Instream Monitoring – Downstream (~0.3 miles) – bridge over Sewer Branch on Georgetown Road – See Special Condition #20.

| | |
|--------------------|------------------------------------|
| Legal Description: | Sec. 28, T46N, R21W, Pettis County |
| UTM Coordinates: | X=479199, Y=4287181 |

| OUTFALL #001 | TABLE A-1. INTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS | | | | | |
|--|--|------------------------------|----------------|-----------------|-------------------------|--------------|
| | The permittee is authorized to discharge from outfall number(s) as specified in the application for this permit. In accordance with 10 CSR 20-7.031, the final effluent limitations outlined in Table A-2 must be achieved as soon as possible but no later than April 1, 2029 . These interim effluent limitations in Table A-1 are effective beginning November 1, 2023 and remain in effect through March 31, 2029 or as soon as possible. Such discharges shall be controlled, limited and monitored by the permittee as specified below: | | | | | |
| EFFLUENT PARAMETER(S) | UNITS | INTERIM EFFLUENT LIMITATIONS | | | MONITORING REQUIREMENTS | |
| | | DAILY MAXIMUM | WEEKLY AVERAGE | MONTHLY AVERAGE | MEASUREMENT FREQUENCY | SAMPLE TYPE |
| eDMR Limit Set: M | | | | | | |
| Flow | MGD | * | | * | once/weekday*** | 24 hr. total |
| Biochemical Oxygen Demand ₅ | mg/L | | 45 | 30 | once/week | composite** |
| Total Suspended Solids | mg/L | | 45 | 30 | once/week | composite** |
| Ammonia as N (January) | mg/L | 12.1 | | 3.1 | once/week | composite** |
| Ammonia as N (February) | mg/L | 10.1 | | 2.9 | once/week | composite** |
| Ammonia as N (March) | mg/L | 10.1 | | 2.9 | once/week | composite** |
| Ammonia as N (April) | mg/L | 10.1 | | 2.3 | once/week | composite** |
| Ammonia as N (May) | mg/L | 12.1 | | 2.2 | once/week | composite** |
| Ammonia as N (June) | mg/L | 12.1 | | 2.2 | once/week | composite** |
| Ammonia as N (July) | mg/L | 10.1 | | 2.2 | once/week | composite** |
| Ammonia as N (August) | mg/L | 12.1 | | 2.2 | once/week | composite** |
| Ammonia as N (September) | mg/L | 12.1 | | 2.2 | once/week | composite** |
| Ammonia as N (October) | mg/L | 12.1 | | 2.9 | once/week | composite** |
| Ammonia as N (November) | mg/L | 12.1 | | 3.1 | once/week | composite** |
| Ammonia as N (December) | mg/L | 10.1 | | 2.9 | once/week | composite** |
| Oil & Grease | mg/L | 15 | | 10 | once/month | grab |
| Total Phosphorus | mg/L | * | | * | once/month | composite** |
| Total Kjeldahl Nitrogen | mg/L | * | | * | once/month | calculated |
| Nitrite + Nitrate | mg/L | * | | * | once/month | composite** |
| Total Nitrogen (Note 1, Page 4) | mg/L | * | | * | once/month | calculated |
| Cadmium, Total Recoverable | µg/L | 3.3 | | 1.0 | once/month | composite** |
| Copper, Total Recoverable | µg/L | 45.1 | | 22.9 | once/month | composite** |

MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**; THE FIRST REPORT IS DUE **DECEMBER 28, 2023**.

* Monitoring requirement only.

** A 24-hour composite sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.

*** Once each weekday means: Monday, Tuesday, Wednesday, Thursday, and Friday.

| OUTFALL #001 | TABLE A-1. (Continued) INTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS | | | | | |
|---|--|------------------------------|-------------------------|-----------------------|-------------------------|-------------|
| | The permittee is authorized to discharge from outfall number(s) as specified in the application for this permit. In accordance with 10 CSR 20-7.031, the final effluent limitations outlined in Table A-2 must be achieved as soon as possible but no later than April 1, 2029 . These interim effluent limitations in Table A-1 are effective beginning November 1, 2023 and remain in effect through March 31, 2029 or as soon as possible. Such discharges shall be controlled, limited and monitored by the permittee as specified below: | | | | | |
| EFFLUENT PARAMETER(S) | UNITS | INTERIM EFFLUENT LIMITATIONS | | | MONITORING REQUIREMENTS | |
| | | MINIMUM | | MAXIMUM | MEASUREMENT FREQUENCY | SAMPLE TYPE |
| eDMR Limit Set: M | | | | | | |
| pH – Units**** | SU | 6.5 | | 9.0 | once/week | grab |
| EFFLUENT PARAMETER(S) | | UNITS | MONTHLY AVERAGE MINIMUM | MEASUREMENT FREQUENCY | SAMPLE TYPE | |
| Biochemical Oxygen Demand ₅ – Percent Removal (Note 2) | | % | 65 | once/month | calculated | |
| Total Suspended Solids – Percent Removal (Note 2) | | % | 65 | once/month | calculated | |
| MONITORING REPORTS SHALL BE SUBMITTED MONTHLY ; THE FIRST REPORT IS DUE DECEMBER 28, 2023 . | | | | | | |

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

Note 1 – Total Nitrogen consists of Total Kjeldahl Nitrogen and Nitrate + Nitrite.

Note 2 – Influent sampling for BOD₅ 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: [(Average Influent – Average Effluent) / Average Influent] x 100% = Percent Removal. Influent and effluent samples are to be taken during the same month. The Average Influent and Average Effluent values are to be calculated by adding the respective values together and dividing by the number of samples taken during the month. Influent samples are to be collected as a 24-hour composite sample, composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.

| | |
|-------------------------|--|
| OUTFALL #001 | TABLE A-2. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS |
|-------------------------|--|

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-2** shall become effective on **April 1, 2029**. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

| EFFLUENT PARAMETER(S) | UNITS | FINAL EFFLUENT LIMITATIONS | | | MONITORING REQUIREMENTS | |
|--|---------|----------------------------|----------------|-----------------|-------------------------|--------------|
| | | DAILY MAXIMUM | WEEKLY AVERAGE | MONTHLY AVERAGE | MEASUREMENT FREQUENCY | SAMPLE TYPE |
| eDMR Limit Set: M | | | | | | |
| Flow | MGD | * | | * | once/weekday*** | 24 hr. total |
| Biochemical Oxygen Demand ₅ | mg/L | | 45 | 30 | once/week | composite** |
| Total Suspended Solids | mg/L | | 45 | 30 | once/week | composite** |
| <i>E. coli</i> (Note 3, Page 6) | #/100mL | | 1,030 | 206 | once/week | grab |
| Ammonia as N (January) | mg/L | 12.1 | | 3.1 | once/week | composite** |
| Ammonia as N (February) | mg/L | 10.1 | | 2.7 | once/week | composite** |
| Ammonia as N (March) | mg/L | 10.1 | | 2.7 | once/week | composite** |
| Ammonia as N (April) | mg/L | 10.1 | | 2.3 | once/week | composite** |
| Ammonia as N (May) | mg/L | 12.1 | | 1.9 | once/week | composite** |
| Ammonia as N (June) | mg/L | 12.1 | | 1.5 | once/week | composite** |
| Ammonia as N (July) | mg/L | 10.1 | | 1.1 | once/week | composite** |
| Ammonia as N (August) | mg/L | 12.1 | | 1.3 | once/week | composite** |
| Ammonia as N (September) | mg/L | 12.1 | | 1.7 | once/week | composite** |
| Ammonia as N (October) | mg/L | 12.1 | | 2.6 | once/week | composite** |
| Ammonia as N (November) | mg/L | 12.1 | | 3.1 | once/week | composite** |
| Ammonia as N (December) | mg/L | 10.1 | | 2.7 | once/week | composite** |
| Oil & Grease | mg/L | 15 | | 10 | once/month | grab |
| Total Phosphorus | mg/L | * | | * | once/month | composite** |
| Total Kjeldahl Nitrogen | mg/L | * | | * | once/month | calculated |
| Nitrite + Nitrate | mg/L | * | | * | once/month | composite** |
| Total Nitrogen (Note 1, Page 6) | mg/L | * | | * | once/month | calculated |
| Cadmium, Total Recoverable | µg/L | 3.3 | | 1.0 | once/month | composite** |
| Copper, Total Recoverable | µg/L | 45.1 | | 22.9 | once/month | composite** |

MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**; THE FIRST REPORT IS DUE **MAY 28, 2029**.

* Monitoring requirement only.

** A 24-hour composite sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.

*** Once each weekday means: Monday, Tuesday, Wednesday, Thursday, and Friday.

| EFFLUENT PARAMETER(S) | UNITS | FINAL EFFLUENT LIMITATIONS | | MONITORING REQUIREMENTS | | |
|--|-------|----------------------------|-------------------------|-------------------------|-------------|--|
| | | MINIMUM | MAXIMUM | MEASUREMENT FREQUENCY | SAMPLE TYPE | |
| OUTFALL #001 | | | | | | |
| TABLE A-2. (Continued) | | | | | | |
| FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS | | | | | | |
| 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-2 shall become effective on April 1, 2029 . Such discharges shall be controlled, limited and monitored by the permittee as specified below: | | | | | | |
| eDMR Limit Set: M | | | | | | |
| pH – Units**** | SU | 6.5 | 9.0 | once/week | grab | |
| EFFLUENT PARAMETER(S) | | UNITS | MONTHLY AVERAGE MINIMUM | MEASUREMENT FREQUENCY | SAMPLE TYPE | |
| Biochemical Oxygen Demand ₅ – Percent Removal (Note 2) | | % | 65 | once/month | calculated | |
| Total Suspended Solids – Percent Removal (Note 2) | | % | 65 | once/month | calculated | |
| MONITORING REPORTS SHALL BE SUBMITTED MONTHLY ; THE FIRST REPORT IS DUE MAY 28, 2029 . | | | | | | |

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

Note 1 – Total Nitrogen consists of Total Kjeldahl Nitrogen and Nitrate + Nitrite.

Note 2 – Influent sampling for BOD₅ and TSS is not required during periods of land application when the facility does not discharge effluent. Samples are to be collected prior to any treatment process. Calculate Percent Removal by using the following formula: $[(\text{Average Influent} - \text{Average Effluent}) / \text{Average Influent}] \times 100\% = \text{Percent Removal}$. Influent and effluent samples are to be taken during the same month. The Average Influent and Average Effluent values are to be calculated by adding the respective values together and dividing by the number of samples taken during the month. Influent samples are to be collected as a 24-hour composite sample, composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.

Note 3 – 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).

| OUTFALL #001 | TABLE A-3. WHOLE EFFLUENT TOXICITY FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS | | | | | | |
|--|--|-------|----------------------------|-----------------|-----------------------|-------------------------|--|
| | 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-3 shall become effective on November 1, 2023 and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below: | | | | | | |
| | EFFLUENT PARAMETER(S) | UNITS | FINAL EFFLUENT LIMITATIONS | | | MONITORING REQUIREMENTS | |
| DAILY MAXIMUM | | | WEEKLY AVERAGE | MONTHLY AVERAGE | MEASUREMENT FREQUENCY | SAMPLE TYPE | |
| eDMR Limit Set: WC | | | | | | | |
| Chronic Whole Effluent Toxicity (Note 4) | TU _c | * | | | once/permit cycle | composite** | |
| CHRONIC WET TEST REPORTS SHALL BE SUBMITTED ONCE PER PERMIT CYCLE ; THE FIRST REPORT IS DUE MAY 28, 2024 . | | | | | | | |

* Monitoring requirement only.

** A 24-hour composite sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.

Note 4 – The Chronic WET test shall be conducted once per permit cycle during the year 2024. See Special Condition #16 for additional requirements.

| PERMITTED FEATURE INF | TABLE B-1. INFLUENT MONITORING REQUIREMENTS | | | | | | |
|---|--|-------|-------------------------|-----------------|-----------------------|-------------|-------------|
| | The monitoring requirements in Table B-1 shall become effective on November 1, 2023 and remain in effect until expiration of the permit. The influent wastewater shall be monitored by the permittee as specified below: | | | | | | |
| | PARAMETER(S) | UNITS | MONITORING REQUIREMENTS | | | | SAMPLE TYPE |
| DAILY MAXIMUM | | | WEEKLY AVERAGE | MONTHLY AVERAGE | MEASUREMENT FREQUENCY | | |
| eDMR Limit Set: IM | | | | | | | |
| Biochemical Oxygen Demand ₅ (Note 2) | mg/L | | | * | once/month | composite** | |
| Total Suspended Solids (Note 2) | mg/L | | | * | once/week | composite** | |
| Ammonia as N | mg/L | * | | * | once/month | composite** | |
| Total Phosphorus | mg/L | * | | * | once/month | composite** | |
| Total Kjeldahl Nitrogen | mg/L | * | | * | once/month | calculated | |
| Nitrite + Nitrate | mg/L | * | | * | once/month | composite** | |
| MONITORING REPORTS SHALL BE SUBMITTED MONTHLY ; THE FIRST REPORT IS DUE DECEMBER 28, 2023 . | | | | | | | |

* Monitoring requirement only.

** A 24-hour composite sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.

Note 2 – Influent sampling for BOD₅ and TSS is not required during periods of land application when the facility does not discharge effluent. Samples are to be collected prior to any treatment process. Calculate Percent Removal by using the following formula: $[(\text{Average Influent} - \text{Average Effluent}) / \text{Average Influent}] \times 100\% = \text{Percent Removal}$. Influent and effluent samples are to be taken during the same month. The Average Influent and Average Effluent values are to be calculated by adding the respective values together and dividing by the number of samples taken during the month. Influent samples are to be collected as a 24-hour composite sample, composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.

| PERMITTED FEATURE <u>SM1</u> | TABLE C-1. INSTREAM MONITORING REQUIREMENTS | | | | | |
|--|---|-------------------------|--|-----------------|-----------------------|-------------|
| | The monitoring requirements in Table C-1 shall become effective on November 1, 2023 and remain in effect until expiration of the permit. The stream shall be monitored by the permittee as specified below: | | | | | |
| PARAMETER(S) | UNITS | MONITORING REQUIREMENTS | | | | |
| | | DAILY MAXIMUM | | MONTHLY AVERAGE | MEASUREMENT FREQUENCY | SAMPLE TYPE |
| eDMR Limit Set: DM | | | | | | |
| Hardness, Total | mg/L | * | | * | once/quarter ***** | grab |
| MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY ; THE FIRST REPORT IS DUE JANUARY 28, 2024 . | | | | | | |

* Monitoring requirement only.

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

| Quarterly Minimum Sampling Requirements | | | |
|---|-----------------------------|--|--------------------------|
| Quarter | Months | Hardness | Report is Due |
| First | January, February, March | Sample at least once during any month of the quarter | April 28 th |
| Second | April, May, June | Sample at least once during any month of the quarter | July 28 th |
| Third | July, August, September | Sample at least once during any month of the quarter | October 28 th |
| Fourth | October, November, December | Sample at least once during any month of the quarter | January 28 th |

D. SCHEDULE OF COMPLIANCE

Ammonia and *E.coli*

The facility shall attain compliance with final effluent limitations for Ammonia and *E. coli* as soon as possible but in no case later than **April 1, 2029**.

1. The permittee shall submit interim progress reports detailing progress made in attaining compliance with the final effluent limits every 12 months from the effective date of this permit.
2. By **April 1, 2029**, the permittee shall attain compliance with the final effluent limits for Ammonia and *E. coli*.

Please submit progress reports to the Missouri Department of Natural Resources via the Electronic Discharge Monitoring Report (eDMR) Submission System.

E. 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. Annual reports required per Standard Conditions Part III Section K shall be submitted online to the Department via the Department's eDMR system as an attachment. This supersedes Standard Conditions Part III Section K #4. EPA reports shall continue to be submitted online via the Central Data Exchange system.

F. 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. All reports uploaded into the system shall be reasonably named so they are easily identifiable, such as "WET Test Chronic Outfall 002 Jan 2023," or "Outfall 004 Daily Data Mar 2025."
 - (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>. 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>. 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>. If you experience difficulties with using the eDMR system you may contact edmr@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>. 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. This does not include instream monitoring locations.
 4. Report as no-discharge when a discharge does not occur during the report period. For instream samples, report as “C – No Discharge” if no stream flow occurs 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) See sufficiently sensitive test method requirements in Standard Conditions Part I, Section A, No. 4 regarding proper testing and method minimum levels used for sample analysis.
 - (c) The permittee shall not report a sample result as “Non-Detect” without also reporting the method minimum level of the test. Reporting as “Non Detect” without also including the method minimum level, will be considered failure to report, which is a violation of this permit.
 - (d) The permittee shall provide the “Non-Detect” sample result using the less than symbol and the method minimum level (e.g., <50 µg/L, if the method minimum level for the parameter is 50 µg/L).
 - (e) Where the permit contains a Department determined Minimum Quantification 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.
 - (f) For the daily maximum, the facility shall report the highest value. If the highest value was a non-detect, use the less than “<” symbol and the laboratory’s highest method minimum level.
 - (g) For reporting an average based on all non-detected values, remove the “<” sign from the values, average the values, and then add the “<” symbol back to the resulting average.
 - (h) For reporting an average based on a mix of detected and non-detected values (not including *E. coli*), assign a value of “0” for all non-detects for that reporting period and report the average of all the results.
 - (i) When *E. coli* is not detected above the method minimum level, the permittee must report the data qualifier signifying less than detection limit for that parameter (e.g., <1 #/100mL, if the method minimum level is 1 #/100mL). For reporting a geometric mean based on a mix of detected and non-detected values, use one-half of the detection limit (instead of zero) for non-detects when calculating geometric means.
 - (j) See the Fact Sheet Appendix - Non-Detect Example Calculations for further guidance.
 6. It is a violation of the Missouri Clean Water Law to fail to pay fees associated with this permit (644.055 RSMo).
 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 continue to implement and update if necessary, the 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>. This program shall cover the collection systems serving the City of Sedalia's permitted wastewater treatment plants.

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 City of Sedalia's permitted wastewater treatment plants for the previous year.
 - (b) A summary of the general maintenance and repairs to the collection system serving the City of Sedalia's permitted wastewater treatment plants for the previous year.
 - (c) A summary of any planned maintenance and repairs to the collection system serving the City of Sedalia's permitted wastewater treatment plants 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 Northeast 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 ensure 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.
 14. The flow equalization basin shall be operated and maintained to ensure its structural integrity, which includes maintaining adequate freeboard and keeping the berms free of deep-rooted vegetation, animal dens, or other potential sources of damage.
 15. The facility shall ensure that adequate provisions are provided to prevent or minimize surface water intrusion into the flow equalization basin and to divert stormwater runoff around the flow equalization basin and protect embankments from erosion.
 16. Chronic Whole Effluent Toxicity (WET) tests shall be conducted as follows:
 - (a) Freshwater Species and Test Methods: Species and short-term test methods for estimating the chronic toxicity of NPDES effluents are found in the most recent edition of *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* (EPA/821/R-02/013; Table IA, 40 CFR Part 136). The permittee shall concurrently conduct 7-day, static renewal toxicity tests with the following species:
 - i. The fathead minnow, *Pimephales promelas* (Survival and Growth Test Method 1000.0).
 - ii. The daphnid, *Ceriodaphnia dubia* (Survival and Reproduction Test Method 1002.0).

- (b) Chemical and physical analysis of the upstream control sample and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping. Where upstream receiving water is not available or known to be toxic, other approved control water may be used.
- (c) Test conditions must meet all test acceptability criteria required by the EPA Method used in the analysis.
- (d) The laboratory shall not chemically dechlorinate the sample.
- (e) The Allowable Effluent Concentration (AEC) is 100%, the dilution series is: 100%, 50%, 25%, 12.5%, and 6.25%.
- (f) All chemical and physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% effluent concentration.
- (g) The facility must submit a full laboratory report for all toxicity testing. The report must include a quantification of chronic toxic units ($TU_c = 100/IC_{25}$) reported according to the *Methods for Measuring the Chronic Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* chapter on report preparation and test review. The 25 percent Inhibition Effect Concentration (IC_{25}) is the toxic or effluent concentration that would cause 25 percent reduction in mean young per female or in growth for the test populations.

17. Stormwater Pollution Prevention Plan (SWPPP): A SWPPP must be implemented upon permit issuance. Through implementation of the SWPPP, the permittee shall minimize the release of pollutants in stormwater from the facility to the waters of the state. The SWPPP shall be developed in consultation with the concepts and methods described in the following document: Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators, (Document number EPA 833-B-09-002) published by the United States Environmental Protection Agency (USEPA) in June 2015.
- (a) The SWPPP must identify any stormwater outfall from the facility and Best Management Practices (BMPs) used to prevent or reduce the discharge of contaminants in stormwater. The stormwater outfalls shall either be marked in the field or clearly marked on a map and maintained with the SWPPP.
 - (b) The SWPPP must include a schedule and procedures for a once per month routine site inspection.
 - (1) The monthly routine inspection shall be documented in a brief written report, which shall include:
 - i. The person(s) conducting the inspection.
 - ii. The inspection date and time.
 - iii. Weather information for the day of the inspection.
 - iv. Precipitation information for the entire period since the last inspection.
 - v. Description of the discharges observed, including visual quality of the discharges (sheen, turbid, etc.).
 - vi. Condition of BMPs
 - vii. If BMPs were replaced or repaired.
 - viii. Observations and evaluations of BMP effectiveness.
 - (2) Any deficiency observed during the routine inspection must be corrected within seven (7) days and the actions taken to correct the deficiencies shall be included with the written report.
 - (3) The routine inspection reports must be kept onsite with the SWPPP and maintained for a period of five (5) years.
 - (4) The routine inspection reports shall be made available to Department personnel upon request.
 - (c) The SWPPP must include a schedule and procedures for a once per year comprehensive site inspection.
 - (1) The annual comprehensive inspection shall be documented in a written report, which shall include:
 - i. The person(s) conducting the inspection.
 - ii. The inspection date and time.
 - iii. Findings from the areas of your facility that were examined;
 - iv. All observations relating to the implementation of your control measures including:
 - 1. Previously unidentified discharges from the site,
 - 2. Previously unidentified pollutants in existing discharges,
 - 3. Evidence of, or the potential for, pollutants entering the drainage system;
 - 4. Evidence of pollutants discharging to receiving waters at all facility outfall(s), and the condition of and around the outfall, and
 - 5. Additional control measures needed to address any conditions requiring corrective action identified during the inspection.
 - v. Any required revisions to the SWPPP resulting from the inspection;
 - vi. Any incidence of noncompliance observed or a certification stating that the facility is in compliance with Special Condition F.17.
 - (2) Any deficiency observed during the comprehensive inspection must be corrected within seven (7) days and the actions taken to correct the deficiencies shall be included with the written report.
 - (3) The comprehensive inspection reports must be kept onsite with the SWPPP and maintained for a period of five (5) years.
 - (4) The comprehensive inspection reports shall be made available to Department personnel upon request.
 - (d) The SWPPP must be kept on-site and should not be sent to the Department unless specifically requested.
 - (e) The SWPPP must be reviewed and updated at a minimum once per permit cycle, as site conditions or control measures change.

18. The permittee shall select, install, use, operate, and maintain the Best Management Practices prescribed in the SWPPP.
- (a) Permittee shall adhere to the following minimum Best Management Practices (BMPs):
- (1) Minimize the exposure of industrial material storage areas, loading and unloading areas, dumpsters and other disposal areas, maintenance activities, and fueling operations to rain, snow, snowmelt, and runoff, by locating industrial materials and activities inside or protecting them with storm resistant coverings, if warranted and practicable.
 - (2) Provide good housekeeping practices on the site to prevent potential pollution sources from coming into contact with stormwater and provide collection facilities and arrange for proper disposal of waste products, including sludge.
 - (3) Implement a maintenance program to ensure that the structural control measures and industrial equipment is kept in good operating condition and to prevent or minimize leaks and other releases of pollutants.
 - (4) Prevent or minimize the spillage or leaks of fluids, oil, grease, fuel, etc. from equipment and vehicle maintenance, equipment and vehicle cleaning, or activities.
 - (5) Provide sediment and erosion control sufficient to prevent or control sediment loss off of the property. This could include the use of straw bales, silt fences, or sediment basins, if needed.
 - (6) Provide stormwater runoff controls to divert, infiltrate, reuse, contain, or otherwise minimize pollutants in the stormwater discharge.
 - (7) Enclose or cover storage piles of salt or piles containing salt, used for deicing or other commercial or industrial purposes.
 - (8) Provide training to all employees who; work in areas where industrial materials or activities are exposed to stormwater, are responsible for stormwater inspections, are members of the Pollution Prevention Team. Training must cover the specific control measures and monitoring, inspection, planning, reporting and documentation requirements of this permit. Training is recommended annually for any applicable staff and whenever a new employee is hired who meets the description above.
 - (9) Eliminate and prevent unauthorized non-stormwater discharges at the facility.
 - (10) Minimize generation of dust and off-site tracking of raw, final, or waste materials by implementing appropriate control measures.
19. Biosolids Composting Requirements for General Public Use:
- (a) Applicability. A sewage sludge compost product will be considered suitable for general public use when the permittee meets the requirements under this permit special condition. General public use means the compost is for crops and vegetation including use in residential areas, public use areas and for horticulture, silviculture and agricultural uses.
- (b) Composting Facility Description.
- (1) Raw materials will consist of dewatered sewage sludge or biosolids, wood chips, yard waste or other compostable materials.
- (c) If the compost is to be distributed to the public it shall meet the Class A requirements for pathogen reduction by having undergone one of the Processes to Further Reduce Pathogens found in Appendix B of 40 CFR 503.
- (d) The permittee will maintain a detailed operations plan for the composting process.
- (e) Information Sheet for Users.
An information/instruction sheet shall be provided to each user of compost to provide information on the origin of the compost, appropriate application rates, and other pertinent information for proper handling and use of the compost.
- (f) Annual Use Rate. Compost that is land applied by the permit holder shall not exceed the most restrictive of the following criteria:
- (1) Application rates shall not exceed the annual plant available nutrient requirements for nitrogen and phosphorus based on the vegetation to be grown, a realistic crop yield goal, soil testing results and testing of the compost for nutrient content.
 - (2) Application rate shall not exceed 20 dry tons per acre per year.
- (g) One Time or Occasional Use Rates.
Compost that is used by the permit holder for soil amendments or land reclamation shall not exceed a total of 200 dry tons per acre on either a one time basis or a cumulative total over a five year period. Subsequent application rates shall not exceed the annual use rate listed above. The compost shall be incorporated into the soil by tillage practices as soon as practical after application.
- (h) Final Compost Monitoring.
Composite samples of the final compost product shall be collected at representative locations and monitored as described in 40 CFR 503 and Standard Conditions Part III.
- (i) Records and Reporting Requirements.
- (1) Time, locations and results shall be recorded for each monitoring requirement and maintained for at least five years. Copies of these records shall be made available to the Department upon request.
 - (2) The total quantity of compost distributed during the year must be recorded.
 - (3) An annual report shall be submitted by February 19th summarizing compost activities monitoring. A copy of the individual laboratory reports and daily records need not be submitted unless requested by the Department. The reports shall be submitted to the Department via eDMR and to the EPA Region VII office as part of the annual sludge report.
- (j) Composted sewage sludge that does not meet the requirements for general public use may still be land applied in accordance with permit Standard Conditions Part III.

20. Receiving Water Monitoring Conditions
- (a) Downstream receiving water samples should be taken at the location specified on Page 2 of this permit. In the event that a safe, accessible location is not present at the location(s) listed, a suitable location can be negotiated with the Department. Samples should be taken at least four feet from the bank or from the middle of the stream (whichever is less) and 6-inches below the surface if possible.
 - (b) When conducting in-stream monitoring, the permittee shall record observations that include: the time of day, weather conditions, unusual stream characteristics (e.g., septic conditions, algae growth, etc.), the stream segment (e.g., riffle, pool or run) from where the sample was collected. These observations shall be submitted with the sample results.
 - (c) Samples shall not be collected from areas with especially turbulent flow, still water or from the stream bank, unless these conditions are representative of the stream reach or no other areas are available for sample collection. Sampling should not be made when significant precipitation has occurred recently. The sampling event should be terminated and rescheduled if any of the following conditions occur:
 - (1) If turbidity in the stream increases notably; or
 - (2) If rainfall over the past two weeks exceeds 2.5 inches or exceeds 1 inch in the last 24 hour.
 - (d) Always use the correct sampling technique and handling procedure specified for the parameter of interest. Please refer to the latest edition of Standard Methods for the Examination of Water and Wastewater for further discussion of proper sampling techniques. All analyses must be conducted in accordance with an approved EPA method. Meters shall be calibrated immediately (within 1 hour) prior to the sampling event.
 - (e) Please contact the Department if you need additional instructions or assistance.
21. **Pretreatment:** The permittee shall implement and enforce its approved pretreatment program in accordance with the requirements of 10 CSR 20-6.100. The approved pretreatment program is hereby incorporated by reference.
- (a) The permittee shall submit to the Department via the Electronic Discharge Monitoring Report (eDMR) Submission System on or before March 31st of each year a report briefly describing its pretreatment activities during the previous calendar year. At a minimum, the report shall include the following:
 - (1) An updated list of the Permittee's Industrial Users, including their names and addresses, or a list of deletions and additions keyed to a previously submitted list. The Permittee shall provide a brief explanation of each deletion. This list shall identify which Industrial Users are subject to categorical pretreatment Standards and specify which Standards are applicable to each Industrial User. The list shall indicate which Industrial Users are subject to local standards that are more stringent than the categorical Pretreatment Standards. The Permittee shall also list the Industrial Users that are subject only to local Requirements;
 - (2) A summary of the status of Industrial User compliance over the reporting period;
 - (3) A summary of compliance and enforcement activities (including inspections) conducted by the Permittee during the reporting period; and
 - (4) Any other relevant information requested by the Department.
 - (b) The permittee shall continue to develop local limits as necessary and effectively enforce such limits, per 40 CFR 403.5(c)(1). The permittee shall submit to the Department a written technical evaluation of the need to revise local limits under 40 CFR 403.5(c)(1) by **May 1, 2024**, pursuant to 40 CFR 122.44(j)(2)(ii). All POTWs are required to use Form 780-2954, Part I, to complete the local limits review under 40 CFR 122.44(j)(2)(ii), and Part II of the form as needed for the detailed reevaluation of local limits. See instructions for both Parts I and II, respectively, for the review and reevaluation. Please contact the Department's pretreatment coordinator for further guidance. Should revision of local limits be deemed necessary, it is recommended that revisions follow the US Environmental Protection Agency's guidance document *Local Limits Development Guidance*. EPA833-R04-002A. July 2004.

G. 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
OF
MO-0023027
SEDALIA NORTH 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: 10/02/2020
Expiration Date: 03/31/2021

Facility Type and Description: POTW - Trash grinder / aerated grit chamber / flow equalization basin / 2 primary clarifiers / 2 high rate trickling filters / 1 final clarifier / defoamer / 2 anaerobic digesters / sludge belt press / biosolids are land applied or are composted

OUTFALL(S) TABLE:

| OUTFALL | DESIGN FLOW (CFS) | TREATMENT LEVEL | EFFLUENT TYPE |
|---------|-------------------|-------------------------|---------------|
| #001 | 3.875 | Equivalent to Secondary | Domestic |

Comments:

Changes in this permit for Outfall #001 include the addition of Total Nitrogen monitoring, the addition of final limits for Total Recoverable Cadmium, the revision of effluent limits for Ammonia and Total Recoverable Copper, the revision of sampling and reporting frequency for Oil & Grease, Total Recoverable Copper, and Total Recoverable Cadmium from quarterly to monthly, and the removal of Chromium VI and the Acute WET test. 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 revision of the inflow and infiltration reporting requirements condition, the revision of the reporting of Non-detects condition, the revision of the bypass reporting requirements condition, the revision to the all-weather access road condition, the revision to the pretreatment requirements condition, the revision to the receiving water monitoring condition, the revision to the SWPPP condition, the revision to the Biosolids Compost Requirements condition, the revision of the Electronic Discharge Monitoring Report (eDMR) Submission System condition, and the removal of the Acute WET test condition.

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:

| WATER-BODY NAME | CLASS | WBID | DESIGNATED USES* | 12-DIGIT HUC | DISTANCE TO CLASSIFIED SEGMENT (MI) |
|-----------------|-------|------|-------------------------------------|---------------|-------------------------------------|
| Sewer Branch | C | 860 | AHP(WWH), WBC-B, SCR, HHP, IRR, LWP | 10300103-0406 | 0 |

*As per 10 CSR 20-7.031 Missouri Water Quality Standards, the Department defines the Clean Water Commission's water quality objectives in terms of "water uses to be maintained and the criteria to protect those uses." The receiving stream and 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.:

AHP = Aquatic Habitat Protection - To ensure the protection and propagation of fish, shellfish, and wildlife. AHP is further subcategorized as:

- WWH** = Warm Water Habitat;
- CLH** = Cool Water Habitat;
- CDH** = Cold Water Habitat;
- EAH** = Ephemeral Aquatic Habitat;
- MAH** = Modified Aquatic Habitat;
- LAH** = Limited Aquatic Habitat.

This permit uses Aquatic Life Protection effluent limitations in 10 CSR 20-7.031 Table A for all aquatic 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 is further subcategorized as:

- 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** = Human Health Protection as it relates to the consumption of fish;
- IRR** = Irrigation - Application of water to cropland or directly to cultivated plants that may be used for human or livestock consumption;
- LWP** = Livestock and wildlife protection - Maintenance of conditions in waters to support health in livestock and wildlife;
- DWS** = Drinking water supply;
- IND** = Industrial water supply

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

- WSA** = Storm- and flood-water storage and attenuation;
- WHP** = Habitat for resident and migratory wildlife species;
- WRC** = Recreational, cultural, educational, scientific, and natural aesthetic values and uses;
- WHC** = Hydrologic cycle maintenance.

10 CSR 20-7.031(6):

GRW = Groundwater

RECEIVING STREAM(S) LOW-FLOW VALUES:

| RECEIVING STREAM | LOW-FLOW VALUES (CFS) | | |
|------------------|-----------------------|------|-------|
| | 1Q10 | 7Q10 | 30Q10 |
| Sewer Branch | 0 | 0 | 0 |

MIXING CONSIDERATIONS

MIXING CONSIDERATIONS TABLE:

| MIXING ZONE (CFS) [10 CSR 20-7.031(5)(A)4.B.(I)(a)] | | | ZONE OF INITIAL DILUTION (CFS) [10 CSR 20-7.031(5)(A)4.B(I)(b)] | | |
|--|------|-------|--|------|-------|
| 1Q10 | 7Q10 | 30Q10 | 1Q10 | 7Q10 | 30Q10 |
| 0 | 0 | 0 | 0 | 0 | N/A |

Receiving Water Body's Water Quality

- ✓ 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 September 10, 2013 at four locations near this facility: instream immediately above Outfall #001, instream approximately 0.3 miles downstream from Outfall #001, instream approximately 0.8 miles downstream from Outfall #001 and at Outfall #001. The following use designations of the receiving stream were impaired by the discharge: AQL for 1.3 miles at the location 0.8 miles downstream of Outfall #001. The Department surveyor noted that there was excessive benthic and suspended algae, but also noted that cattle have access to this stream segment.

CHANGES TO EFFLUENT LIMITATIONS TABLE:

| PARAMETER | Unit | Basis for Limits | Daily Maximum | Weekly Average | Monthly Average | Previous Permit Limit/ Frequency | Sampling Frequency | Reporting Frequency | Sample Type **** |
|-------------------------------|------|------------------|---------------|----------------|-----------------|-------------------------------------|--------------------|---------------------|---------------------|
| Ammonia (January) | mg/L | 2, 3 | 12.1 | | 3.1 | 7.5/2.9 | 1/week | monthly | C |
| Ammonia (February) (Interim) | mg/L | 2, 3 | 10.1 | | 2.9 | 7.5/2.9 | 1/week | monthly | C |
| Ammonia (February) (Final) | mg/L | 2, 3 | 10.1 | | 2.7 | 10.1/2.9 | 1/week | monthly | C |
| Ammonia (March) (Interim) | mg/L | 2, 3 | 10.1 | | 2.9 | 7.5/2.9 | 1/week | monthly | C |
| Ammonia (March) (Final) | mg/L | 2, 3 | 10.1 | | 2.7 | 10.1/2.9 | 1/week | monthly | C |
| Ammonia (April) | mg/L | 2, 3 | 10.1 | | 2.3 | 5.5/2.2 | 1/week | monthly | C |
| Ammonia (May) (Interim) | mg/L | 2, 3 | 12.1 | | 2.2 | 5.2/2.2 | 1/week | monthly | C |
| Ammonia (May) (Final) | mg/L | 2, 3 | 12.1 | | 1.9 | 12.1/2.2 | 1/week | monthly | C |
| Ammonia (June) (Interim) | mg/L | 2, 3 | 12.1 | | 2.2 | 5.2/2.2 | 1/week | monthly | C |
| Ammonia (June) (Final) | mg/L | 2, 3 | 12.1 | | 1.5 | 12.1/2.2 | 1/week | monthly | C |
| Ammonia (July) (Interim) | mg/L | 2, 3 | 10.1 | | 2.2 | 5.2/2.2 | 1/week | monthly | C |
| Ammonia (July) (Final) | mg/L | 2, 3 | 10.1 | | 1.1 | 10.1/2.2 | 1/week | monthly | C |
| Ammonia (August) (Interim) | mg/L | 2, 3 | 12.1 | | 2.2 | 5.2/2.2 | 1/week | monthly | C |
| Ammonia (August) (Final) | mg/L | 2, 3 | 12.1 | | 1.3 | 12.1/2.2 | 1/week | monthly | C |
| Ammonia (September) (Interim) | mg/L | 2, 3 | 12.1 | | 2.2 | 5.2/2.2 | 1/week | monthly | C |
| Ammonia (September) (Final) | mg/L | 2, 3 | 12.1 | | 1.7 | 12.1/2.2 | 1/week | monthly | C |
| Ammonia (October) (Interim) | mg/L | 2, 3 | 12.1 | | 2.9 | 7.5/2.9 | 1/week | monthly | C |
| Ammonia (October) (Final) | mg/L | 2, 3 | 12.1 | | 2.6 | 12.1/2.9 | 1/week | monthly | C |
| Ammonia (November) | mg/L | 2, 3 | 12.1 | | 3.1 | 7.5/2.9 | 1/week | monthly | C |
| Ammonia (December) (Interim) | mg/L | 2, 3 | 10.1 | | 2.9 | 7.5/2.9 | 1/week | monthly | C |
| Ammonia (December) (Final) | mg/L | 2, 3 | 10.1 | | 2.7 | 10.1/2.9 | 1/week | monthly | C |
| Oil & Grease | mg/L | 1, 3 | 15 | | 10 | 1/quarter | 1/month | monthly | G |
| Total Nitrogen | mg/L | 7 | * | | * | *** | 1/month | monthly | M |
| Cadmium, TR | µg/L | 2, 3 | 3.3 | | 1.0 | */* | 1/month | monthly | C |
| Copper, TR | µg/L | 2, 3 | 45.1 | | 22.9 | 37.6/17 | 1/month | monthly | C |

* - Monitoring requirement only.

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

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

**** - C = 24-hour composite

G = Grab

T = 24-hr. total

E = 24-hr. estimate

M = Measured/calculated

Basis for Limitations Codes:

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

OUTFALL #001 – DERIVATION AND DISCUSSION OF LIMITS:

- **Flow.** In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the Department, which may require the submittal of an operating permit modification.
- **Biochemical Oxygen Demand (BOD₅).** Operating permit retains 45 mg/L as a Weekly Average and 30 mg/L as a Monthly Average from the previous permit. These limits were established in the oldest permit in the Department’s electronic files, which was issued in 1992.
- **Total Suspended Solids (TSS).** Operating permit retains 45 mg/L as a Weekly Average and 30 mg/L as a Monthly Average from the previous permit. These limits were established in the oldest permit in the Department’s electronic files, which was issued in 1992.
- **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.** Early Life Stages Present Total Ammonia Nitrogen criteria apply [10 CSR 20-7.031(5)(B)7.C. & Table B3]. Background total ammonia nitrogen = 0.01 mg/L. No mixing considerations allowed; therefore, WLA = appropriate criterion.

The Department previously followed the 2007 Ammonia Guidance method for derivation of ammonia limits. However, the EPA’s Technical Support Document for Water Quality-based Toxic Controls (TSD) establishes other alternatives to limit derivation. The Department has determined that the approach established in Section 5.4.2 of the TSD, which allows for direct application of both the acute and chronic wasteload allocations (WLA) as permit limits for toxic pollutants, is more appropriate limit derivation approach. Using this method for a discharge to a waterbody where mixing is not allowed, the criterion continuous concentration (CCC) and the criterion maximum concentration (CMC) will equal the chronic and acute WLA respectively. The WLAs are then applied as effluent limits, per Section 5.4.2 of the TSD, where the CMC is the Daily Maximum and the CCC is the Monthly Average. The direct application of both acute and chronic criteria as WLA is also applicable for facilities that discharge into receiving waterbodies with mixing considerations. The CCC and CMC will need to be calculated into WLA with mixing considerations using the mass-balance equation:

$$C_e = \frac{(Q_e + Q_s)C - (Q_s \times C_s)}{Q_e}$$

Where C = downstream concentration C_e = effluent concentration
 C_s = upstream concentration Q_e = effluent flow
 Q_s = upstream flow

In the event that mixing considerations derive an AML less stringent than the MDL, the AML and MDL will be equal and based on the MDL.

| Month | Temp (°C)* | pH (SU)* | Total Ammonia Nitrogen CCC (mg/L) | Total Ammonia Nitrogen CMC (mg/L) |
|-----------|------------|----------|-----------------------------------|-----------------------------------|
| January | 2.8 | 7.8 | 3.1 | 12.1 |
| February | 4.0 | 7.9 | 2.7 | 10.1 |
| March | 10.6 | 7.9 | 2.7 | 10.1 |
| April | 17.0 | 7.9 | 2.3 | 10.1 |
| May | 22.0 | 7.8 | 1.9 | 12.1 |
| June | 26.0 | 7.8 | 1.5 | 12.1 |
| July | 28.9 | 7.9 | 1.1 | 10.1 |
| August | 28.0 | 7.8 | 1.3 | 12.1 |
| September | 24.1 | 7.8 | 1.7 | 12.1 |
| October | 17.5 | 7.8 | 2.6 | 12.1 |
| November | 11.6 | 7.8 | 3.1 | 12.1 |
| December | 4.9 | 7.9 | 2.7 | 10.1 |

* Ecoregion data (Central Irregular Plains)

January

Chronic WLA: $C_e = ((3.875 + 0)3.1 - (0 * 0.01)) / 3.875$
 $C_e = 3.1$

Acute WLA: $C_e = ((3.875 + 0)12.1 - (0 * 0.01)) / 3.875$
 $C_e = 12.1$

AML = WLA_c = 3.1 mg/L
MDL = WLA_a = 12.1 mg/L

February

Chronic WLA: $C_e = ((3.875 + 0)2.7 - (0 * 0.01)) / 3.875$
 $C_e = 2.7$

Acute WLA: $C_e = ((3.875 + 0)10.1 - (0 * 0.01)) / 3.875$
 $C_e = 10.1$

AML = WLA_c = 2.7 mg/L
MDL = WLA_a = 10.1 mg/L

March

Chronic WLA: $C_e = ((3.875 + 0)2.7 - (0 * 0.01)) / 3.875$
 $C_e = 2.7$

Acute WLA: $C_e = ((3.875 + 0)10.1 - (0 * 0.01)) / 3.875$
 $C_e = 10.1$

AML = WLA_c = 2.7 mg/L
MDL = WLA_a = 10.1 mg/L

April

Chronic WLA: $C_e = ((3.875 + 0)2.3 - (0 * 0.01)) / 3.875$
 $C_e = 2.3$

Acute WLA: $C_e = ((3.875 + 0)10.1 - (0 * 0.01)) / 3.875$
 $C_e = 10.1$

AML = WLA_c = 2.3 mg/L
MDL = WLA_a = 10.1 mg/L

May

Chronic WLA: $C_e = ((3.875 + 0)1.9 - (0 * 0.01)) / 3.875$
 $C_e = 1.9$

Acute WLA: $C_e = ((3.875 + 0)12.1 - (0 * 0.01)) / 3.875$
 $C_e = 12.1$

AML = WLA_c = 1.9 mg/L
MDL = WLA_a = 12.1 mg/L

June

Chronic WLA: $C_e = ((3.875 + 0)1.5 - (0 * 0.01)) / 3.875$
 $C_e = 1.5$

Acute WLA: $C_e = ((3.875 + 0)12.1 - (0 * 0.01)) / 3.875$
 $C_e = 12.1$

AML = WLA_c = 1.5 mg/L
MDL = WLA_a = 12.1 mg/L

July

Chronic WLA: $C_e = ((3.875 + 0)1.1 - (0 * 0.01)) / 3.875$
 $C_e = 1.1$

Acute WLA: $C_e = ((3.875 + 0)10.1 - (0 * 0.01)) / 3.875$
 $C_e = 10.1$

AML = WLA_c = 1.1 mg/L
MDL = WLA_a = 10.1 mg/L

August

Chronic WLA: $C_e = ((3.875 + 0)1.3 - (0 * 0.01)) / 3.875$
 $C_e = 1.3$

Acute WLA: $C_e = ((3.875 + 0)12.1 - (0 * 0.01)) / 3.875$
 $C_e = 12.1$

AML = WLA_c = 1.3 mg/L
MDL = WLA_a = 12.1 mg/L

September

Chronic WLA: $C_e = ((3.875 + 0)1.7 - (0 * 0.01)) / 3.875$
 $C_e = 1.7$

Acute WLA: $C_e = ((3.875 + 0)12.1 - (0 * 0.01)) / 3.875$
 $C_e = 12.1$

AML = WLA_c = 1.7 mg/L
MDL = WLA_a = 12.1 mg/L

October

Chronic WLA: $C_e = ((3.875 + 0)2.6 - (0 * 0.01)) / 3.875$
 $C_e = 2.6$

Acute WLA: $C_e = ((3.875 + 0)12.1 - (0 * 0.01)) / 3.875$
 $C_e = 12.1$

AML = WLA_c = 2.6 mg/L
MDL = WLA_a = 12.1 mg/L

November

Chronic WLA: $C_e = ((3.875 + 0)3.1 - (0 * 0.01)) / 3.875$
 $C_e = 3.1$

Acute WLA: $C_e = ((3.875 + 0)12.1 - (0 * 0.01)) / 3.875$
 $C_e = 12.1$

AML = WLA_c = 3.1 mg/L
MDL = WLA_a = 12.1 mg/L

December

Chronic WLA: $C_e = ((3.875 + 0)2.7 - (0 * 0.01)) / 3.875$
 $C_e = 2.7$

Acute WLA: $C_e = ((3.875 + 0)10.1 - (0 * 0.01)) / 3.875$
 $C_e = 10.1$

AML = WLA_c = 2.7 mg/L
MDL = WLA_a = 10.1 mg/L

- **Oil & Grease.** Conventional pollutant, effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.
- **Total Phosphorus, Total Kjeldahl Nitrogen, Nitrate + Nitrite, & Total Nitrogen.** Effluent monitoring for Total Phosphorus, Total Kjeldahl Nitrogen, and Nitrate + Nitrite are required per 10 CSR 20-7.015(9)(D)8. Effluent monitoring for Total Nitrogen is required per 10 CSR 20-6.010(8)(B). Total Nitrogen consists of Total Kjeldahl Nitrogen and Nitrate + Nitrite.
- **pH.** 6.5-9.0 SU. pH limitations of 6.0-9.0 SU [10 CSR 20-7.015] are not protective of the in-stream Water Quality Standard, which states that water contaminants shall not cause pH to be outside the range 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 65% 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 65% removal efficiency for TSS.

Metals

Effluent limitations for total recoverable metals were developed using methods and procedures outlined in the “Technical Support Document for Water Quality-based Toxic Controls” (EPA/505/2-90-001) and “The Metals Translator: Guidance For Calculating a Total Recoverable Permit Limit from a Dissolved Criterion” (EPA 823-B-96-007). General warm-water fishery criteria apply. Downstream water hardness of 358 mg/L is used in the calculation below. This value represents the 50th percentile (median) for all sample data submitted to the Department by the facility in compliance with the In-stream monitoring requirements of the operating permit.

Due to the absence of contemporaneous effluent and instream data for total recoverable metals, dissolved metals, hardness, and total suspended solids with which to calculate metals translators, partitioning between the dissolved and absorbed phases was assumed to be minimal (Section 5.7.3, EPA/505/2-90-001). Freshwater criteria conversion factors for dissolved metals were used as the metals translator as recommended in guidance (Section 1.3, 1.5.3, and Table 1, EPA 823-B-96-007). If concurrent site-specific data for total recoverable metals, dissolved metals, hardness, and total suspended solids are provided to the Department, partitioning evaluations may be considered and site-specific translators developed.

| METAL | CONVERSION FACTORS | |
|---------|--------------------|---------|
| | ACUTE | CHRONIC |
| Cadmium | 0.891 | 0.856 |
| Copper | 0.960 | 0.960 |

Conversion factors for Cd are hardness dependent. Values calculated using equation found in Section 1.3 of EPA 823-B-96-007 and hardness = 358 mg/L.

- ✓ **Cadmium, Total Recoverable.** Protection of Aquatic Life Acute Criteria = 16.442 µg/L, Chronic Criteria = 1.87 µg/L. The hardness value of **358 mg/L** represents the 50th percentile (median) for Sewer Branch.

Acute AQL: $e^{(1.0166 * \ln 358 - 3.062490)} * (1.136672 - \ln 358 * 0.041838) = 16.442 \text{ µg/L [at hardness 358]}$

Chronic AQL: $e^{(0.7977 * \ln 358 - 3.909)} * (1.101672 - \ln 358 * 0.041938) = 1.87 \text{ µg/L}$

TR Conversion: $AQL/Translator = 16.442 / 0.891 = 18.461$

TR Conversion: $AQL/Translator = 1.87 / 0.856 = 2.186$

Acute WLA: $C_e = ((3.868 \text{ cfs} + 0 \text{ cfs}) * 18.461 - (0 \text{ cfs} * 0 \text{ background})) / 3.868 \text{ cfs} = 18.461$

Chronic WLA: $C_e = ((3.868 \text{ cfs} + 0 \text{ cfs}) * 2.186 - (0 \text{ cfs} * 0 \text{ background})) / 3.868 \text{ cfs} = 2.186$

LTAa: $WLAa * LTAa \text{ multiplier} = 18.461 * 0.091 = 1.671$

[CV: 3.157, 99th percentile]

LTAc: $WLAc * LTAc \text{ multiplier} = 2.186 * 0.139 = 0.303$

[CV: 3.157, 99th percentile]

Use most protective LTA: 0.303

Daily Maximum: $MDL = LTA * MDL \text{ multiplier} = 0.303 * 11.047 = 3.3 \text{ µg/L}$

[CV: 3.157, 99th percentile]

Monthly Average: $AML = LTA * AML \text{ multiplier} = 0.303 * 3.368 = 1.0 \text{ µg/L}$

[CV: 3.157, 95th percentile, n=4]

- ✓ **Copper, Total Recoverable.** Protection of Aquatic Life Acute Criteria = 44.68 µg/L, Chronic Criteria = 26.631 µg/L. The hardness value of **358 mg/L** represents the 50th percentile (median) for Sewer Branch.

Acute AQL: $e^{(1.0166 * \ln 358 - 3.062490) * (1.136672 - \ln 358 * 0.041838)} = 44.68 \text{ µg/L [at hardness 358]}$

Chronic AQL: $e^{(0.7977 * \ln 358 - 3.909) * (1.101672 - \ln 358 * 0.041938)} = 26.631 \text{ µg/L}$

TR Conversion: AQL/Translator = 44.68 / 0.96 = 46.541

TR Conversion: AQL/Translator = 26.631 / 0.96 = 27.741

Acute WLA: $C_e = ((3.868 \text{ cfs} + 0 \text{ cfs}) * 46.541 - (0 \text{ cfs} * 0 \text{ background})) / 3.868 \text{ cfs} = 46.541$

Chronic WLA: $C_e = ((3.868 \text{ cfs} + 0 \text{ cfs}) * 27.741 - (0 \text{ cfs} * 0 \text{ background})) / 3.868 \text{ cfs} = 27.741$

LTAa: $WLAa * LTAa \text{ multiplier} = 46.541 * 0.332 = 15.47$

[CV: 0.576, 99th percentile]

LTAc: $WLAc * LTAc \text{ multiplier} = 27.741 * 0.54 = 14.976$

[CV: 0.576, 99th percentile]

Use most protective LTA: 14.976

Daily Maximum: MDL = LTA * MDL multiplier = 14.976 * 3.008 = 45.1 µg/L

[CV: 0.576, 99th percentile]

Monthly Average: AML = LTA * AML multiplier = 14.976 * 1.529 = 22.9 µg/L

[CV: 0.576, 95th percentile, n=4]

Whole Effluent Toxicity

- **Chronic Whole Effluent Toxicity.** Monitoring requirement only. Monitoring is required to determine if reasonable potential exists for this facility's discharge to exceed water quality standards.
 - ✓ Chronic Allowable Effluent Concentrations (AECs) for facilities that discharge to Class C waters are 100%, 50%, 25%, 12.5%, & 6.25%.

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, except for Oil & Grease, Cadmium, and Copper, which were increased to monthly. These parameters were increased to ensure compliance with the limits and also to provide additional data at the next permit renewal. Monthly sampling is required for Total Phosphorus, Total Kjeldahl Nitrogen, and Nitrate + Nitrite per 10 CSR 20-7.015(9)(D)8.B. Weekly sampling is required for *E. coli*, per 10 CSR 20-7.015(9)(D)7.A.

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

Chronic Whole Effluent Toxicity

- ✓ **No less than ONCE/PERMIT CYCLE:**
 - POTW facilities with a design flow of greater than 1.0 million gallons per day, but less than 10 million gallons per day, shall conduct and submit to the Department a chronic WET test no less than once per five years.

Sampling Type Justification: As per 10 CSR 20-7.015, samples collected for mechanical plants shall be a 24 hour 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.

CHANGES TO INFLUENT MONITORING:

| PARAMETER | Unit | Basis for Limits | Daily Maximum | Weekly Average | Monthly Average | Previous Permit Limit | Sampling Frequency | Reporting Frequency | Sample Type **** |
|------------------|------|------------------|---------------|----------------|-----------------|-----------------------|--------------------|---------------------|------------------|
| BOD ₅ | mg/L | 1 | | | * | *** | 1/month | monthly | C |
| TSS | mg/L | 1 | | | * | *** | 1/week | monthly | C |

* - Monitoring requirement only.

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

**** - C = Composite

G = Grab

Basis for Limitations Codes:

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

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.
- **Total Phosphorus, Total Kjeldahl Nitrogen, Nitrite + Nitrate, and Ammonia**. Influent monitoring for Total Phosphorus, Total Kjeldahl Nitrogen, Nitrite + Nitrate, and Ammonia required per 10 CSR 20-7.015(9)(D)8.

Sampling Frequency Justification: The sampling and reporting frequencies for Total Phosphorus and Total Kjeldahl Nitrogen, and Nitrite + Nitrate parameters were established to match the required sampling frequency of these parameters in the effluent, per 10 CSR 20-7.015(9)(D)8. Ammonia was set to monthly to match the frequency for influent sampling for Total Phosphorus and Total Kjeldahl Nitrogen, and Nitrite + Nitrate. The sampling and reporting frequencies for influent BOD₅ and TSS have been established to provide the Department adequate data to ensure the facility is meeting the percent removal requirement.

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.

PERMITTED FEATURE SM1 – INSTREAM MONITORING (DOWNSTREAM)

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.

MONITORING REQUIREMENTS TABLE:

| PARAMETER | Unit | Basis for Limits | Daily Maximum | Weekly Average | Monthly Average | Previous Permit Limit | Sampling Frequency | Reporting Frequency | Sample Type **** |
|----------------|------|------------------|---------------|----------------|-----------------|-----------------------|--------------------|---------------------|------------------|
| Total Hardness | mg/L | 1, 3 | * | | * | */* | 1/quarter | quarterly | G |

* - Monitoring requirement only. **** - G = Grab
 *** - Parameter not previously established in previous state operating permit.

Basis for Limitations Codes:

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

PERMITTED FEATURE SM1 – DERIVATION AND DISCUSSION OF MONITORING REQUIREMENTS:

- **Total Hardness**. Monitoring only requirement as the metals parameters contained in the permit are hardness based. This data will be used in the next permit renewal.

Sampling Frequency Justification: The sampling and reporting frequency for Total Hardness has been established to match the sampling frequency from the previous permit.

Sampling Type Justification: For the purposes of instream data collection, and as the downstream water quality should be consistent over a 24 hour period, grab samples are sufficient. 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 June 7 & 8, 2022, no evidence of an excursion of this criterion has been observed by the Department in the past and the facility has not disclosed any other information related to the characteristics of the discharge on their permit application which has the potential to cause or contribute to an excursion of this narrative criterion. Additionally, this facility utilizes equivalent to secondary treatment technology and is currently in compliance with the secondary treatment technology based effluent limits established in this permit and there has been no indication to the Department that the stream has had issues maintaining beneficial uses as a result of this discharge. Based on the information reviewed during the drafting of this permit, these final effluent limitations appear to have protected against the excursion of this criterion in the past. Therefore, the discharge does not have the reasonable potential to cause or contribute to 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. . Based upon review of the Report of Compliance Inspection for the inspection conducted on June 7 & 8, 2022, the inspector noted evidence of an excursion (foam in the receiving stream) of this criterion on June 7, 2022. The foam in the receiving stream was due to non-operational defoamer pump. The equipment was fixed on June 8, 2022 and foam was not observed in the receiving stream.
- (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 narrative criterion. Additionally, any solid wastes received or produced at this facility are wholly contained in appropriate storage facilities, are not discharged, and are disposed of offsite. This discharge is subject to Standard Conditions Part III, which contains requirements for the management and disposal of sludge to prevent its discharge. Therefore, this discharge does not have reasonable potential to cause or contribute to an excursion of this criterion.

Part 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)].

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.
 - **Ammonia as N.** Effluent limitations were re-calculated for Ammonia using new DMR data and new ecoregional pH and Temperature data. The Department previously followed the 2007 Ammonia Guidance method for derivation of ammonia limits. However, the EPA's Technical Support Document for Water Quality-based Toxic Controls (TSD) establishes other alternatives to limit derivation. The Department has determined that the approach established in Section 5.4.2 of the TSD, which allows for direct application of both the acute and chronic wasteload allocations (WLA) as permit limits for toxic pollutants, is more appropriate limit derivation approach. Using this method for a discharge to a waterbody where mixing is not allowed, the criterion continuous concentration (CCC) and the criterion maximum concentration (CMC) will equal the chronic and acute WLA respectively. The WLAs are then applied as effluent limits, per Section 5.4.2 of the TSD, where the CMC is the Daily Maximum and the CCC is the Monthly Average. The direct application of both acute and chronic criteria as WLA is also applicable for facilities that discharge into receiving waterbodies with mixing considerations. The CCC and CMC will need to be calculated into WLA with mixing considerations using the mass-balance equation. The newly established limitations are still protective of water quality.
 - **Total Recoverable Copper.** Effluent limitations were re-calculated for Copper using new DMR data and new stream hardness data. This backsliding is justified as there is information available which was not available at the time of the previous permit issuance (new DMR data and new stream hardness data). This new information justifies the application of a less stringent effluent limitation at the time of permit issuance. Also, the revision of the effluent limit also meets the requirements of the safety clause, as the revision of the effluent limit will not result in a violation of a water quality standard.

- **Total Dissolved Chromium VI.** A reasonable potential analysis for Chromium VI was calculated using new DMR data. As a result of a Reasonable Potential Analysis, it was determined that there is no reasonable potential to cause an excursion of water quality standards for Chromium VI in the receiving stream. Please see **Appendix – RPA Results** for more information. This backsliding is justified as there is information available which was not available at the time of the previous permit issuance (new DMR data). This new information justifies the application of a less stringent effluent limitations at the time of permit issuance. Also, the revision of the effluent limits also meets the requirements of the safety clause, as the revision of the effluent limits will not result in a violation of a water quality standard.
- **Acute Whole Effluent Toxicity (WET) test.** The previous permit included requirements to conduct an Acute WET test once per year. 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 backsliding is justified as there is information available which was not available at the time of the previous permit issuance (previous passing WET tests). This new information justifies the removal of the test at the time of permit issuance. Also, the removal of the test also meets the requirements of the safety clause, as the removal will not result in a violation of a water quality standard.
- 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 indicated “There Shall Be No Discharge of Floating Solids or Visible Foam in Other Than Trace Amounts” under each table. The statement was not evaluated against actual site conditions therefore, this general criteria was re-assessed. It was determined that this facility does not discharge solids or foam in amounts which would indicate reasonable potential, therefore the statement was removed. Each general criteria was assessed for 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 was proposed in this permit action 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 must review and maintain stormwater BMPs as appropriate.

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 authorized to land apply biosolids or compost biosolids in accordance with Standard Conditions III and Special Condition #19.

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 currently under enforcement action. The enforcement action is due to failure to comply with effluent limits.

CONTINUING AUTHORITY:

Each application for an operating permit shall identify the person, as that term is defined in section 644.016(15), RSMo, that is the owner of, operator of, or area-wide management authority for a water contaminant source, point source, wastewater treatment facility, or sewer collection system. This person shall be designated as the continuing authority and shall sign the application. By doing so, the person designated as the continuing authority acknowledges responsibility for compliance with all permit conditions.

10 CSR 20-6.010(2) establishes preferential levels for continuing authorities: Levels 1 through 5 (with Level 1 as the highest level), and generally requires permits to be issued to a higher preference continuing authority if available. A Level 3, 4, or 5 applicant may constitute a continuing authority by showing that Level 1 and Level 2 authorities are not available; do not have jurisdiction; are forbidden by state statute or local ordinance from providing service to the person; or that the Level 3, 4, or 5 applicant has met one of the requirements listed in paragraphs (2)(C)1.-7. of 10 CSR 20-6.010(2). The seven options in paragraphs (2)(C)1.-7. for a lower-level authority to demonstrate that it is the valid continuing authority are:

1. A waiver from the existing higher authority declining the offer to accept management of the additional wastewater or stormwater;
2. A written statement or a demonstration of non-response from the higher authority;
3. A to-scale map showing all parts of the legal boundary of the facility's property are beyond 2000 feet from the collection (sewer) system operated by the higher preference authority;
4. A proposed connection or adoption charge by the higher authority that would equal or exceed what is economically feasible for the applicant, which may be in the range of one hundred twenty percent (120%) of the applicant's cost for constructing or operating a wastewater treatment system;
5. A proposed service fee on the users of the system by the higher authority that is above what is affordable for existing homeowners in that area;
6. Terms for connection or adoption by the higher authority that would require more than two (2) years to achieve full sewer service; or
7. A demonstration that the terms for connection or adoption by the higher authority are not viable or feasible to homeowners in the area.

Permit applicants that are Levels 3, 4, and 5 must, as part of their application, identify their method of compliance with this regulation. The following are the methods to comply.

- No higher level authorities are available to the facility;
- No higher level authorities have jurisdiction;
- Higher level authorities are forbidden by state statute or local ordinance from providing service to the person;
- The existing higher level authority is available to the facility, however the facility has proposed the use of a lower preference continuing authority and has submitted one of the following as part of their application provided it does not conflict with any area-wide management plan approved under section 208 of the Clean Water Act or by the Missouri Clean Water Commission. (See Fact Sheet Appendix - Continuing Authority for more information on these options):
 - A waiver from the existing higher authority;
 - A written statement or a demonstration of non-response from the higher authority;
 - A to-scale map showing all parts of the legal boundary of the facility's property are beyond 2000 feet from the collection (sewer) system operated by the higher preference authority;
 - Documentation that the proposed connection or adoption charge by the higher authority would equal or exceed what is economically feasible for the applicant, which may be in the range of one hundred twenty percent (120%) of the applicant's cost for constructing or operating a wastewater treatment system;
 - Documentation that the proposed service fee on the users of the system by the higher authority is above what is affordable for existing homeowners in that area;
 - Documentation that the terms for connection or adoption by the higher authority would require more than two (2) years to achieve full sewer service;

- A demonstration that the terms for connection or adoption by the higher authority are not viable or feasible to homeowners in the area;
- ✓ The continuing authority listed on the application is a municipality. The applicant has shown that:
 - A higher level authority is not available to the facility;

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 can be provided upon request to the Department.

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>. 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 an (A) Certification Level. Please see **Appendix - Classification Worksheet**. Modifications made to the wastewater treatment facility may cause the classification to be modified.

Operator's Name: James C. Barb
Certification Number: 5684
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 calculated 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:

| Operational Monitoring Parameter | Frequency |
|---|------------------|
| Precipitation | Daily (M-F) |
| Flow – Influent or Effluent | Daily (M-F) |
| pH – Influent | Daily (M-F) |
| pH – Anaerobic Digester | Daily (M-F) |
| Temperature –Anaerobic Digester | Daily (M-F) |

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
- ✓ This permittee has an approved pretreatment program in accordance with the requirements of [40 CFR Part 403] and [10 CSR 20-6.100] and is expected to implement and enforce its approved program.

REASONABLE POTENTIAL (RP):

Federal regulation [40 CFR Part 122.44(d)(1)(i)] and State Regulation [10 CSR 20-7.015(9)(A)2] requires effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause or contribute to an in-stream excursion above narrative or numeric water quality standard.

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

A reasonable potential analysis (RPA) is a numeric RP decision calculated using effluent data provided by the facility for parameters that have a numeric Water Quality Standard (WQS).

Reasonable potential determinations (RPD) are based on physical conditions of the site as provided in Sections 3.1.2, 3.1.3, and 3.2 of the TSD using best professional judgement. An RPD consists of evaluating visual observations for compliance with narrative criteria, non-numeric information, or small amounts of numerical data (such as 3 data points supplied in the application). Narrative criteria with RP typically translate to a numeric WQS, so a parameter’s establishment being based on narrative criteria does not necessarily make the decision an RPD vs RP—how the data is collected does, however. When insufficient data is received to make a determination on RP based on numeric effluent data, the RPD decisions are based on best professional judgment considering the sources of influent wastewater, type of treatment, and historical overall management of the site.

- ✓ An RPA was conducted on appropriate parameters. Please see **APPENDIX – RPA RESULTS**.
- ✓ A RPD was made for Oil & Grease, that a potential to violate water quality standards exists. Please see Derivation and Discussion of Limits.
- ✓ A RPD was made for the Acute WET test, that a potential to violate water quality standards does not exist.

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.

- ✓ Equivalent to Secondary Treatment is 65% removal [40 CFR Part 133.105(a)(3) & (b)(3)].

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

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

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

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

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

SCHEDULE OF COMPLIANCE (SOC):

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

A SOC is not allowed:

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

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

- ✓ The time given for effluent limitations of this permit listed under Interim Effluent Limitation and Final Effluent Limitations were established in accordance with [10 CSR 20-7.031(11)]. The facility has been given a schedule of compliance to meet final effluent limits for Ammonia and *E. coli*. This permit continues the existing ten (10) year schedule of compliance that was established in the permit issued in 2019. The schedule should provide adequate time to evaluate operations, obtain an engineering report, hold a bond election, obtain a construction permit and implement upgrades required to meet effluent limits. Due to the medium economic burden on this community of the cost of compliance and associated difficulty in raising the necessary funding, the schedule was established in the previous permit at 10 years in accordance with the Department's "Schedule of Compliance, Policy for Staff Drafting Operating Permits".

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>.

- ✓ The permittee does not have a Department approved Sewer Extension Authority Supervised Program.

STORMWATER POLLUTION PREVENTION PLAN (SWPPP):

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

In accordance with the EPA's *Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators*, (Document number EPA 833-B-09-002) [published by the United States Environmental Protection Agency (USEPA) in June 2015], BMPs are measures or practices used to reduce the amount of pollution entering (regarding this operating permit) waters of the state. BMPs may take the form of a process, activity, or physical structure.

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

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

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

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

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

- ✓ 10 CSR 20-6.200 and 40 CFR 122.26(b)(14)(ix) includes treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system, used in the storage treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge that is located within the confines of the facility, with a design flow of 1.0 MGD or more, or are required to have an approved pretreatment program under 40 CFR part 403, as an industrial activity in which permit coverage is required. In lieu of requiring sampling in the site-specific permit, the facility is required to develop and implement a Stormwater Pollution Prevention Plan (SWPPP).

A facility can apply for conditional exclusion for “no exposure” of industrial activities and materials to stormwater by submitting a permit modification via Form B2 (<https://dnr.mo.gov/document-search/form-b2-application-operating-permit-facilities-receive-primarily-domestic-waste-have-design-flow-more-100000-gallons-day-mo-780-1805>) appropriate application filing fees and a completed No Exposure Certification for Exclusion from NPDES Stormwater Permitting under Missouri Clean Water Law (<https://dnr.mo.gov/document-search/no-exposure-certification-exclusion-npdes-stormwater-permitting-under-missouri-clean-water-law-mo-780-2828>) to the Department’s Water Protection Program, Operating Permits Section. Upon receipt of the No Exposure Certification, the permit will be modified and the Special Condition to develop and implement a SWPPP will be removed.

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:

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

Where C = downstream concentration C_e = effluent concentration
 C_s = upstream concentration Q_e = effluent flow
 Q_s = upstream flow

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

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

Number of Samples "n":

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

WLA MODELING:

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

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

WHOLE EFFLUENT TOXICITY (WET) TEST:

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.

- ✓ The permittee is required to conduct a Chronic WET test for this facility.

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.

- ✓ Bypasses occur or have occurred at this facility from what was previously permitted as Outfall #002 – flow equalization basin.
 - The permittee has met the criteria as established in 40 CFR 122.41(m)(4)(i)(A), (B), and (C).

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 following table summarizes the results of the cost analysis. See **Appendix – Cost Analysis for Compliance** for detailed information.

Summary Table. Cost Analysis for Compliance Summary for the City of Sedalia

| New Permit Requirements | | | |
|---|--------------------------------------|-----------------------------|-------------------------------|
| Sedalia SE WWTP – Monthly sampling for Total Hardness instream | | | |
| Sedalia North WWTP – Monthly sampling for Oil & Grease, Total Recoverable Copper, and Total Recoverable Cadmium | | | |
| Sedalia Central WWTP – Monthly sampling for Total Hardness instream and monthly sampling for Total Recoverable Copper | | | |
| Estimated Annual Cost | Annual Median Household Income (MHI) | Estimated Monthly User Rate | User Rate as a Percent of MHI |
| \$1,056 | \$48,047 | \$48.29 | 1.21% |

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.

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 May 26, 2023 to June 26, 2023. No responses received.

DATE OF FACT SHEET: OCTOBER 4, 2023

COMPLETED BY:

**BRANT FARRIS, ENVIRONMENTAL PROGRAM SPECIALIST
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
OPERATING PERMITS SECTION - DOMESTIC WASTEWATER UNIT
(660) 385-8019
brant.farris@dnr.mo.gov**

Appendices**APPENDIX - CLASSIFICATION WORKSHEET:**

| Item | Points Possible | Points Assigned |
|--|--|-----------------|
| Maximum Population Equivalent (P.E.) served , peak day | 1 pt./10,000 PE or major fraction thereof. (Max 10 pts.) | 2.5 |
| Design Flow (avg. day) or peak month's flow (avg. day) whichever is larger | 1 pt. / MGD or major fraction thereof. (Max 10 pts.) | 2.5 |
| Effluent Discharge | | |
| Missouri or Mississippi River | 0 | |
| All other stream discharges except to losing streams and stream reaches supporting whole body contact recreation | 1 | |
| Discharge to lake or reservoir outside of designated whole body contact recreational area | 2 | |
| Discharge to losing stream, lake or reservoir area supporting whole body contact recreation | 3 | |
| Direct reuse or recycle of effluent | 6 | |
| Land Application/Irrigation | | |
| Drip Irrigation | 3 | |
| Land application/irrigation | 5 | |
| Overland flow | 4 | |
| Variation in Raw Wastes (highest level only) | | |
| Variations do not exceed those normally or typically expected | 0 | |
| Reoccurring deviations or excessive variations of 100 to 200 percent in strength and/or flow | 2 | (2) |
| Reoccurring deviations or excessive variations of more than 200 percent in strength and/or flow | 4 | |
| Department-approved pretreatment program | 6 | 6 |
| Preliminary Treatment | | |
| STEP systems (operated by the permittee) | 3 | |
| Screening and/or comminution | 3 | 3 |
| Grit removal | 3 | 3 |
| Plant pumping of main flow | 3 | |
| Flow equalization | 5 | 5 |
| Primary Treatment | | |
| Primary clarifiers | 5 | 5 |
| Chemical addition (except chlorine, enzymes) | 4 | |
| Secondary Treatment | | |
| Trickling filter and other fixed film media with or without secondary clarifiers | 10 | 10 |
| Activated sludge (including aeration, oxidation ditches, sequencing batch reactors, membrane bioreactors, and contact stabilization) | 15 | |
| Stabilization ponds without aeration | 5 | |
| Aerated lagoon | 8 | |
| Advanced Lagoon Treatment – Aerobic cells, anaerobic cells, covers, or fixed film | 10 | |
| Biological, physical, or chemical | 12 | 12 |
| Carbon regeneration | 4 | |
| Total from page ONE (1) | ---- | 49 |

APPENDIX - CLASSIFICATION WORKSHEET (CONTINUED):

| ITEM | POINTS POSSIBLE | POINTS ASSIGNED |
|--|-----------------|-----------------|
| Solids Handling | | |
| Sludge Holding | 5 | 5 |
| Anaerobic digestion | 10 | 10 |
| Aerobic digestion | 6 | |
| Evaporative sludge drying | 2 | 2 |
| Mechanical dewatering | 8 | 8 |
| Solids reduction (incineration, wet oxidation) | 12 | |
| Land application | 6 | 6 |
| Disinfection | | |
| Chlorination or comparable | 5 | |
| On-site generation of disinfectant (except UV light) | 5 | |
| Dechlorination | 2 | |
| UV light | 4 | |
| Required Laboratory Control Performed by Plant Personnel (highest level only) | | |
| Lab work done outside the plant | 0 | |
| Push – button or visual methods for simple test such as pH, settleable solids | 3 | |
| Additional procedures such as DO, COD, BOD, titrations, solids, volatile content | 5 | |
| More advanced determinations, such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc. | 7 | 7 |
| Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph | 10 | |
| Total from page TWO (2) | ---- | 38 |
| Total from page ONE (1) | --- | 49 |
| Grand Total | --- | 87 |

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

APPENDIX – RPA RESULTS:

| Parameter | CMC* | RWC Acute* | CCC* | RWC Chronic* | n** | Range max/min | CV*** | MF | RP Yes/No |
|-----------------------------------|-------|------------|-------|--------------|-------|---------------|-------|------|-----------|
| Ammonia as N – Summer (mg/L) | 12.1 | 8.26 | 1.3 | 8.26 | 24.00 | 4.7/1.1 | 0.42 | 1.76 | YES |
| Ammonia as N – Winter (mg/L) | 10.1 | 63.50 | 2.7 | 63.50 | 25.00 | 21.2/0.7 | 0.95 | 3.00 | YES |
| Cadmium, Total Recoverable (µg/L) | 18.46 | 157.51 | 2.19 | 157.51 | 17 | 14/0.028 | 3.16 | 11.3 | Yes |
| Copper, Total Recoverable (µg/L) | 46.54 | 141.60 | 27.74 | 141.60 | 17 | 59.8/1 | 0.58 | 2.4 | Yes |
| Chromium VI, Dissolved (µg/L) | 16 | 9.43 | 11 | 9.43 | 17 | 5/1.15 | 0.43 | 1.9 | No |

N/A – Not Applicable

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

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

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

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

n – Is the number of samples.

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

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

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

APPENDIX – Non-Detect Example Calculations:

Example: Permittee has four samples for Pollutant X which has a method minimum level of 5 mg/L and is to report a Daily Maximum and Monthly Average.

Week 1 = 11.4 mg/L

Week 2 = Non-Detect or <5.0 mg/L

Week 3 = 7.1 mg/L

Week 4 = Non-Detect or <5.0 mg/L

For this example, use subpart (h) - For reporting an average based on a mix of detected and non-detected values (not including *E. coli*), assign a value of “0” for all non-detects for that reporting period and report the average of all the results.

$$11.4 + 0 + 7.1 + 0 = 18.5 \div 4 \text{ (number of samples)} = 4.63 \text{ mg/L.}$$

The Permittee reports a Monthly Average of 4.63 mg/L and a Daily maximum of 11.4 mg/L (Note the < symbol was dropped in the answers).

Example: Permittee has five samples for Pollutant Y that has a method minimum level of 9 µg/L and is to report a Daily Maximum and Monthly Average.

Day 1 = Non-Detect or <9.0 µg/L

Day 2 = Non-Detect or <9.0 µg/L

Day 3 = Non-Detect or <9.0 µg/L

Day 4 = Non-Detect or <9.0 µg/L

Day 5 = Non-Detect or <9.0 µg/L

For this example, use subpart (g) - For reporting an average based on all non-detected values, remove the “<” sign from the values, average the values, and then add the “<” symbol back to the resulting average.

$$(9 + 9 + 9 + 9 + 9) \div 5 \text{ (number of samples)} = <9 \text{ µg/L.}$$

The Permittee reports a Monthly Average of <9.0 µg/L (retain the ‘less than’ symbol) and a Daily Maximum of <9.0 µg/L.

Example: Permittee has four samples for Pollutant Z where the first two tests were conducted using a method with a method minimum level of 4 µg/L and the remaining two tests were conducted using a different method that has a method minimum level of <6 µg/L and is to report a Monthly Average and a Weekly Average.

Week 1 = Non-Detect or <4.0 µg/L

Week 2 = Non-Detect or <4.0 µg/L

Week 3 = Non-Detect or <6.0 µg/L

Week 4 = Non-Detect or <6.0 µg/L

For this example, use subpart (g) - For reporting an average based on all non-detected values, remove the “<” sign from the values, average the values, and then add the “<” symbol back to the resulting average.

$$(4 + 4 + 6 + 6) \div 4 \text{ (number of samples)} = <5 \text{ µg/L. (Monthly)}$$

The facility reports a Monthly Average of <5.0 µg/L and a Weekly Average of <6.0 µg/L.

APPENDIX – Non-Detect Example Calculations (Continued):

Example: Permittee has five samples for Pollutant Z where the first two tests were conducted using a method with a method minimum level of 4 µg/L and the remaining three tests were conducted using a different method that has a method minimum level of <6 µg/L and is to report a Monthly Average and a Weekly Average.

Week 1 = Non-Detect or <4.0 µg/L
 Week 2 = Non-Detect or <4.0 µg/L
 Week 2 = Non-Detect or <6.0 µg/L
 Week 3 = Non-Detect or <6.0 µg/L
 Week 4 = Non-Detect or <6.0 µg/L

For this example, use subpart (g) - For reporting an average based on all non-detected values, remove the “<” sign from the values, average the values, and then add the “<” symbol back to the resulting average.

$$(4 + 4 + 6 + 6 + 6) \div 5 \text{ (number of samples)} = <5.2 \text{ } \mu\text{g/L. (Monthly)}$$

$$(4 + 6) \div 2 \text{ (number of samples)} = <5 \text{ } \mu\text{g/L. (Week 2)}$$

The facility reports a Monthly Average of <5.2 µg/L and a Weekly Average of <6.0 µg/L (report highest Weekly Average value)

Example: Permittee has four samples for Pollutant Z where the tests were conducted using a method with a method minimum level of 10 µg/L and is to report a Monthly Average and Daily Maximum. The permit lists that Pollutant Z has a Department determined Minimum Quantification Level (ML) of 130 µg/L.

Week 1 = 12 µg/L
 Week 2 = 52 µg/L
 Week 3 = Non-Detect or <10 µg/L
 Week 4 = 133 µg/L

For this example, use subpart (h) - For reporting an average based on a mix of detected and non-detected values (not including *E. coli*), assign a value of “0” for all non-detects for that reporting period and report the average of all the results.

$$\text{For this example, } (12 + 52 + 0 + 133) \div 4 \text{ (number of samples)} = 197 \div 4 = 49.3 \text{ } \mu\text{g/L.}$$

The facility reports a Monthly Average of 49.3 µg/L and a Daily Maximum of 133 µg/L.

Example: Permittee has five samples for *E. coli* which has a method minimum level of 1 #/100mL and is to report a Weekly Average (seven (7) day geometric mean) and a Monthly Average (thirty (30) day geometric mean).

Week 1 = 102 #/100mL
 Week 2 (Monday) = 400 #/100mL
 Week 2 (Friday) = Non-Detect or <1 #/100mL
 Week 3 = 15 #/100mL
 Week 4 = Non-Detect or <1 #/100mL

For this example, use subpart (i) - When *E. coli* is not detected above the method minimum level, the permittee must report the data qualifier signifying less than detection limit for that parameter (e.g., <1 #/100mL, if the method minimum level is 1 #/100mL). For reporting a geometric mean based on a mix of detected and non-detected values, use one-half of the detection limit (instead of zero) for non-detects when calculating geometric means. 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.

$$\text{The Monthly Average (30 day Geometric Mean)} = 5\text{th root of } (102)(400)(0.5)(15)(0.5) = 5\text{th root of } 153,000 = 10.9 \text{ \#/100mL.}$$

$$\text{The 7 day Geometric Mean} = 2\text{nd root of } (400)(0.5) = 2\text{nd root of } 200 = 14.1 \text{ \#/100mL. (Week 2)}$$

The Permittee reports a Monthly Average (30 day Geometric Mean) of 10.9 #/100mL and a Weekly Average (7 day geometric mean) of 102 #/100mL (report highest Weekly Average value)

APPENDIX – COST ANALYSIS FOR COMPLIANCE:

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

**Sedalia North WWTP, Permit Renewal
City of Sedalia
Missouri State Operating Permit #MO-0023027**

Section 644.145 RSMo requires the Department of Natural Resources (Department) to make a “finding of affordability” when “issuing permits under” or “enforcing provisions of” state or federal clean water laws “pertaining to any portion of a combined or separate sanitary sewer system for publicly-owned treatment works.” This cost analysis does not dictate how the permittee will comply with new permit requirements.

New Permit Requirements

The permit requires compliance with new monthly sampling frequency for Oil & Grease, Total Recoverable Copper, and Total Recoverable Cadmium, from quarterly to monthly.

Connections

The number of connections was reported by the permittee on the permit renewal applications for the Sedalia North WWTP, Sedalia Central WWTP, and the Sedalia SE WWTP.

| Connection Type | Number |
|-----------------|---------------|
| Residential | 8,993 |
| Commercial | 1,331 |
| Industrial | 12 |
| Total | 10,336 |

Data Collection for this Analysis

This cost analysis is based on data available to the Department as provided by the permittee and data obtained from readily available sources. For the most accurate analysis, it is essential that the permittee provides the Department with current information about the City’s financial and socioeconomic situation. The financial questionnaire available to permittees on the Department’s website (<https://dnr.mo.gov/document-search/financial-questionnaire-mo-780-2511>) is a required attachment to the permit renewal application. If the financial questionnaire is not submitted with the renewal application, the Department sends a request to complete the form with the welcome correspondence. Though the Department has made attempts to gather financial information from the City of Sedalia; no information has been provided. The Department has relied heavily on readily available data to complete this analysis. If certain data was not provided by the permittee to the Department and the data is not obtainable through readily available sources, this analysis will state that the information is “unknown”.

Eight Criteria of 644.145 RSMo

The Department must consider the eight (8) criteria presented in subsection 644.145 RSMo to evaluate the cost associated with new permit requirements.

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

| Criterion 1 Table. Current Financial Information for the City of Sedalia | |
|---|-------------|
| Current Monthly User Rates per 5,000 gallons* | \$48.28 |
| Median Household Income (MHI) ¹ | \$48,047 |
| Current Annual Operating Costs (excludes depreciation) | \$5,308,228 |

*User Rates were obtained from the City of Sedalia’s November 14, 2022 Ordinances Appendix A – City Fee Schedule.

§ Current annual operating costs were obtained from the City of Sedalia Audited Financial Statements dated March 31, 2022.

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

The following tables outline the estimated costs of the new permit requirements:

| Criterion 2A Table. Estimated Cost Breakdown of New Permit Requirements | | | |
|---|-----------|----------------|-----------------------|
| New Requirement | Frequency | Estimated Cost | Estimated Annual Cost |
| Oil & Grease | Monthly¥ | \$75 X 8 | \$600 |
| Total Recoverable Copper | Monthly¥ | \$22 X 8 | \$176 |
| Total Recoverable Cadmium | Monthly¥ | \$22 x 8 | \$176 |
| Total metal concentration analysis | Monthly¥ | \$13 x 8 | \$104 |
| Total Estimated Annual Cost of New Permit Requirements | | | \$1,056 |

¥ - was previously quarterly

| Criterion 2B Table. Estimated Costs for New Permit Requirements | | |
|---|---|---------|
| (1) | Estimated Annual Cost | \$1,056 |
| (2) | Estimated Monthly User Cost for New Requirements ² | \$0.01 |
| | Estimated Monthly User Cost for New Requirements as a Percent of MHI ³ | 0.000% |
| | Estimated Monthly User Cost for New Requirements for Sedalia Central WWTP | \$0.00 |
| | Estimated Monthly User Cost for New Requirements for Sedalia SE WWTP | \$0.00 |
| (3) | Total Monthly User Cost* | \$48.29 |
| | Total Monthly User Cost as a Percent of MHI ⁴ | 1.21% |

* Current User Rate + Estimated Monthly Costs of New Sampling Requirements

Due to the minimal cost associated with new permit requirements, the Department anticipates an extremely low to no rate increase will be necessary, which could impact individuals or households of this community.

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

This analysis is being conducted based on new requirements in the permit, which will not require the addition of new control technologies at the facility. However, the new sampling requirements are being established in order to provide data regarding the health of the receiving stream’s aquatic life and to ensure that the existing permit limits are providing adequate protection of aquatic life. Improved wastewater provides benefits such as avoided health costs due to water-related illness, enhanced environmental ecosystem quality, and improved natural resources. The preservation of natural resources has been proven to increase the economic value and sustainability of the surrounding communities. Maintaining Missouri’s water quality standards fulfills the goal of restoring and maintaining the chemical, physical, and biological integrity of the receiving stream; and, where attainable, it achieves a level of water quality that provides for the protection and propagation of fish, shellfish, wildlife, and recreation in and on the water.

Metals Limits

Metals dissolve in water and are easily absorbed by fish and other aquatic organisms. Small concentrations can be toxic because metals undergo bioconcentration, which means that their concentration in an organism is higher than in water. Metal toxicity produces adverse biological effects on an organism’s survival, activity, growth, metabolism, or reproduction. Metals can be lethal or harm the organism without killing it directly. Adverse effects on an organism's activity, growth, metabolism, and reproduction are examples of sub-lethal effects.

In order for a metal to be toxic, it needs to enter the body of the exposed organism and interact with the surface or interior of cells. The pathways by which this happens includes diffusion into the bloodstream via the gills and skin, as fish become exposed by drinking water or eating sediments contaminated with the metal, or eating other animals or plants that became exposed to the metal. Humans become exposed to metals via analogous pathways: diffusion into the bloodstream via the lungs and skin, drinking contaminated water, and eating contaminated food.

The effluent limits for metals have been added to the permit to protect the health of the receiving stream’s aquatic life. A healthy ecosystem is beneficial as it provides reduced impacts on human and aquatic health as well as recreational opportunities.

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

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

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

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

The following table characterizes the current overall socioeconomic condition of the community as compared to the overall socioeconomic condition of Missouri. The following information was compiled using the latest U.S. Census data.

Criterion 5 Table. Socioeconomic Data ^{1, 5-9} for the City of Sedalia

| No. | Administrative Unit | Sedalia City | Missouri State | United States |
|-----|---|---------------|----------------|---------------|
| 1 | Population (2021) | 21,696 | 6,141,534 | 329,725,481 |
| 2 | Percent Change in Population (2000-2021) | 6.7% | 9.8% | 17.2% |
| 3 | 2021 Median Household Income (in 2022 Dollars) | \$48,047 | \$65,928 | \$74,545 |
| 4 | Percent Change in Median Household Income (2000-2021) | -4.5% | -1.1% | 1.1% |
| 5 | Median Age (2021) | 36.2 | 38.8 | 38.4 |
| 6 | Change in Median Age in Years (2000-2021) | 0.4 | 2.7 | 3.1 |
| 7 | Unemployment Rate (2021) | 6.1% | 4.5% | 5.5% |
| 8 | Percent of Population Below Poverty Level (2021) | 18.0% | 12.8% | 12.6% |
| 9 | Percent of Household Received Food Stamps (2021) | 13.6% | 10.1% | 11.4% |
| 10 | (Primary) County Where the Community Is Located | Pettis County | | |

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

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

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

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

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

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

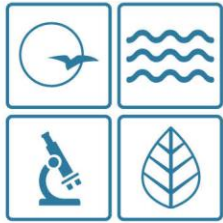
Conclusion and Finding

As a result of new regulations, the Department is proposing modifications to the current operating permit that may require the permittee to increase monitoring. The Department has considered the eight (8) criteria presented in subsection 644.145 RSMo to evaluate the cost associated with the new permit requirements.

This analysis examined whether the new sampling requirements affect the ability of an individual customer or household to pay a utility bill without undue hardship or unreasonable sacrifice in the essential lifestyle or spending patterns of the individual or household. After reviewing the above criteria, the Department finds that the new sampling requirements may result in a low burden with regard to the community's overall financial capability and a low financial impact for most individual customers/households; therefore, the new permit requirements are affordable.

References

1. (A) 2021 MHI in 2021 Dollar: United States Census Bureau. 2017-2021 American Community Survey 5-Year Estimates, Table B19013: Median Household Income in the Past 12 Months (in 2021 Inflation-Adjusted Dollars). <https://data.census.gov/cedsci/table?q=B19013&tid=ACSDT5Y2021.B19013>.
(B) 2000 MHI in 1999 Dollar: (1) For United States, United States Census Bureau (2003) 2000 Census of Population and Housing, Summary Social, Economic, and Housing Characteristics, PHC-2-1 Part 1. United States Summary, Table 5. Work Status and Income in 1999: 2000, Washington, DC. <https://www.census.gov/content/dam/Census/library/publications/2003/dec/phc-2-1-pt1.pdf>.
(2) For Missouri State, United States Census Bureau (2003) 2000 Census of Population and Housing, Summary Social, Economic, and Housing Characteristics, PHC-2-27, Missouri, Table 10. Work Status and Income in 1999: 2000, Washington, DC. <https://www.census.gov/content/dam/Census/library/publications/2003/dec/phc-2-1-pt1.pdf>.
(C) 2022 CPI, 2021 CPI and 1999 CPI: U.S. Department of Labor Bureau of Labor Statistics (2022) Consumer Price Index - All Urban Consumers, U.S. City Average. All Items. 1982-84=100 (unadjusted) - CUUR0000SAO. <https://data.bls.gov/cgi-bin/surveymost?bls>.
(D) 2021 MHI in 2022 Dollar = 2021 MHI in 2021 Dollar x 2022 CPI /2021 CPI; 2000 MHI in 2021 Dollar = 2000 MHI in 1999 Dollar x 2022 CPI /1999 CPI.
(E) Percent Change in Median Household Income (2000-2021) = (2021 MHI in 2022 Dollar - 2000 MHI in 2022 Dollar) / (2000 MHI in 2022 Dollar).
2. $(\$1,056/10,336)/12 = \0.01 (Estimated Monthly User Cost for New Requirements)
3. $(\$0.01/(\$48,047/12))100\% = 0.00\%$ (New Sampling Only)
4. $(\$48.29/(\$48,047/12))100\% = 1.21\%$ (Total User Cost)
5. (A) Total Population in 2021: United States Census Bureau. 2017-2021 American Community Survey 5-Year Estimates, Table B01003: Total Population - Universe: Total Population. <https://data.census.gov/cedsci/table?q=B01003&tid=ACSDT5Y2021.B01003>.
(B) For United States, United States Census Bureau (2002) 2000 Census of Population and Housing, Summary Social, Economic, and Housing Characteristics, PHC-1-1 Part 1. United States Summary, Table 1. Age and Sex: 2000, Washington, DC. <https://www.census.gov/content/dam/Census/library/publications/2003/dec/phc-2-1-pt1.pdf>.
(2) For Missouri State, United States Census Bureau (2002) 2000 Census of Population and Housing, Summary Population and Housing Characteristics, PHC-1-27, Missouri, Table 2. Age and Sex: 2000, Washington, DC. <https://www2.census.gov/library/publications/2003/dec/phc-2-1-pt2.pdf>.
(C) Percent Change in Population (2000-2021) = (Total Population in 2021 - Total Population in 2000) / (Total Population in 2000).
6. Median Age in 2021: United States Census Bureau. 2017-2021 American Community Survey 5-Year Estimates, Table B01002: Median Age by Sex - Universe: Total population. <https://data.census.gov/cedsci/table?q=B01002&tid=ACSDT5Y2021.B01002>.
(B) For United States, United States Census Bureau (2002) 2000 Census of Population and Housing, Summary Social, Economic, and Housing Characteristics, PHC-1-1 Part 1. United States Summary, Table 1. Age and Sex: 2000, Washington, DC., Page 2. <https://www.census.gov/content/dam/Census/library/publications/2003/dec/phc-2-1-pt1.pdf>.
(2) For Missouri State, United States Census Bureau (2002) 2000 Census of Population and Housing, Summary Population and Housing Characteristics, PHC-1-27, Missouri, Table 2. Age and Sex: 2000, Washington, DC., Pages 64-92. <https://www2.census.gov/library/publications/2003/dec/phc-2-1-pt2.pdf>.
(C) Change in Median Age in Years (2000-2021) = (Median Age in 2021 - Median Age in 2000).
7. United States Census Bureau. 2017-2021 American Community Survey 5-Year Estimates, S2301: Employment Status for the Population 16 Years and Over - Universe: Population 16 years and Over. <https://data.census.gov/cedsci/table?q=unemployment&tid=ACSST5Y2021.S2301>.
8. United States Census Bureau. 2017-2021 American Community Survey 5-Year Estimates, Table S1701: Poverty Status in the Past 12 Months. <https://data.census.gov/cedsci/table?q=S1701&tid=ACSST5Y2021.S1701>.
9. United States Census Bureau. 2017-2021 American Community Survey 5-Year Estimates, Table S2201: Food Stamps/Supplemental Nutrition Assistance Program (SNAP) - Universe: Households. <https://data.census.gov/cedsci/table?q=S2201&tid=ACSST5Y2021.S2201>.



MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

Michael L. Parson
Governor

Dru Buntin
Director

November 8, 2023

City of Sedalia
200 South Osage Avenue
Sedalia, MO 65301

Dear Permittee:

Pursuant to the Federal Water Pollution Control Act, under the authority granted to the State of Missouri and in compliance with the Missouri Clean Water Law, we have issued and are enclosing your State Operating Permit to discharge from Sedalia SE WWTP.

Please read your permit and enclosed Standard Conditions. They contain important information on monitoring requirements, effluent limitations, sampling frequencies and reporting requirements.

Monitoring reports required by the special conditions must be submitted on a periodic basis via the Missouri Department of Natural Resources' electronic Discharge Monitoring Report (eDMR) system unless waived, or can be submitted on the enclosed forms if you are subject to an eDMR registration schedule as established in the permit. Upon registration, please access the eDMR system via the following link: [Missouri Gateway for Environmental Management \(MoGEM\) | Missouri Department of Natural Resources](#). If you experience difficulties with using the eDMR system, you may contact edmr@dnr.mo.gov or call 855-789-3889 or 573-526-2082 for assistance.

This permit may include requirements with which you may not be familiar. If you would like the Department to meet with you to discuss how to satisfy the permit requirements, an appointment can be set up by contacting the Northeast Regional Office by phone at 660-385-8000, by email at NERO@dnr.mo.gov, or by mail at 1709 Prospect Drive, Macon, MO 63552-2602. These visits are called Compliance Assistance Visits and focus on explaining the requirements to the permit holder.

This permit is both your Federal National Pollutant Discharge Elimination System Permit and your new Missouri State Operating Permit and replaces all previous State Operating Permits issued for this facility under this permit number. In all future correspondence regarding this facility, please refer to your State Operating Permit number and facility name as shown on page one of the permit.



If you were adversely affected by this decision, you may be entitled to an appeal before the Administrative Hearing Commission (AHC) pursuant to Section 621.250, RSMo. To appeal, you must file a petition with the AHC within 30 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. Contact information for the AHC is: Administrative Hearing Commission, United States Post Office Building, Third Floor, 131 West High Street, P.O. Box 1557, Jefferson City, MO 65102, phone: 573-751-2422, fax: 573-751-5018, and website: www.ao.mo.gov/ahc.

Please be aware that this facility may also be subject to any applicable county or other local ordinances or restrictions.

If you have any questions concerning this permit, please do not hesitate to contact the Department's Water Protection Program at P.O. Box 176, Jefferson City, MO 65102, or by phone at 573-751-1300. Thank you.

Sincerely,

WATER PROTECTION PROGRAM



John Hoke
Director

JH/vs

Enclosure

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION



MISSOURI STATE OPERATING PERMIT

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

Permit No.: MO-0101567

Owner: City of Sedalia
Address: 200 S. Osage Avenue, Sedalia, MO 65301

Continuing Authority: Same as above
Address: Same as above

Facility Name: Sedalia SE WWTP
Facility Address: 26999 Goodwill Chapel Road, Sedalia, MO 65301

Legal Description: See Page 2
UTM Coordinates: See Page 2

Receiving Stream: See Page 2
First Classified Stream and ID: See Page 2
USGS Basin & Sub-watershed No.: See Page 2

authorizes activities pursuant to the terms and conditions of this permit in accordance with the Missouri Clean Water Law and/or the National Pollutant Discharge Elimination System; it does not apply to other regulated activities.

FACILITY DESCRIPTION

See Page 2

November 1, 2023
Effective Date

October 31, 2028
Expiration Date

A handwritten signature in black ink, appearing to read "John Hoke".

John Hoke, Director, Water Protection Program

FACILITY DESCRIPTION (continued):

Outfall #001 – POTW

The use or operation of this facility shall be by or under the supervision of a Certified “A” Operator.

Influent pump station / mechanical bar screen / manual bar screen / aerated grit removal tank / 3 peak flow retention basins (2 located offsite of the plant) / 2 dual extended aeration and clarification basins / UV disinfection / up-flow aeration unit / sludge thickener basin / sludge holding basin / 2 sludge belt presses / biosolids are land applied or are composted / blending occurs when flows from the onsite peak flow retention basin during high flow events are combined with fully treated effluent after the aerated clarification basins prior to the UV disinfection unit and then discharged

Design population equivalent is 26,000.

Design flow is 2.6 million gallons per day.

Actual flow is 2.3 million gallons per day.

Design sludge production is 418 dry tons/year.

| | |
|---------------------------------|------------------------------------|
| Legal Description: | Sec. 13, T45N, R21W, Pettis County |
| UTM Coordinates: | X=483425, Y=4279954 |
| Receiving Stream: | Breakfast Branch (C) |
| First Classified Stream and ID: | Presumed Use Streams (C) (5066) |
| USGS Basin & Sub-watershed No.: | (10300103-0301) |

Permitted Feature INF – Influent Monitoring Location – Headworks

| | |
|--------------------|------------------------------------|
| Legal Description: | Sec. 24, T45N, R21W, Pettis County |
| UTM Coordinates: | X=483347, Y=4279838 |

Permitted Feature SM1 – Instream Monitoring – Downstream – bridge over Breakfast Creek on Hwy M – See Special Condition #26

| OUTFALL #001 | TABLE A-1. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS | | | | | | |
|---|--|----------------------------|-------------------|--------------------|-------------------------------|--------------------------|----------------|
| | 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 November 1, 2023 and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below: | | | | | | |
| EFFLUENT PARAMETER(S) | UNITS | FINAL EFFLUENT LIMITATIONS | | | MONITORING REQUIREMENTS | | |
| | | DAILY MAXIMUM | WEEKLY AVERAGE | MONTHLY AVERAGE | MEASUREMENT FREQUENCY | SAMPLE TYPE | |
| eDMR Limit Set: M | | | | | | | |
| Flow | MGD | * | | * | once/weekday*** | 24 hr. total | |
| Biochemical Oxygen Demand ₅ (Note 1) | mg/L | | 45 | 30 | once/week | composite** | |
| Total Suspended Solids (Note 1) | mg/L | | 45 | 30 | once/week | composite** | |
| <i>E. coli</i> (Note 2, Page 4) | #/100mL | | 1,030 | 206 | once/week | grab | |
| Ammonia as N (January) | mg/L | 12.1 | | 3.1 | once/week | composite** | |
| Ammonia as N (February) | mg/L | 10.1 | | 2.7 | once/week | composite** | |
| Ammonia as N (March) | mg/L | 12.1 | | 3.1 | once/week | composite** | |
| Ammonia as N (April) | mg/L | 12.1 | | 2.7 | once/week | composite** | |
| Ammonia as N (May) | mg/L | 12.1 | | 2.2 | once/week | composite** | |
| Ammonia as N (June) | mg/L | 12.1 | | 1.7 | once/week | composite** | |
| Ammonia as N (July) | mg/L | 12.1 | | 1.5 | once/week | composite** | |
| Ammonia as N (August) | mg/L | 10.1 | | 1.3 | once/week | composite** | |
| Ammonia as N (September) | mg/L | 12.1 | | 1.8 | once/week | composite** | |
| Ammonia as N (October) | mg/L | 12.1 | | 2.5 | once/week | composite** | |
| Ammonia as N (November) | mg/L | 12.1 | | 3.1 | once/week | composite** | |
| Ammonia as N (December) | mg/L | 12.1 | | 3.1 | once/week | composite** | |
| Total Phosphorus | mg/L | * | | * | once/month | composite** | |
| Total Kjeldahl Nitrogen | mg/L | * | | * | once/month | calculated | |
| Nitrite + Nitrate | mg/L | * | | * | once/month | composite** | |
| Total Nitrogen (Note 4, Page 4) | mg/L | * | | * | once/month | calculated | |
| Copper, Total Recoverable | µg/L | 20.2 | | 13.2 | once/month | composite** | |
| EFFLUENT PARAMETER(S) | UNITS | MINIMUM | | MAXIMUM | MEASUREMENT FREQUENCY | SAMPLE TYPE | |
| pH – Units**** | SU | 6.5 | | 9.0 | once/week | grab | |
| EFFLUENT PARAMETER(S) | | | | UNITS | MONTHLY AVERAGE MINIMUM | MEASUREMENT FREQUENCY | SAMPLE TYPE |
| Biochemical Oxygen Demand ₅ – Percent Removal (Notes 1 & 3, Page 4) | | | | % | 85 | once/month | calculated |
| Total Suspended Solids – Percent Removal (Notes 1 & 3, Page 4) | | | | % | 85 | once/month | calculated |
| MONITORING REPORTS SHALL BE SUBMITTED MONTHLY ; THE FIRST REPORT IS DUE DECEMBER 28, 2023 . | | | | | | | |

Note 1 – In addition to the requirements in Table A and Table B, Percent Removal conditions during blending events, shall be conducted according to the requirements of Special Conditions #22 & #23.

| OUTFALL #001 | TABLE A-2. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS | | | | | |
|--|--|----------------------------|--|-----------------|-------------------------|-------------|
| | 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-2 shall become effective on November 1, 2023 and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below: | | | | | |
| EFFLUENT PARAMETER(S) | UNITS | FINAL EFFLUENT LIMITATIONS | | | MONITORING REQUIREMENTS | |
| | | DAILY MAXIMUM | | MONTHLY AVERAGE | MEASUREMENT FREQUENCY | SAMPLE TYPE |
| eDMR Limit Set: Q | | | | | | |
| Oil & Grease | mg/L | * | | * | once/quarter ***** | grab |
| MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY ; THE FIRST REPORT IS DUE JANUARY 28, 2024 . | | | | | | |

- * Monitoring requirement only.
- ** A 24-hour composite sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.
- *** Once each weekday means: Monday, Tuesday, Wednesday, Thursday, and Friday.
- **** pH is measured in pH units and is not to be averaged.
- ***** See table below for quarterly sampling requirements.

| Quarterly Minimum Sampling Requirements | | | |
|---|-----------------------------|--|--------------------------|
| Quarter | Months | Quarterly Effluent Parameters | Report is Due |
| First | January, February, March | Sample at least once during any month of the quarter | April 28 th |
| Second | April, May, June | Sample at least once during any month of the quarter | July 28 th |
| Third | July, August, September | Sample at least once during any month of the quarter | October 28 th |
| Fourth | October, November, December | Sample at least once during any month of the quarter | January 28 th |

| OUTFALL #001 | TABLE A-3. WHOLE EFFLUENT TOXICITY FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS | | | | | |
|--|--|----------------------------|--|--|-------------------------|-------------|
| | 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-3 shall become effective on November 1, 2023 and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below: | | | | | |
| EFFLUENT PARAMETER(S) | UNITS | FINAL EFFLUENT LIMITATIONS | | | MONITORING REQUIREMENTS | |
| | | DAILY MAXIMUM | | | MEASUREMENT FREQUENCY | SAMPLE TYPE |
| eDMR Limit Set: WC | | | | | | |
| Chronic Whole Effluent Toxicity (Note 5) | TU _c | * | | | once/permit cycle | composite** |
| CHRONIC WET TEST REPORT SHALL BE SUBMITTED ONCE PER PERMIT CYCLE ; THE REPORT IS DUE JULY 28, 2025 . | | | | | | |

- * Monitoring requirement only.
- ** A 24-hour composite sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.

Note 2 – 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 3 – Influent sampling for BOD₅ 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: [(Average Influent – Average Effluent) / Average Influent] x 100% = Percent Removal. Influent and effluent samples are to be taken during the same month. The Average Influent and Average Effluent values are to be calculated by adding the respective values together and dividing by the number of samples taken during the month. Influent samples are to be collected as a 24-hour composite sample, composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.

Note 4 – Total Nitrogen consists of Total Kjeldahl Nitrogen and Nitrate + Nitrite.

Note 5 – The Chronic WET test shall be conducted once per permit cycle during the year 2024. See Special Condition #18 for additional requirements.

| PERMITTED FEATURE <u>INF</u> | TABLE B-1. INFLUENT MONITORING REQUIREMENTS | | | | | |
|---|--|-------------------------|--|-----------------|-----------------------|-------------|
| | The monitoring requirements in Table B-1 shall become effective on November 1, 2023 and remain in effect until expiration of the permit. The influent wastewater shall be monitored by the permittee as specified below: | | | | | |
| PARAMETER(S) | UNITS | MONITORING REQUIREMENTS | | | | |
| | | DAILY MAXIMUM | | MONTHLY AVERAGE | MEASUREMENT FREQUENCY | SAMPLE TYPE |
| eDMR Limit Set: IM | | | | | | |
| Biochemical Oxygen Demand ₅ (Notes 2 & 4) | mg/L | | | * | once/month | composite** |
| Total Suspended Solids (Notes 2 & 4) | mg/L | | | * | once/month | composite** |
| Ammonia as N | mg/L | * | | * | once/month | composite** |
| Total Phosphorus | mg/L | * | | * | once/month | composite** |
| Total Kjeldahl Nitrogen | mg/L | * | | * | once/month | calculated |
| Nitrite + Nitrate | mg/L | * | | * | once/month | composite** |
| MONITORING REPORTS SHALL BE SUBMITTED MONTHLY ; THE FIRST REPORT IS DUE DECEMBER 28, 2023 . | | | | | | |

* Monitoring requirement only.

** A 24-hour composite sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic

Note 2 – Influent sampling for BOD₅ 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: [(Average Influent – Average Effluent) / Average Influent] x 100% = Percent Removal. Influent and effluent samples are to be taken during the same month. The Average Influent and Average Effluent values are to be calculated by adding the respective values together and dividing by the number of samples taken during the month. Influent samples are to be collected as a 24-hour composite sample, composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.

Note 4 – In addition to the requirements in Table A and Table B, Percent Removal conditions during blending events, shall be conducted according to the requirements of Special Conditions #22 & #23.

| PERMITTED FEATURE <u>SM1</u> | TABLE C-1. INSTREAM MONITORING REQUIREMENTS | | | | | |
|---|---|-------------------------|--|-----------------|-----------------------|-------------|
| | The monitoring requirements in Table C-1 shall become effective on November 1, 2023 and remain in effect until expiration of the permit. The stream shall be monitored by the permittee as specified below: | | | | | |
| PARAMETER(S) | UNITS | MONITORING REQUIREMENTS | | | | |
| | | DAILY MAXIMUM | | MONTHLY AVERAGE | MEASUREMENT FREQUENCY | SAMPLE TYPE |
| eDMR Limit Set: DM | | | | | | |
| Hardness, Total | mg/L | * | | * | once/month | grab |
| MONITORING REPORTS SHALL BE SUBMITTED MONTHLY ; THE FIRST REPORT IS DUE DECEMBER 28, 2023 . | | | | | | |

* Monitoring requirement only.

D. 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. Annual reports required per Standard Conditions Part III Section K shall be submitted online to the Department via the Department's eDMR system as an attachment. This supersedes Standard Conditions Part III Section K #4. EPA reports shall continue to be submitted online via the Central Data Exchange system.

E. 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. All reports uploaded into the system shall be reasonably named so they are easily identifiable, such as “WET Test Chronic Outfall 002 Jan 2023,” or “Outfall 004 Daily Data Mar 2025.”
 - (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>. 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>. 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>. If you experience difficulties with using the eDMR system you may contact edmr@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>. 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. This does not include instream monitoring locations.
4. Report as no-discharge when a discharge does not occur during the report period. For instream samples, report as “C – No Discharge” if no stream flow occurs 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) See sufficiently sensitive test method requirements in Standard Conditions Part I, Section A, No. 4 regarding proper testing and method minimum levels used for sample analysis.
 - (c) The permittee shall not report a sample result as “Non-Detect” without also reporting the method minimum level of the test. Reporting as “Non Detect” without also including the method minimum level, will be considered failure to report, which is a violation of this permit.
 - (d) The permittee shall provide the “Non-Detect” sample result using the less than symbol and the method minimum level (e.g., <50 µg/L, if the method minimum level for the parameter is 50 µg/L).
 - (e) Where the permit contains a Department determined Minimum Quantification 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.

- (f) For the daily maximum, the facility shall report the highest value. If the highest value was a non-detect, use the less than “<” symbol and the laboratory’s highest method minimum level.
 - (g) For reporting an average based on all non-detected values, remove the “<” sign from the values, average the values, and then add the “<” symbol back to the resulting average.
 - (h) For reporting an average based on a mix of detected and non-detected values (not including *E. coli*), assign a value of “0” for all non-detects for that reporting period and report the average of all the results.
 - (i) When *E. coli* is not detected above the method minimum level, the permittee must report the data qualifier signifying less than detection limit for that parameter (e.g., <1 #/100mL, if the method minimum level is 1 #/100mL).
For reporting a geometric mean based on a mix of detected and non-detected values, use one-half of the detection limit (instead of zero) for non-detects when calculating geometric means.
 - (j) See the Fact Sheet Appendix - Non-Detect Example Calculations for further guidance.
6. It is a violation of the Missouri Clean Water Law to fail to pay fees associated with this permit (644.055 RSMo).
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 continue to implement and update if necessary, the 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 requirements for the annual report are contained in the Sedalia North WWTP’s Missouri State Operating Permit #MO-0023027, and the city’s report shall be submitted via eDMR entry for the Sedalia North WWTP.
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 Northeast 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 ensure 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.
14. The three peak flow retention basins shall be operated and maintained to ensure their structural integrity, which includes maintaining adequate freeboard and keeping the berms free of deep-rooted vegetation, animal dens, or other potential sources of damage.

15. The facility shall ensure that adequate provisions are provided to prevent or minimize surface water intrusion into the three peak flow retention basins and to divert stormwater runoff around the three peak flow retention basins and protect embankments from erosion.
16. The permittee shall perform a minimum of four whole effluent toxicity tests in the four and one-half year period prior to the next permit renewal application. The four tests shall consist of three acute toxicity tests and one chronic toxicity test in accordance with Special Conditions #17 and #18.
17. Acute Whole Effluent Toxicity (WET) tests shall be conducted as follows:
 - (a) Freshwater Species and Test Methods: Species and short-term test methods for estimating the acute toxicity of NPDES effluents are found in the most recent edition of *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* (EPA/821/R-02/012; Table IA, 40 CFR Part 136). The permittee shall concurrently conduct 48-hour, static, non-renewal toxicity tests with the following species:
 - i. The fathead minnow, *Pimephales promelas* (Acute Toxicity EPA Test Method 2000.0).
 - ii. The daphnid, *Ceriodaphnia dubia* (Acute Toxicity EPA Test Method 2002.0).
 - (b) Chemical and physical analysis of the upstream control sample and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping. Where upstream receiving water is not available or known to be toxic, other approved control water may be used.
 - (c) Test conditions must meet all test acceptability criteria required by the EPA Method used in the analysis.
 - (d) The laboratory shall not chemically dechlorinate the sample.
 - (e) The Allowable Effluent Concentration (AEC) is 100%; the dilution series is: 100%, 50%, 25%, 12.5%, and 6.25%.
 - (f) All chemical and physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% effluent concentration.
 - (g) The facility must submit a full laboratory report for all toxicity testing. The report must include a quantification of acute toxic units ($TU_a = 100/LC_{50}$) reported according to the test methods manual chapter on report preparation and test review. The Lethal Concentration 50 Percent (LC_{50}) is the effluent concentration that would cause death in 50 percent of the test organisms at a specific time.
18. Chronic Whole Effluent Toxicity (WET) tests shall be conducted as follows:
 - (a) Freshwater Species and Test Methods: Species and short-term test methods for estimating the chronic toxicity of NPDES effluents are found in the most recent edition of *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* (EPA/821/R-02/013; Table IA, 40 CFR Part 136). The permittee shall concurrently conduct 7-day, static renewal toxicity tests with the following species:
 - i. The fathead minnow, *Pimephales promelas* (Survival and Growth Test Method 1000.0).
 - ii. The daphnid, *Ceriodaphnia dubia* (Survival and Reproduction Test Method 1002.0).
 - (b) Chemical and physical analysis of the upstream control sample and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping. Where upstream receiving water is not available or known to be toxic, other approved control water may be used.
 - (c) Test conditions must meet all test acceptability criteria required by the EPA Method used in the analysis.
 - (d) The laboratory shall not chemically dechlorinate the sample.
 - (e) The Allowable Effluent Concentration (AEC) is 100%, the dilution series is: 100%, 50%, 25%, 12.5%, and 6.25%.
 - (f) All chemical and physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% effluent concentration.
 - (g) The facility must submit a full laboratory report for all toxicity testing. The report must include a quantification of chronic toxic units ($TU_c = 100/IC_{25}$) reported according to the *Methods for Measuring the Chronic Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* chapter on report preparation and test review. The 25 percent Inhibition Effect Concentration (IC_{25}) is the toxic or effluent concentration that would cause 25 percent reduction in mean young per female or in growth for the test populations.
19. Expanded Effluent Testing

Permittee must sample and analyze for the pollutants listed in Form B2 – Application for Operating Permit for Facilities That Receive Primarily Domestic Waste And Have A Design Flow More Than 100,000 Gallons Per Day (MO-780-1805 dated 10-20), Part D – Expanded Effluent Testing Data, #18. The permittee shall provide this data with the permit renewal application. A minimum of three samples taken within four and one-half years prior to the date of the permit application must be provided. Samples must be representative of the seasonal variation in the discharge from each outfall. Approved and sufficiently sensitive testing methods listed in 40 CFR 136.3 must be utilized. 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 measured pollutant or pollutant parameter; or 2) the method minimum level is above the applicable water quality criterion, but the amount of the pollutant or pollutant parameter in a facility's discharge is high enough that the method detects and quantifies the level of the pollutant or pollutant parameter in the

discharge; or 3) the method has the lowest minimum level of the analytical methods approved under 40 CFR part 136. These methods are also required for parameters listed as monitoring only, as the data collected may be used to determine if numeric limitations need to be established.

20. Stormwater Pollution Prevention Plan (SWPPP): A SWPPP must be implemented upon permit issuance. Through implementation of the SWPPP, the permittee shall minimize the release of pollutants in stormwater from the facility to the waters of the state. The SWPPP shall be developed in consultation with the concepts and methods described in the following document: Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators, (Document number EPA 833-B-09-002) published by the United States Environmental Protection Agency (USEPA) in June 2015.
- (a) The SWPPP must identify any stormwater outfall from the facility and Best Management Practices (BMPs) used to prevent or reduce the discharge of contaminants in stormwater. The stormwater outfalls shall either be marked in the field or clearly marked on a map and maintained with the SWPPP.
 - (b) The SWPPP must include a schedule and procedures for a once per month routine site inspection.
 - (1) The monthly routine inspection shall be documented in a brief written report, which shall include:
 - i. The person(s) conducting the inspection.
 - ii. The inspection date and time.
 - iii. Weather information for the day of the inspection.
 - iv. Precipitation information for the entire period since the last inspection.
 - v. Description of the discharges observed, including visual quality of the discharges (sheen, turbid, etc.).
 - vi. Condition of BMPs
 - vii. If BMPs were replaced or repaired.
 - viii. Observations and evaluations of BMP effectiveness.
 - (2) Any deficiency observed during the routine inspection must be corrected within seven (7) days and the actions taken to correct the deficiencies shall be included with the written report.
 - (3) The routine inspection reports must be kept onsite with the SWPPP and maintained for a period of five (5) years.
 - (4) The routine inspection reports shall be made available to Department personnel upon request.
 - (c) The SWPPP must include a schedule and procedures for a once per year comprehensive site inspection.
 - (1) The annual comprehensive inspection shall be documented in a written report, which shall include:
 - i. The person(s) conducting the inspection.
 - ii. The inspection date and time.
 - iii. Findings from the areas of your facility that were examined;
 - iv. All observations relating to the implementation of your control measures including:
 - 1. Previously unidentified discharges from the site,
 - 2. Previously unidentified pollutants in existing discharges,
 - 3. Evidence of, or the potential for, pollutants entering the drainage system;
 - 4. Evidence of pollutants discharging to receiving waters at all facility outfall(s), and the condition of and around the outfall, and
 - 5. Additional control measures needed to address any conditions requiring corrective action identified during the inspection.
 - v. Any required revisions to the SWPPP resulting from the inspection;
 - vi. Any incidence of noncompliance observed or a certification stating that the facility is in compliance with Special Condition E.20.
 - (2) Any deficiency observed during the comprehensive inspection must be corrected within seven (7) days and the actions taken to correct the deficiencies shall be included with the written report.
 - (3) The comprehensive inspection reports must be kept onsite with the SWPPP and maintained for a period of five (5) years.
 - (4) The comprehensive inspection reports shall be made available to Department personnel upon request.
 - (d) The SWPPP must be kept on-site and should not be sent to the Department unless specifically requested.
 - (e) The SWPPP must be reviewed and updated at a minimum once per permit cycle, as site conditions or control measures change.
21. The permittee shall select, install, use, operate, and maintain the Best Management Practices prescribed in the SWPPP.
- (a) Permittee shall adhere to the following minimum Best Management Practices (BMPs):
 - (1) Minimize the exposure of industrial material storage areas, loading and unloading areas, dumpsters and other disposal areas, maintenance activities, and fueling operations to rain, snow, snowmelt, and runoff, by locating industrial materials and activities inside or protecting them with storm resistant coverings, if warranted and practicable.
 - (2) Provide good housekeeping practices on the site to prevent potential pollution sources from coming into contact with stormwater and provide collection facilities and arrange for proper disposal of waste products, including sludge.
 - (3) Implement a maintenance program to ensure that the structural control measures and industrial equipment is kept in good operating condition and to prevent or minimize leaks and other releases of pollutants.

- (4) Prevent or minimize the spillage or leaks of fluids, oil, grease, fuel, etc. from equipment and vehicle maintenance, equipment and vehicle cleaning, or activities.
 - (5) Provide sediment and erosion control sufficient to prevent or control sediment loss off of the property. This could include the use of straw bales, silt fences, or sediment basins, if needed.
 - (6) Provide stormwater runoff controls to divert, infiltrate, reuse, contain, or otherwise minimize pollutants in the stormwater discharge.
 - (7) Enclose or cover storage piles of salt or piles containing salt, used for deicing or other commercial or industrial purposes.
 - (8) Provide training to all employees who; work in areas where industrial materials or activities are exposed to stormwater, are responsible for stormwater inspections, are members of the Pollution Prevention Team. Training must cover the specific control measures and monitoring, inspection, planning, reporting and documentation requirements of this permit. Training is recommended annually for any applicable staff and whenever a new employee is hired who meets the description above.
 - (9) Eliminate and prevent unauthorized non-stormwater discharges at the facility.
 - (10) Minimize generation of dust and off-site tracking of raw, final, or waste materials by implementing appropriate control measures.
22. The Monthly Average Minimum Percent Removal calculation shall include daily sample results for influent and effluent BOD₅ and TSS for days when blending occurs. Influent and effluent samples collected during blending events shall be collected as grab samples. If a blending event starts after the end of the normal business day and ends prior to the start of the next normal business day for the wastewater treatment facility, and the wastewater treatment facility is not staffed during those times, the facility shall only report that a blending event occurred in the report required in Special Condition #23, and samples are not required. Blending occurs when:
- (a) flows from the peak flow retention basin are blended with treated wastewater flows from the dual extended aeration and clarification basins, or
 - (b) at any time that blending occurs at the dual extended aeration and clarification basins due to reasons not listed in this condition.
23. If blending occurs during the month, the facility shall submit a monthly report to the Department via the Electronic Discharge Monitoring Report (eDMR) Submission System, listing the days during the month when blending occurred
24. Pretreatment: The permittee shall implement and enforce its approved pretreatment program in accordance with the requirements of 10 CSR 20-6.100. The approved pretreatment program is hereby incorporated by reference.
- (a) The permittee shall submit to the Department via the Electronic Discharge Monitoring Report (eDMR) Submission System on or before March 31st of each year a report briefly describing the City's pretreatment activities during the previous calendar year. The requirements for the annual report are contained in the Sedalia North WWTP's Missouri State Operating Permit #MO-0023027, and the city's report shall be submitted via eDMR entry for the Sedalia North WWTP.
25. Biosolids Composting Requirements for General Public Use:
- (a) Applicability. A sewage sludge compost product will be considered suitable for general public use when the permittee meets the requirements under this permit special condition. General public use means the compost is for crops and vegetation including use in residential areas, public use areas and for horticulture, silviculture and agricultural uses.
 - (b) Composting Facility Description.
 - (1) Raw materials will consist of dewatered sewage sludge or biosolids, wood chips, yard waste or other compostable materials.
 - (c) If the compost is to be distributed to the public it shall meet the Class A requirements for pathogen reduction by having undergone one of the Processes to Further Reduce Pathogens found in Appendix B of 40 CFR 503.
 - (d) The permittee will maintain a detailed operations plan for the composting process.
 - (e) Information Sheet for Users.

An information/instruction sheet shall be provided to each user of compost to provide information on the origin of the compost, appropriate application rates, and other pertinent information for proper handling and use of the compost.
 - (f) Annual Use Rate. Compost that is land applied by the permit holder shall not exceed the most restrictive of the following criteria:
 - (1) Application rates shall not exceed the annual plant available nutrient requirements for nitrogen and phosphorus based on the vegetation to be grown, a realistic crop yield goal, soil testing results and testing of the compost for nutrient content.
 - (2) Application rate shall not exceed 20 dry tons per acre per year.
 - (g) One Time or Occasional Use Rates.

Compost that is used by the permit holder for soil amendments or land reclamation shall not exceed a total of 200 dry tons per acre on either a one time basis or a cumulative total over a five year period. Subsequent application rates shall not exceed the annual use rate listed above. The compost shall be incorporated into the soil by tillage practices as soon as practical after application.
 - (h) Final Compost Monitoring.

Composite samples of the final compost product shall be collected at representative locations and monitored as described in 40 CFR 503 and Standard Conditions Part III.

- (i) Records and Reporting Requirements.
 - (1) The requirements for the annual report are contained in the Sedalia North WWTP's Missouri State Operating Permit #MO-0023027, and the city's report shall be submitted via eDMR entry for the Sedalia North WWTP. The reports shall be submitted to the EPA Region VII office as part of the annual sludge report.
- (j) Composted sewage sludge that does not meet the requirements for general public use may still be land applied in accordance with Standard Conditions Part III.

26. Receiving Water Monitoring Conditions

- (a) Downstream receiving water samples should be taken at the location specified on Page 2 of this permit. In the event that a safe, accessible location is not present at the location listed, a suitable location can be negotiated with the Department. Samples should be taken at least four feet from the bank or from the middle of the stream (whichever is less) and 6-inches below the surface if possible.
- (b) When conducting in-stream monitoring, the permittee shall record observations that include: the time of day, weather conditions, unusual stream characteristics (e.g., septic conditions, algae growth, etc.), the stream segment (e.g., riffle, pool or run) from where the sample was collected. These observations shall be submitted with the sample results.
- (c) Samples shall not be collected from areas with especially turbulent flow, still water or from the stream bank, unless these conditions are representative of the stream reach or no other areas are available for sample collection. Sampling should not be made when significant precipitation has occurred recently. The sampling event should be terminated and rescheduled if any of the following conditions occur:
 - (1) If turbidity in the stream increases notably; or
 - (2) If rainfall over the past two weeks exceeds 2.5 inches or exceeds 1 inch in the last 24 hour.
- (d) Always use the correct sampling technique and handling procedure specified for the parameter of interest. Please refer to the latest edition of Standard Methods for the Examination of Water and Wastewater for further discussion of proper sampling techniques. All analyses must be conducted in accordance with an approved EPA method. Meters shall be calibrated immediately (within 1 hour) prior to the sampling event.
- (e) Please contact the Department if you need additional instructions or assistance.

F. 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
OF
MO-0101567
SEDALIA SE 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: 10/02/2020
Expiration Date: 03/31/2021

Facility Type and Description: POTW - Influent pump station / mechanical bar screen / manual bar screen / aerated grit removal tank / 3 peak flow retention basins (2 located offsite of the plant) / 2 dual extended aeration and clarification basins / UV disinfection / up-flow aeration unit / sludge thickener basin / sludge holding basin / 2 sludge belt presses / biosolids are land applied or are composted / blending occurs when flows from the onsite peak flow retention basin during high flow events are combined with fully treated effluent after the aerated clarification basins prior to the UV disinfection unit and then discharged

OUTFALL(S) TABLE:

| OUTFALL | DESIGN FLOW (CFS) | TREATMENT LEVEL | EFFLUENT TYPE |
|---------|-------------------|-----------------|---------------|
| #001 | 4.03 | Secondary | Domestic |

Comments:

Changes in this permit for Outfall #001 include the addition of Total Nitrogen monitoring, the revision of final limits for Ammonia, the revision and implementation of final limits for Total Recoverable Copper, the removal of final limits for Oil & Grease and change to monitoring only requirements, the removal of the Acute WET test, and the removal of Total Hardness as it is required to be collected downstream of the outfall in the receiving stream. Changes in this permit for Permitted Feature INF include the addition of BOD₅ and TSS. Changes in this permit also include the addition of Permitted Feature SM1, which includes new monitoring requirements for Total Hardness. See Part II of the Fact Sheet for further information regarding the addition, revision, and removal of influent, effluent, and instream parameters. Special conditions were updated to include the revision of inflow and infiltration reporting requirements, revision of Non-detects requirements, revision of bypass reporting requirements, revision of pretreatment requirements, and revision of the Electronic Discharge Monitoring Report (eDMR) Submission System.

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:

| WATER-BODY NAME | CLASS | WBID | DESIGNATED USES* | 12-DIGIT HUC | DISTANCE TO CLASSIFIED SEGMENT (MI) |
|--|-------|------|-------------------------------------|---------------|-------------------------------------|
| Breakfast Branch (Presumed Use Streams) | C | 5066 | AHP(WWH), WBC-B, SCR, HHP, IRR, LWP | 10300103-0301 | 0 |

*As per 10 CSR 20-7.031 Missouri Water Quality Standards, the Department defines the Clean Water Commission's water quality objectives in terms of "water uses to be maintained and the criteria to protect those uses." The receiving stream and 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.:

AHP = Aquatic Habitat Protection - To ensure the protection and propagation of fish, shellfish, and wildlife. AHP is further subcategorized as:

- WWH** = Warm Water Habitat;
- CLH** = Cool Water Habitat;
- CDH** = Cold Water Habitat;
- EAH** = Ephemeral Aquatic Habitat;
- MAH** = Modified Aquatic Habitat;
- LAH** = Limited Aquatic Habitat.

This permit uses Aquatic Life Protection effluent limitations in 10 CSR 20-7.031 Table A for all aquatic 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 is further subcategorized as:

- 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** = Human Health Protection as it relates to the consumption of fish;
- IRR** = Irrigation - Application of water to cropland or directly to cultivated plants that may be used for human or livestock consumption;
- LWP** = Livestock and wildlife protection - Maintenance of conditions in waters to support health in livestock and wildlife;
- DWS** = Drinking water supply;
- IND** = Industrial water supply

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

- WSA** = Storm- and flood-water storage and attenuation;
- WHP** = Habitat for resident and migratory wildlife species;
- WRC** = Recreational, cultural, educational, scientific, and natural aesthetic values and uses;
- WHC** = Hydrologic cycle maintenance.

10 CSR 20-7.031(6):

GRW = Groundwater

RECEIVING STREAM(S) LOW-FLOW VALUES:

| RECEIVING STREAM | LOW-FLOW VALUES (CFS) | | |
|--|-----------------------|------|-------|
| | 1Q10 | 7Q10 | 30Q10 |
| Breakfast Branch (Presumed Use Streams) | 0 | 0 | 0 |

MIXING CONSIDERATIONS

MIXING CONSIDERATIONS TABLE:

| MIXING ZONE (CFS) [10 CSR 20-7.031(5)(A)4.B.(I)(a)] | | | ZONE OF INITIAL DILUTION (CFS) [10 CSR 20-7.031(5)(A)4.B.(I)(b)] | | |
|--|------|-------|---|------|-------|
| 1Q10 | 7Q10 | 30Q10 | 1Q10 | 7Q10 | 30Q10 |
| 0 | 0 | 0 | 0 | 0 | N/A |

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 discharges to a 303(d) listed stream. Flat Creek is listed on the 2020 Missouri 303(d) List for Mercury in Fish Tissue.
 - This facility is not considered to be a source of the above listed pollutant(s) or considered to contribute to the impairment of Flat Creek.
- ✓ This facility discharges to a stream with an EPA approved TMDL. The Flat Creek TMDL was approved in October 2006. The pollutant of concern was Sediment. The main source of sediment is believed to be runoff from agricultural nonpoint sources. For Point Source Loads, the WLA is set to the lesser of current permit limits or technology based effluent limits (TBELs). Mechanical waste water treatment facilities' (WWTF) permit limits are a weekly average TSS concentration of 45 mg/L and a monthly average TSS concentration of 30 mg/L. Based on the assessment of sources, point sources do not contribute to water quality impairment relative to sediment impacts on stream biology. Thus, the WLAs are zero percentage net reduction in sediment load. These facilities' WLAs are set at the current permit limits and conditions.
- ✓ The Department has not conducted a stream survey for this waterbody. When a stream survey is conducted, more information may be available about the receiving stream.

CHANGES TO EFFLUENT LIMITATIONS TABLE:

| PARAMETER | Unit | Basis for Limits | Daily Maximum | Weekly Average | Monthly Average | Previous Permit Limit | Sampling Frequency | Reporting Frequency | Sample Type **** |
|---------------------------|------|------------------|---------------|----------------|-----------------|-----------------------|--------------------|---------------------|------------------|
| Ammonia as N (January) | mg/L | 2, 3 | 12.1 | | 3.1 | 11.9/2.2 | 1/week | monthly | C |
| Ammonia as N (February) | mg/L | 2, 3 | 10.1 | | 2.7 | 11.9/2.2 | 1/week | monthly | C |
| Ammonia as N (March) | mg/L | 2, 3 | 12.1 | | 3.1 | 11.9/2.2 | 1/week | monthly | C |
| Ammonia as N (April) | mg/L | 2, 3 | 12.1 | | 2.7 | 5.9/1.2 | 1/week | monthly | C |
| Ammonia as N (May) | mg/L | 2, 3 | 12.1 | | 2.2 | 5.9/1.2 | 1/week | monthly | C |
| Ammonia as N (June) | mg/L | 2, 3 | 12.1 | | 1.7 | 5.9/1.2 | 1/week | monthly | C |
| Ammonia as N (July) | mg/L | 2, 3 | 12.1 | | 1.5 | 5.9/1.2 | 1/week | monthly | C |
| Ammonia as N (August) | mg/L | 2, 3 | 10.1 | | 1.3 | 5.9/1.2 | 1/week | monthly | C |
| Ammonia as N (September) | mg/L | 2, 3 | 12.1 | | 1.8 | 5.9/1.2 | 1/week | monthly | C |
| Ammonia as N (October) | mg/L | 2, 3 | 12.1 | | 2.5 | 11.9/2.2 | 1/week | monthly | C |
| Ammonia as N (November) | mg/L | 2, 3 | 12.1 | | 3.1 | 11.9/2.2 | 1/week | monthly | C |
| Ammonia as N (December) | mg/L | 2, 3 | 12.1 | | 3.1 | 11.9/2.2 | 1/week | monthly | C |
| Oil & Grease | mg/L | 1, 3 | * | | * | 15/10 | 1/quarter | quarterly | G |
| Copper, Total Recoverable | µg/L | 1, 3 | 20.2 | | 13.2 | 35.4/16.6 | 1/month | monthly | G |
| Total Nitrogen | mg/L | 7 | * | | * | *** | 1/month | monthly | M |

* - Monitoring requirement only.
 ** - #/100mL; the Monthly Average for *E. coli* is a geometric mean.
 *** - Parameter not previously established in previous state operating permit.

**** - C = 24-hour composite
 G = Grab
 T = 24-hr. total
 E = 24-hr. estimate
 M = Measured/calculated

Basis for Limitations Codes:

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

OUTFALL #001 – DERIVATION AND DISCUSSION OF LIMITS:

- **Flow.** In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the Department, which may require the submittal of an operating permit modification.
- **Biochemical Oxygen Demand (BOD₅).** Operating permit retains 45 mg/L as a Weekly Average and 30 mg/L as a Monthly Average from the previous permit. Effluent limits were established in accordance with 10 CSR 20-7.015(8) for discharges to All Other Waters.
- **Total Suspended Solids (TSS).** Operating permit retains 45 mg/L as a Weekly Average and 30 mg/L as a Monthly Average from the previous permit. Effluent limits were established in accordance with 10 CSR 20-7.015(8) for discharges to All Other Waters.
- ***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.** Early Life Stages Present Total Ammonia Nitrogen criteria apply [10 CSR 20-7.031(5)(B)7.C. & Table B3]. Background total ammonia nitrogen = 0.01 mg/L. No mixing considerations allowed; therefore, WLA = appropriate criterion.

The Department previously followed the 2007 Ammonia Guidance method for derivation of ammonia limits. However, the EPA's Technical Support Document for Water Quality-based Toxic Controls (TSD) establishes other alternatives to limit derivation. The Department has determined that the approach established in Section 5.4.2 of the TSD, which allows for direct application of both the acute and chronic wasteload allocations (WLA) as permit limits for toxic pollutants, is more appropriate limit derivation approach. Using this method for a discharge to a waterbody where mixing is not allowed, the criterion continuous concentration (CCC) and the criterion maximum concentration (CMC) will equal the chronic and acute WLA respectively. The WLAs are then applied as effluent limits, per Section 5.4.2 of the TSD, where the CMC is the Daily Maximum and the CCC is the Monthly Average. The direct application of both acute and chronic criteria as WLA is also applicable for facilities that discharge into receiving waterbodies with mixing considerations. The CCC and CMC will need to be calculated into WLA with mixing considerations using the mass-balance equation:

$$C_e = \frac{(Q_e + Q_s)C - (Q_s \times C_s)}{Q_e}$$

Where C = downstream concentration C_e = effluent concentration
 C_s = upstream concentration Q_e = effluent flow
 Q_s = upstream flow

In the event that mixing considerations derive an AML less stringent than the MDL, the AML and MDL will be equal and based on the MDL.

| Month | Temp (°C)* | pH (SU)* | Total Ammonia Nitrogen CCC (mg/L) | Total Ammonia Nitrogen CMC (mg/L) |
|-----------|------------|----------|--------------------------------------|--------------------------------------|
| January | 8.1 | 7.8 | 3.1 | 12.1 |
| February | 9.3 | 7.9 | 2.7 | 10.1 |
| March | 13.0 | 7.8 | 3.1 | 12.1 |
| April | 16.7 | 7.8 | 2.7 | 12.1 |
| May | 20.0 | 7.8 | 2.2 | 12.1 |
| June | 24.0 | 7.8 | 1.7 | 12.1 |
| July | 26.6 | 7.8 | 1.5 | 12.1 |
| August | 26.5 | 7.9 | 1.3 | 10.1 |
| September | 23.5 | 7.8 | 1.8 | 12.1 |
| October | 18.0 | 7.8 | 2.5 | 12.1 |
| November | 14.0 | 7.8 | 3.1 | 12.1 |
| December | 10.0 | 7.8 | 3.1 | 12.1 |

* Ecoregion data (Ozark Highlands)

January

Chronic WLA: $C_e = ((4.03 + 0)3.1 - (0 * 0.01)) / 4.03$
 $C_e = 3.1$

Acute WLA: $C_e = ((4.03 + 0)12.1 - (0 * 0.01)) / 4.03$
 $C_e = 12.1$

AML = WLA_c = 3.1 mg/L
MDL = WLA_a = 12.1 mg/L

February

Chronic WLA: $C_e = ((4.03 + 0)2.7 - (0 * 0.01)) / 4.03$
 $C_e = 2.7$

Acute WLA: $C_e = ((4.03 + 0)10.1 - (0 * 0.01)) / 4.03$
 $C_e = 10.1$

AML = WLA_c = 2.7 mg/L
MDL = WLA_a = 10.1 mg/L

March

Chronic WLA: $C_e = ((4.03 + 0)3.1 - (0 * 0.01)) / 4.03$
 $C_e = 3.1$

Acute WLA: $C_e = ((4.03 + 0)12.1 - (0 * 0.01)) / 4.03$
 $C_e = 12.1$

AML = WLA_c = 3.1 mg/L
MDL = WLA_a = 12.1 mg/L

April

Chronic WLA: $C_e = ((4.03 + 0)2.7 - (0 * 0.01)) / 4.03$
 $C_e = 2.7$

Acute WLA: $C_e = ((4.03 + 0)12.1 - (0 * 0.01)) / 4.03$
 $C_e = 12.1$

AML = WLA_c = 2.7 mg/L
MDL = WLA_a = 12.1 mg/L

May

Chronic WLA: $C_e = ((4.03 + 0)2.2 - (0 * 0.01)) / 4.03$
 $C_e = 2.2$

Acute WLA: $C_e = ((4.03 + 0)12.1 - (0 * 0.01)) / 4.03$
 $C_e = 12.1$

AML = WLA_c = 2.2 mg/L
MDL = WLA_a = 12.1 mg/L

June

Chronic WLA: $C_e = ((4.03 + 0)1.7 - (0 * 0.01)) / 4.03$
 $C_e = 1.7$

Acute WLA: $C_e = ((4.03 + 0)12.1 - (0 * 0.01)) / 4.03$
 $C_e = 12.1$

AML = WLA_c = 1.7 mg/L
MDL = WLA_a = 12.1 mg/L

July

Chronic WLA: $C_e = ((4.03 + 0)1.5 - (0 * 0.01)) / 4.03$
 $C_e = 1.5$

Acute WLA: $C_e = ((4.03 + 0)12.1 - (0 * 0.01)) / 4.03$
 $C_e = 12.1$

AML = WLA_c = 1.5 mg/L
MDL = WLA_a = 12.1 mg/L

August

Chronic WLA: $C_e = ((4.03 + 0)1.3 - (0 * 0.01)) / 4.03$
 $C_e = 1.3$

Acute WLA: $C_e = ((4.03 + 0)10.1 - (0 * 0.01)) / 4.03$
 $C_e = 10.1$

AML = WLA_c = 1.3 mg/L
MDL = WLA_a = 10.1 mg/L

September

Chronic WLA: $C_e = ((4.03 + 0)1.8 - (0 * 0.01)) / 4.03$
 $C_e = 1.8$

Acute WLA: $C_e = ((4.03 + 0)12.1 - (0 * 0.01)) / 4.03$
 $C_e = 12.1$

AML = WLA_c = 1.8 mg/L
MDL = WLA_a = 12.1 mg/L

October

Chronic WLA: $C_e = ((4.03 + 0)2.5 - (0 * 0.01)) / 4.03$
 $C_e = 2.5$

Acute WLA: $C_e = ((4.03 + 0)12.1 - (0 * 0.01)) / 4.03$
 $C_e = 12.1$

AML = WLA_c = 2.5 mg/L
MDL = WLA_a = 12.1 mg/L

November

Chronic WLA: $C_e = ((4.03 + 0)3.1 - (0 * 0.01)) / 4.03$
 $C_e = 3.1$

Acute WLA: $C_e = ((4.03 + 0)12.1 - (0 * 0.01)) / 4.03$
 $C_e = 12.1$

AML = WLA_c = 3.1 mg/L
MDL = WLA_a = 12.1 mg/L

December

Chronic WLA: $C_e = ((4.03 + 0)3.1 - (0 * 0.01)) / 4.03$
 $C_e = 3.1$

Acute WLA: $C_e = ((4.03 + 0)12.1 - (0 * 0.01)) / 4.03$
 $C_e = 12.1$

AML = WLA_c = 3.1 mg/L
MDL = WLA_a = 12.1 mg/L

- **Oil & Grease.** During the drafting of this permit, the permit writer reviewed DMR data submitted by the permittee. Additionally, no evidence of an excursion of the water quality standard 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 the water quality standard. As a result, monitoring requirements have been included in this permit to determine if the discharge has the reasonable potential to cause or contribute to an excursion of the water quality standard. Data will be reviewed at renewal to reassess this determination.
- **Total Phosphorus, Total Kjeldahl Nitrogen, Nitrate + Nitrite, & Total Nitrogen.** Effluent monitoring for Total Phosphorus, Total Kjeldahl Nitrogen, and Nitrate + Nitrite are required per 10 CSR 20-7.015(9)(D)8. Effluent monitoring for Total Nitrogen is required per 10 CSR 20-6.010(8)(B). Total Nitrogen consists of Total Kjeldahl Nitrogen and Nitrate + Nitrite.
- **pH.** 6.5-9.0 SU. pH limitations of 6.0-9.0 SU [10 CSR 20-7.015] are not protective of the in-stream Water Quality Standard, which states that water contaminants shall not cause pH to be outside the range 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.

Metals

Effluent limitations for total recoverable metals were developed using methods and procedures outlined in the “Technical Support Document for Water Quality-based Toxic Controls” (EPA/505/2-90-001) and “The Metals Translator: Guidance For Calculating a Total Recoverable Permit Limit from a Dissolved Criterion” (EPA 823-B-96-007). General warm-water fishery criteria apply. Ecoregion water hardness for Ozark Highlands of 170 mg/L is used in the calculation below. This value represents the 50th percentile (median) for all watersheds in-stream hardness values through the Ecoregion.

Due to the absence of contemporaneous effluent and instream data for total recoverable metals, dissolved metals, hardness, and total suspended solids with which to calculate metals translators, partitioning between the dissolved and absorbed phases was assumed to be minimal (Section 5.7.3, EPA/505/2-90-001). Freshwater criteria conversion factors for dissolved metals were used as the metals translator as recommended in guidance (Section 1.3, 1.5.3, and Table 1, EPA 823-B-96-007). If concurrent site-specific data for total recoverable metals, dissolved metals, hardness, and total suspended solids are provided to the Department, partitioning evaluations may be considered and site-specific translators developed.

| METAL | CONVERSION FACTORS | |
|--------|--------------------|---------|
| | ACUTE | CHRONIC |
| Copper | 0.960 | 0.960 |

- ✓ **Copper, Total Recoverable.** Protection of Aquatic Life Acute Criteria = 22.15 µg/L, Chronic Criteria = 14.094 µg/L. The hardness value of **170 mg/L** represents the 50th percentile (median) for all watersheds in-stream hardness values through the Ecoregion.

Acute AQL: $e^{(1.0166 * \ln 170 - 3.062490)} * (1.136672 - \ln 170 * 0.041838) = 22.15 \mu\text{g/L}$ [at hardness 170]

Chronic AQL: $e^{(0.7977 * \ln 170 - 3.909)} * (1.101672 - \ln 170 * 0.041938) = 14.094 \mu\text{g/L}$

TR Conversion: AQL/Translator = 22.15 / 0.96 = 23.073

TR Conversion: AQL/Translator = 14.094 / 0.96 = 14.681

Acute WLA: $C_e = ((4.023 \text{ cfs} + 0 \text{ cfs}) * 23.073 - (0 \text{ cfs} * 0 \text{ background})) / 4.023 \text{ cfs} = 23.073$

Chronic WLA: $C_e = ((4.023 \text{ cfs} + 0 \text{ cfs}) * 14.681 - (0 \text{ cfs} * 0 \text{ background})) / 4.023 \text{ cfs} = 14.681$

LTAa: $WLA_a * LTA_a \text{ multiplier} = 23.073 * 0.51 = 11.775$ [CV: 0.317, 99th percentile]

LTAc: $WLA_c * LTA_c \text{ multiplier} = 14.681 * 0.702 = 10.3$ [CV: 0.317, 99th percentile]

Use most protective LTA: 10.3

Daily Maximum: $MDL = LTA * MDL \text{ multiplier} = 10.3 * 1.959 = 20.2 \mu\text{g/L}$ [CV: 0.317, 99th Percentile]

Monthly Average: $AML = LTA * AML \text{ multiplier} = 10.3 * 1.28 = 13.2 \mu\text{g/L}$ [CV: 0.317, 95th Percentile, n=4]

Nitrogen, and Nitrite + Nitrate. The sampling and reporting frequencies for influent BOD₅ and TSS have been established to provide the Department adequate data to ensure the facility is meeting the percent removal requirement.

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.

PERMITTED FEATURE SM1 – INSTREAM MONITORING (DOWNSTREAM)

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.

MONITORING REQUIREMENTS TABLE:

| PARAMETER | Unit | Basis for Limits | Daily Maximum | Weekly Average | Monthly Average | Previous Permit Limit | Sampling Frequency | Reporting Frequency | Sample Type **** |
|----------------|------|------------------|---------------|----------------|-----------------|-----------------------|--------------------|---------------------|------------------|
| Total Hardness | mg/L | 1, 3 | * | | * | *** | 1/month | monthly | G |

* - Monitoring requirement only. **** - G = Grab
 *** - Parameter not previously established in previous state operating permit.

Basis for Limitations Codes:

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

PERMITTED FEATURE SM1 – DERIVATION AND DISCUSSION OF MONITORING REQUIREMENTS:

- **Total Hardness.** Monitoring only requirement as the metals parameters contained in the permit are hardness based. This data will be used in the next permit renewal.

Sampling Frequency Justification: The sampling and reporting frequency for Total Hardness has been established to match the required sampling frequency of the metals parameters in the effluent.

Sampling Type Justification: For the purposes of instream data collection, and as the downstream water quality should be consistent over a 24 hour period, grab samples are sufficient. 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 June 20 and 21, 2019, no evidence of an excursion of this criterion has been observed by the Department in the past and the facility has not disclosed any other information related to the characteristics of the discharge on their permit application which has the potential to cause or contribute to an excursion of this narrative criterion. Additionally, this facility utilizes secondary treatment technology and is currently in compliance with the secondary treatment technology based effluent limits established in 40 CFR 133 and there has been no indication to the Department that the stream has had issues maintaining beneficial uses as a result of this discharge.

Based on the information reviewed during the drafting of this permit, these final effluent limitations appear to have protected against the excursion of this criterion in the past. Therefore, the discharge does not have the reasonable potential to cause or contribute to 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 narrative criterion. Additionally, any solid wastes received or produced at this facility are wholly contained in appropriate storage facilities, are not discharged, and are disposed of offsite. This discharge is subject to Standard Conditions Part III, which contains requirements for the management and disposal of sludge to prevent its discharge. Therefore, this discharge does not have reasonable potential to cause or contribute to an excursion of this criterion.

Part 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)].

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.
 - **Ammonia as N.** Effluent limitations were re-calculated for Ammonia using new DMR data and new ecoregional pH and Temperature data. The Department previously followed the 2007 Ammonia Guidance method for derivation of ammonia limits. However, the EPA's Technical Support Document for Water Quality-based Toxic Controls (TSD) establishes other alternatives to limit derivation. The Department has determined that the approach established in Section 5.4.2 of the TSD, which allows for direct application of both the acute and chronic wasteload allocations (WLA) as permit limits for toxic pollutants, is more appropriate limit derivation approach. Using this method for a discharge to a waterbody where mixing is not allowed, the criterion continuous concentration (CCC) and the criterion maximum concentration (CMC) will equal the chronic and acute WLA respectively. The WLAs are then applied as effluent limits, per Section 5.4.2 of the TSD, where the CMC is the Daily Maximum and the CCC is the Monthly Average.

The direct application of both acute and chronic criteria as WLA is also applicable for facilities that discharge into receiving waterbodies with mixing considerations. The CCC and CMC will need to be calculated into WLA with mixing considerations using the mass-balance equation. The newly established limitations are still protective of water quality.

- **Oil and Grease.** The permit writer conducted a reasonable potential determination using new DMR data. The previous permit had final effluent limits of 15 mg/L as a daily maximum and 10 mg/L as a monthly average. During the drafting of this permit, the permit writer reviewed DMR data submitted by the permittee. Additionally, no evidence of an excursion of the water quality standard 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 the water quality standard. Therefore, the permit writer has made a determination that the discharge does not have the reasonable potential to cause or contribute to an excursion of the standard and has removed the final effluent limits from this permit and added monitoring only requirements. This backsliding is justified as there is information available which was not available at the time of the previous permit issuance (new DMR data). This new information justifies the application of a less stringent effluent limitation at the time of permit issuance. Also, the removal of the effluent limit and addition of a monitoring only requirement also meets the requirements of the safety clause, as the revision will not result in a violation of a water quality standard.
- **Acute Whole Effluent Toxicity (WET) test.** The previous permit included requirements to conduct an Acute WET test once per year. 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 backsliding is justified as there is information available which was not available at the time of the previous permit issuance (previous passing WET tests). This new information justifies the removal of the test at the time of permit issuance. Also, the removal of the test also meets the requirements of the safety clause, as the removal will not result in a violation of a water quality standard.
- The Department determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under section 402(a)(1)(b).
- **Total Hardness.** The permit writer observed that there is flow in the stream above the outfall, therefore the stream is not effluent dominated. As effluent hardness is not representative of the water in the stream, Total Hardness monitoring was removed from Outfall #001. The permit writer added Permitted Feature SM1 as a downstream monitoring location where Total Hardness is to be sampled. This backsliding is justified as the previous permit contained technical mistakes. Also, the removal of the parameter also meets the requirements of the safety clause, as the removal will not result in a violation of a water quality standard.
- The previous permit indicated “There Shall Be No Discharge of Floating Solids or Visible Foam in Other Than Trace Amounts” under each table. The statement was not evaluated against actual site conditions therefore, this general criteria was re-assessed. It was determined that this facility does not discharge solids or foam in amounts which would indicate reasonable potential, therefore the statement was removed. Each general criteria was assessed for 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 was proposed in this permit action 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 must review and maintain stormwater BMPs as appropriate.

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 authorized to land apply biosolids or compost biosolids in accordance with Standard Conditions III and Special Condition #25.

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. This facility was last inspected on June 20 and 21, 2019. The inspection showed the following unsatisfactory features: failure to comply with effluent limits, failure to meet the 85 percent removal efficiency requirement for BOD and TSS, and failure to submit the operational monitoring requirements. The violations had “No further action” required in the inspection report.

CONTINUING AUTHORITY:

Each application for an operating permit shall identify the person, as that term is defined in section 644.016(15), RSMo, that is the owner of, operator of, or area-wide management authority for a water contaminant source, point source, wastewater treatment facility, or sewer collection system. This person shall be designated as the continuing authority and shall sign the application. By doing so, the person designated as the continuing authority acknowledges responsibility for compliance with all permit conditions.

10 CSR 20-6.010(2) establishes preferential levels for continuing authorities: Levels 1 through 5 (with Level 1 as the highest level), and generally requires permits to be issued to a higher preference continuing authority if available. A Level 3, 4, or 5 applicant may constitute a continuing authority by showing that Level 1 and Level 2 authorities are not available; do not have jurisdiction; are forbidden by state statute or local ordinance from providing service to the person; or that the Level 3, 4, or 5 applicant has met one of the requirements listed in paragraphs (2)(C)1.-7. of 10 CSR 20-6.010(2). The seven options in paragraphs (2)(C)1.-7. for a lower-level authority to demonstrate that it is the valid continuing authority are:

1. A waiver from the existing higher authority declining the offer to accept management of the additional wastewater or stormwater;
2. A written statement or a demonstration of non-response from the higher authority;
3. A to-scale map showing all parts of the legal boundary of the facility’s property are beyond 2000 feet from the collection (sewer) system operated by the higher preference authority;
4. A proposed connection or adoption charge by the higher authority that would equal or exceed what is economically feasible for the applicant, which may be in the range of one hundred twenty percent (120%) of the applicant’s cost for constructing or operating a wastewater treatment system;
5. A proposed service fee on the users of the system by the higher authority that is above what is affordable for existing homeowners in that area;
6. Terms for connection or adoption by the higher authority that would require more than two (2) years to achieve full sewer service; or
7. A demonstration that the terms for connection or adoption by the higher authority are not viable or feasible to homeowners in the area.

Permit applicants that are Levels 3, 4, and 5 must, as part of their application, identify their method of compliance with this regulation. The following are the methods to comply.

- No higher level authorities are available to the facility;
- No higher level authorities have jurisdiction;
- Higher level authorities are forbidden by state statute or local ordinance from providing service to the person;
- The existing higher level authority is available to the facility, however the facility has proposed the use of a lower preference continuing authority and has submitted one of the following as part of their application provided it does not conflict with any area-wide management plan approved under section 208 of the Clean Water Act or by the Missouri Clean Water Commission. (See Fact Sheet Appendix - Continuing Authority for more information on these options):
 - A waiver from the existing higher authority;
 - A written statement or a demonstration of non-response from the higher authority;
 - A to-scale map showing all parts of the legal boundary of the facility's property are beyond 2000 feet from the collection (sewer) system operated by the higher preference authority;
 - Documentation that the proposed connection or adoption charge by the higher authority would equal or exceed what is economically feasible for the applicant, which may be in the range of one hundred twenty percent (120%) of the applicant's cost for constructing or operating a wastewater treatment system;
 - Documentation that the proposed service fee on the users of the system by the higher authority is above what is affordable for existing homeowners in that area;
 - Documentation that the terms for connection or adoption by the higher authority would require more than two (2) years to achieve full sewer service;
 - A demonstration that the terms for connection or adoption by the higher authority are not viable or feasible to homeowners in the area;
- ✓ The continuing authority listed on the application is a municipality and therefore a Level 3 Authority. There is no approved Clean Water Act Section 208 plan in Pettis County. The applicant has shown that:
 - A higher level authority is not available to the facility;

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 can be provided upon request to the Department.

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>. 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 an (A) Certification Level. Please see **Appendix - Classification Worksheet**. Modifications made to the wastewater treatment facility may cause the classification to be modified.

Operator's Name: James C. Barb
 Certification Number: 5684
 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 calculated 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:

| Operational Monitoring Parameter | Frequency |
|---|-------------|
| Precipitation | Daily (M-F) |
| Flow – Influent or Effluent | Daily (M-F) |
| pH – Influent | Daily (M-F) |
| Temperature (Aeration basin) | Daily (M-F) |
| TSS – Influent | Weekly |
| TSS – Mixed Liquor | Weekly |
| Settleability – Mixed Liquor | Daily (M-F) |
| Dissolved Oxygen – Mixed Liquor | Daily (M-F) |
| Temperature – Mixed Liquor (sample contact and reaeration basins for contact stabilization) | Daily (M-F) |

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
- ✓ This permittee has an approved pretreatment program in accordance with the requirements of [40 CFR Part 403] and [10 CSR 20-6.100] and is expected to implement and enforce its approved program.

REASONABLE POTENTIAL (RP):

Federal regulation [40 CFR Part 122.44(d)(1)(i)] and State Regulation [10 CSR 20-7.015(9)(A)2] requires effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause or contribute to an in-stream excursion above narrative or numeric water quality standard.

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

A reasonable potential analysis (RPA) is a numeric RP decision calculated using effluent data provided by the facility for parameters that have a numeric Water Quality Standard (WQS).

Reasonable potential determinations (RPD) are based on physical conditions of the site as provided in Sections 3.1.2, 3.1.3, and 3.2 of the TSD using best professional judgement. An RPD consists of evaluating visual observations for compliance with narrative criteria, non-numeric information, or small amounts of numerical data (such as 3 data points supplied in the application). Narrative criteria with RP typically translate to a numeric WQS, so a parameter's establishment being based on narrative criteria does not necessarily make the decision an RPD vs RP—how the data is collected does, however. When insufficient data is received to make a determination on RP based on numeric effluent data, the RPD decisions are based on best professional judgment considering the sources of influent wastewater, type of treatment, and historical overall management of the site.

- ✓ An RPA was conducted on appropriate parameters. Please see **APPENDIX – RPA RESULTS**.
- ✓ A RPD was made for Acute WET, that a potential to violate water quality standards did not exist.
- ✓ A RPD was made for Oil & Grease, that a potential to violate water quality standards did not exist. Please see Derivation and Discussion of Limits.

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. The permit also contains requirements for permittees to develop and implement a program for maintenance and repair of the collection system. The permit requires that the permittee submit an annual report to the Department for the previous calendar year that contains a summary of efforts taken by the permittee to locate and eliminate sources of excess I & I, a summary of general maintenance and repairs to the collection system, and a summary of any planned maintenance and repairs to the collection system for the upcoming calendar year.

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

SCHEDULE OF COMPLIANCE (SOC):

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

A SOC is not allowed:

- For effluent limitations based on technology-based standards established in accordance with federal requirements, if the deadline for compliance established in federal regulations has passed. 40 CFR § 125.3.
- For a newly constructed facility in most cases. Newly constructed facilities must meet applicable effluent limitations when discharge begins, because the facility has installed the appropriate control technology as specified in a permit or antidegradation review. A SOC is allowed for a new water quality based effluent limit that was not included in a previously public noticed permit or antidegradation review, which may occur if a regulation changes during construction.
- To develop a TMDL, UAA, or other study 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. The previous permit included a schedule of compliance for the facility to meet final limits for Total Recoverable Copper. The effluent limits reported by the facility show that the facility is currently meeting the final limits contained in the previous permit and also the limits contained in this permit, the schedule of compliance is removed and final limits are in effect upon issuance of this permit.

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>.

- ✓ The permittee does not have a Department approved Sewer Extension Authority Supervised Program.

STORMWATER POLLUTION PREVENTION PLAN (SWPPP):

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

In accordance with the EPA's *Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators*, (Document number EPA 833-B-09-002) [published by the United States Environmental Protection Agency (USEPA) in June 2015], BMPs are measures or practices used to reduce the amount of pollution entering (regarding this operating permit) waters of the state. BMPs may take the form of a process, activity, or physical structure.

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

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

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

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

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

- ✓ 10 CSR 20-6.200 and 40 CFR 122.26(b)(14)(ix) includes treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system, used in the storage treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge that is located within the confines of the facility, with a design flow of 1.0 MGD or more, or are required to have an approved pretreatment program under 40 CFR part 403, as an industrial activity in which permit coverage is required.

In lieu of requiring sampling in the site-specific permit, the facility is required to develop and implement a Stormwater Pollution Prevention Plan (SWPPP).

A facility can apply for conditional exclusion for “no exposure” of industrial activities and materials to stormwater by submitting a permit modification via Form B2 (<https://dnr.mo.gov/document-search/form-b2-application-operating-permit-facilities-receive-primarily-domestic-waste-have-design-flow-more-100000-gallons-day-mo-780-1805>) appropriate application filing fees and a completed No Exposure Certification for Exclusion from NPDES Stormwater Permitting under Missouri Clean Water Law (<https://dnr.mo.gov/document-search/no-exposure-certification-exclusion-npdes-stormwater-permitting-under-missouri-clean-water-law-mo-780-2828>) to the Department’s Water Protection Program, Operating Permits Section. Upon receipt of the No Exposure Certification, the permit will be modified and the Special Condition to develop and implement a SWPPP will be removed.

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:

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

Where C = downstream concentration C_e = effluent concentration
 C_s = upstream concentration Q_e = effluent flow
 Q_s = upstream flow

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

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

Number of Samples “n”:

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

WLA MODELING:

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

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

WHOLE EFFLUENT TOXICITY (WET) TEST:

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.

- ✓ The permittee is required to conduct a Chronic WET test for this facility.

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.

- ✓ Bypasses occur or have occurred at this facility.
 - The permittee has met the criteria as established in 40 CFR 122.41(m)(4)(i)(A), (B), and (C).

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 following table summarizes the results of the cost analysis. See **Appendix – Cost Analysis for Compliance** for detailed information.

Summary Table. Cost Analysis for Compliance Summary for the City of Sedalia

| New Permit Requirements | | | |
|---|--------------------------------------|-----------------------------|-------------------------------|
| Sedalia SE WWTP – Monthly sampling for Total Hardness instream | | | |
| Sedalia North WWTP – Monthly sampling for Oil & Grease, Total Recoverable Copper, and Total Recoverable Cadmium | | | |
| Sedalia Central WWTP – Monthly sampling for Total Hardness instream and monthly sampling for Total Recoverable Copper | | | |
| Estimated Annual Cost | Annual Median Household Income (MHI) | Estimated Monthly User Rate | User Rate as a Percent of MHI |
| \$176 | \$48,047 | \$48.29 | 1.21% |

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.

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 May 26, 2023 to June 26, 2023 No responses received.

DATE OF FACT SHEET: OCTOBER 4, 2023

COMPLETED BY:

**BRANT FARRIS, ENVIRONMENTAL PROGRAM SPECIALIST
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
OPERATING PERMITS SECTION - DOMESTIC WASTEWATER UNIT
(660) 385-8019
brant.farris@dnr.mo.gov**

Appendices**APPENDIX - CLASSIFICATION WORKSHEET:**

| Item | Points Possible | Points Assigned |
|--|--|-----------------|
| Maximum Population Equivalent (P.E.) served , peak day | 1 pt./10,000 PE or major fraction thereof. (Max 10 pts.) | 2.5 |
| Design Flow (avg. day) or peak month's flow (avg. day) whichever is larger | 1 pt. / MGD or major fraction thereof. (Max 10 pts.) | 2.5 |
| Effluent Discharge | | |
| Missouri or Mississippi River | 0 | |
| All other stream discharges except to losing streams and stream reaches supporting whole body contact recreation | 1 | |
| Discharge to lake or reservoir outside of designated whole body contact recreational area | 2 | |
| Discharge to losing stream, lake or reservoir area supporting whole body contact recreation | 3 | |
| Direct reuse or recycle of effluent | 6 | |
| Land Application/Irrigation | | |
| Drip Irrigation | 3 | |
| Land application/irrigation | 5 | |
| Overland flow | 4 | |
| Variation in Raw Wastes (highest level only) | | |
| Variations do not exceed those normally or typically expected | 0 | |
| Reoccurring deviations or excessive variations of 100 to 200 percent in strength and/or flow | 2 | |
| Reoccurring deviations or excessive variations of more than 200 percent in strength and/or flow | 4 | (4) |
| Department-approved pretreatment program | 6 | 6 |
| Preliminary Treatment | | |
| STEP systems (operated by the permittee) | 3 | |
| Screening and/or comminution | 3 | 3 |
| Grit removal | 3 | 3 |
| Plant pumping of main flow | 3 | 3 |
| Flow equalization | 5 | 5 |
| Primary Treatment | | |
| Primary clarifiers | 5 | |
| Chemical addition (except chlorine, enzymes) | 4 | |
| Secondary Treatment | | |
| Trickling filter and other fixed film media with or without secondary clarifiers | 10 | |
| Activated sludge (including aeration, oxidation ditches, sequencing batch reactors, membrane bioreactors, and contact stabilization) | 15 | 15 |
| Stabilization ponds without aeration | 5 | |
| Aerated lagoon | 8 | |
| Advanced Lagoon Treatment – Aerobic cells, anaerobic cells, covers, or fixed film | 10 | |
| Biological, physical, or chemical | 12 | 12 |
| Carbon regeneration | 4 | |
| Total from page ONE (1) | ---- | 52 |

APPENDIX - CLASSIFICATION WORKSHEET (CONTINUED):

| ITEM | POINTS POSSIBLE | POINTS ASSIGNED |
|--|-----------------|-----------------|
| Solids Handling | | |
| Sludge Holding | 5 | 5 |
| Anaerobic digestion | 10 | |
| Aerobic digestion | 6 | |
| Evaporative sludge drying | 2 | |
| Mechanical dewatering | 8 | 8 |
| Solids reduction (incineration, wet oxidation) | 12 | |
| Land application | 6 | 6 |
| Disinfection | | |
| Chlorination or comparable | 5 | |
| On-site generation of disinfectant (except UV light) | 5 | |
| Dechlorination | 2 | |
| UV light | 4 | 4 |
| Required Laboratory Control Performed by Plant Personnel (highest level only) | | |
| Lab work done outside the plant | 0 | |
| Push – button or visual methods for simple test such as pH, settleable solids | 3 | |
| Additional procedures such as DO, COD, BOD, titrations, solids, volatile content | 5 | |
| More advanced determinations, such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc. | 7 | 7 |
| Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph | 10 | |
| Total from page TWO (2) | ---- | 30 |
| Total from page ONE (1) | --- | 52 |
| Grand Total | --- | 82 |

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

APPENDIX – RPA RESULTS:

| Parameter | CMC* | RWC Acute* | CCC* | RWC Chronic* | n** | Range max/min | CV*** | MF | RP Yes/No |
|----------------------------------|-------|------------|-------|--------------|-------|---------------|-------|------|-----------|
| Ammonia as N – Summer (mg/L) | 12.1 | 93.52 | 1.5 | 93.52 | 24.00 | 15.1/0.1 | 2.14 | 6.19 | YES |
| Ammonia as N – Winter (mg/L) | 12.1 | 19.47 | 2.9 | 19.47 | 21.00 | 4.1/0.1 | 1.43 | 4.75 | YES |
| Copper, Total Recoverable (µg/L) | 23.07 | 16.68 | 14.68 | 16.68 | 49 | 12.3/0 | 0.32 | 1.4 | Yes |

N/A – Not Applicable

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

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

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

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

n – Is the number of samples.

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

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

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

APPENDIX – Non-Detect Example Calculations:

Example: Permittee has four samples for Pollutant X which has a method minimum level of 5 mg/L and is to report a Daily Maximum and Monthly Average.

Week 1 = 11.4 mg/L

Week 2 = Non-Detect or <5.0 mg/L

Week 3 = 7.1 mg/L

Week 4 = Non-Detect or <5.0 mg/L

For this example, use subpart (h) - For reporting an average based on a mix of detected and non-detected values (not including *E. coli*), assign a value of “0” for all non-detects for that reporting period and report the average of all the results.

$$11.4 + 0 + 7.1 + 0 = 18.5 \div 4 \text{ (number of samples)} = 4.63 \text{ mg/L.}$$

The Permittee reports a Monthly Average of 4.63 mg/L and a Daily maximum of 11.4 mg/L (Note the < symbol was dropped in the answers).

Example: Permittee has five samples for Pollutant Y that has a method minimum level of 9 µg/L and is to report a Daily Maximum and Monthly Average.

Day 1 = Non-Detect or <9.0 µg/L

Day 2 = Non-Detect or <9.0 µg/L

Day 3 = Non-Detect or <9.0 µg/L

Day 4 = Non-Detect or <9.0 µg/L

Day 5 = Non-Detect or <9.0 µg/L

For this example, use subpart (g) - For reporting an average based on all non-detected values, remove the “<” sign from the values, average the values, and then add the “<” symbol back to the resulting average.

$$(9 + 9 + 9 + 9 + 9) \div 5 \text{ (number of samples)} = <9 \text{ µg/L.}$$

The Permittee reports a Monthly Average of <9.0 µg/L (retain the ‘less than’ symbol) and a Daily Maximum of <9.0 µg/L.

Example: Permittee has four samples for Pollutant Z where the first two tests were conducted using a method with a method minimum level of 4 µg/L and the remaining two tests were conducted using a different method that has a method minimum level of <6 µg/L and is to report a Monthly Average and a Weekly Average.

Week 1 = Non-Detect or <4.0 µg/L

Week 2 = Non-Detect or <4.0 µg/L

Week 3 = Non-Detect or <6.0 µg/L

Week 4 = Non-Detect or <6.0 µg/L

For this example, use subpart (g) - For reporting an average based on all non-detected values, remove the “<” sign from the values, average the values, and then add the “<” symbol back to the resulting average.

$$(4 + 4 + 6 + 6) \div 4 \text{ (number of samples)} = <5 \text{ µg/L. (Monthly)}$$

The facility reports a Monthly Average of <5.0 µg/L and a Weekly Average of <6.0 µg/L.

APPENDIX – Non-Detect Example Calculations (Continued):

Example: Permittee has five samples for Pollutant Z where the first two tests were conducted using a method with a method minimum level of 4 µg/L and the remaining three tests were conducted using a different method that has a method minimum level of <6 µg/L and is to report a Monthly Average and a Weekly Average.

Week 1 = Non-Detect or <4.0 µg/L
 Week 2 = Non-Detect or <4.0 µg/L
 Week 2 = Non-Detect or <6.0 µg/L
 Week 3 = Non-Detect or <6.0 µg/L
 Week 4 = Non-Detect or <6.0 µg/L

For this example, use subpart (g) - For reporting an average based on all non-detected values, remove the “<” sign from the values, average the values, and then add the “<” symbol back to the resulting average.

$$(4 + 4 + 6 + 6 + 6) \div 5 \text{ (number of samples)} = <5.2 \text{ µg/L. (Monthly)}$$

$$(4 + 6) \div 2 \text{ (number of samples)} = <5 \text{ µg/L. (Week 2)}$$

The facility reports a Monthly Average of <5.2 µg/L and a Weekly Average of <6.0 µg/L (report highest Weekly Average value)

Example: Permittee has four samples for Pollutant Z where the tests were conducted using a method with a method minimum level of 10 µg/L and is to report a Monthly Average and Daily Maximum. The permit lists that Pollutant Z has a Department determined Minimum Quantification Level (ML) of 130 µg/L.

Week 1 = 12 µg/L
 Week 2 = 52 µg/L
 Week 3 = Non-Detect or <10 µg/L
 Week 4 = 133 µg/L

For this example, use subpart (h) - For reporting an average based on a mix of detected and non-detected values (not including *E. coli*), assign a value of “0” for all non-detects for that reporting period and report the average of all the results.

$$\text{For this example, } (12 + 52 + 0 + 133) \div 4 \text{ (number of samples)} = 197 \div 4 = 49.3 \text{ µg/L.}$$

The facility reports a Monthly Average of 49.3 µg/L and a Daily Maximum of 133 µg/L.

Example: Permittee has five samples for *E. coli* which has a method minimum level of 1 #/100mL and is to report a Weekly Average (seven (7) day geometric mean) and a Monthly Average (thirty (30) day geometric mean).

Week 1 = 102 #/100mL
 Week 2 (Monday) = 400 #/100mL
 Week 2 (Friday) = Non-Detect or <1 #/100mL
 Week 3 = 15 #/100mL
 Week 4 = Non-Detect or <1 #/100mL

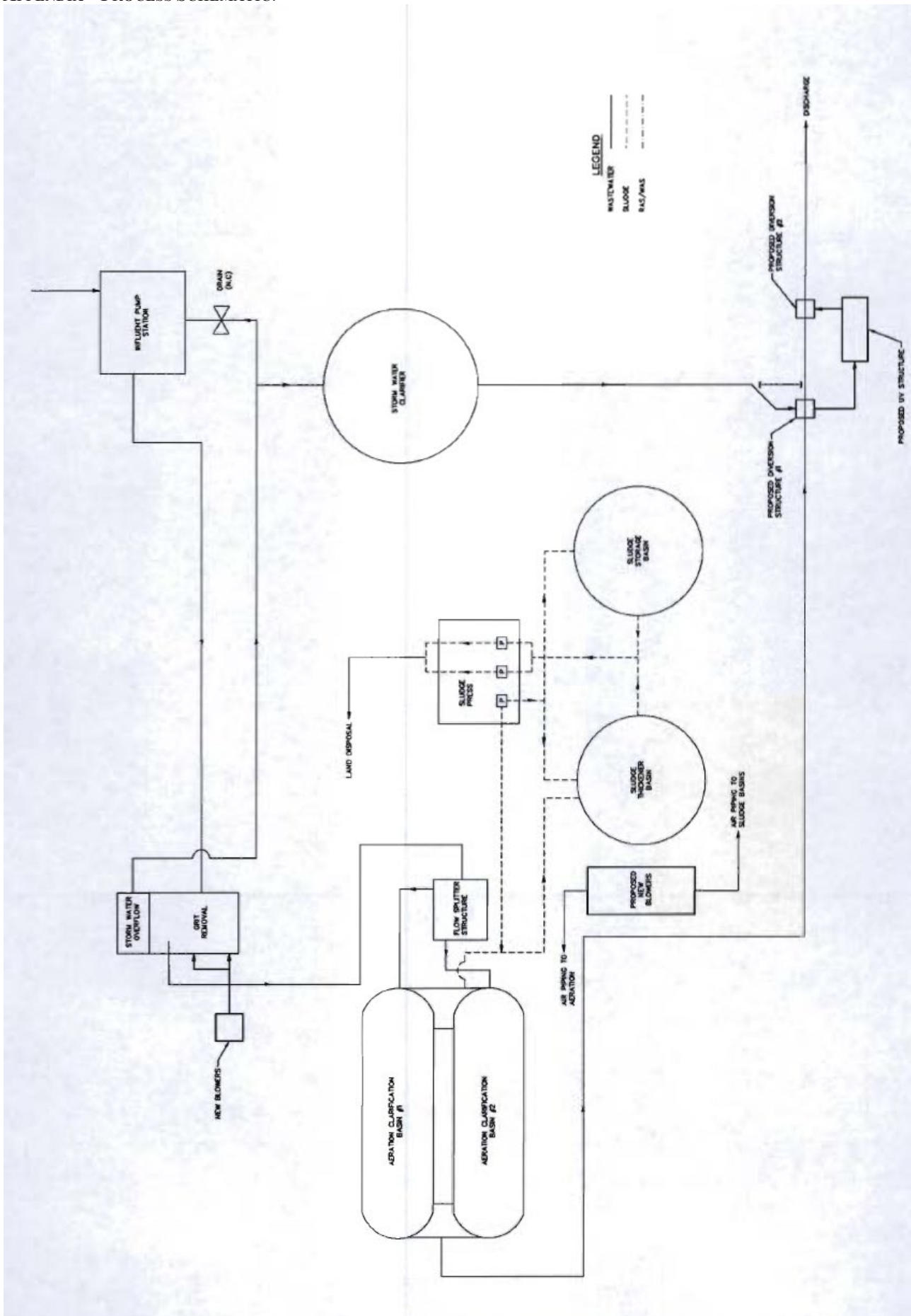
For this example, use subpart (i) - When *E. coli* is not detected above the method minimum level, the permittee must report the data qualifier signifying less than detection limit for that parameter (e.g., <1 #/100mL, if the method minimum level is 1 #/100mL). For reporting a geometric mean based on a mix of detected and non-detected values, use one-half of the detection limit (instead of zero) for non-detects when calculating geometric means. 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.

$$\text{The Monthly Average (30 day Geometric Mean)} = 5\text{th root of } (102)(400)(0.5)(15)(0.5) = 5\text{th root of } 153,000 = 10.9 \text{ #/100mL.}$$

$$\text{The 7 day Geometric Mean} = 2\text{nd root of } (400)(0.5) = 2\text{nd root of } 200 = 14.1 \text{ #/100mL. (Week 2)}$$

The Permittee reports a Monthly Average (30 day Geometric Mean) of 10.9 #/100mL and a Weekly Average (7 day geometric mean) of 102 #/100mL (report highest Weekly Average value)

APPENDIX – PROCESS SCHEMATIC:



APPENDIX – COST ANALYSIS FOR COMPLIANCE:

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

**Sedalia SE WWTP, Permit Renewal
City of Sedalia
Missouri State Operating Permit #MO-0101567**

Section 644.145 RSMo requires the Department of Natural Resources (Department) to make a “finding of affordability” when “issuing permits under” or “enforcing provisions of” state or federal clean water laws “pertaining to any portion of a combined or separate sanitary sewer system for publicly-owned treatment works.” This cost analysis does not dictate how the permittee will comply with new permit requirements.

New Permit Requirements

The permit requires compliance with new monthly instream monitoring requirements for Total Hardness.

Connections

The number of connections for the Sedalia North WWTP, Sedalia Central WWTP, and the Sedalia SE WWTP were reported by the permittee on the permit renewal application.

| Connection Type | Number |
|-----------------|---------------|
| Residential | 8,993 |
| Commercial | 1,331 |
| Industrial | 12 |
| Total | 10,336 |

Data Collection for this Analysis

This cost analysis is based on data available to the Department as provided by the permittee and data obtained from readily available sources. For the most accurate analysis, it is essential that the permittee provides the Department with current information about the City’s financial and socioeconomic situation. The financial questionnaire available to permittees on the Department’s website (<https://dnr.mo.gov/document-search/financial-questionnaire-mo-780-2511>) is a required attachment to the permit renewal application. If the financial questionnaire is not submitted with the renewal application, the Department sends a request to complete the form with the welcome correspondence. The Department has relied heavily on readily available data to complete this analysis. If certain data was not provided by the permittee to the Department and the data is not obtainable through readily available sources, this analysis will state that the information is “unknown”.

Eight Criteria of 644.145 RSMo

The Department must consider the eight (8) criteria presented in subsection 644.145 RSMo to evaluate the cost associated with new permit requirements.

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

| Criterion 1 Table. Current Financial Information for the City of Sedalia | |
|---|-------------|
| Current Monthly User Rates per 5,000 gallons* | \$48.28 |
| Median Household Income (MHI) ¹ | \$48,047 |
| Current Annual Operating Costs (excludes depreciation)§ | \$5,308,228 |

*User Rates were obtained from the City of Sedalia’s November 14, 2022 Ordinances Appendix A – City Fee Schedule.

§ Current annual operating costs were obtained from the City of Sedalia Audited Financial Statements dated March 31, 2022.

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

The following tables outline the estimated costs of the new permit requirements:

| Criterion 2A Table. Estimated Cost Breakdown of New Permit Requirements | | | |
|---|-----------|----------------|-----------------------|
| New Requirement | Frequency | Estimated Cost | Estimated Annual Cost |
| Total Hardness - instream | Monthly¥ | \$22 x 8 | \$176 |
| Total Estimated Annual Cost of New Permit Requirements | | | \$176 |

¥ - was previously conducted quarterly on the effluent

| Criterion 2B Table. Estimated Costs for New Permit Requirements | | |
|---|---|---------|
| (1) | Estimated Annual Cost | \$176 |
| (2) | Estimated Monthly User Cost for New Requirements ² | \$0.00 |
| | Estimated Monthly User Cost for New Requirements as a Percent of MHI ³ | 0.00% |
| | Estimated Monthly User Cost for New Requirements for Sedalia Central WWTP | \$0.00 |
| | Estimated Monthly User Cost for New Requirements for Sedalia North WWTP | \$0.01 |
| (3) | Total Monthly User Cost* | \$48.29 |
| | Total Monthly User Cost as a Percent of MHI ⁴ | 1.21% |

* Current User Rate + Estimated Monthly Costs of New Sampling Requirements

Due to the minimal cost associated with new permit requirements, the Department anticipates an extremely low to no rate increase will be necessary, which could impact individuals or households of this community.

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

This analysis is being conducted based on new requirements in the permit, which will not require the addition of new control technologies at the facility. However, the new sampling requirements are being established in order to provide data regarding the health of the receiving stream’s aquatic life and to ensure that the existing permit limits are providing adequate protection of aquatic life. Improved wastewater provides benefits such as avoided health costs due to water-related illness, enhanced environmental ecosystem quality, and improved natural resources. The preservation of natural resources has been proven to increase the economic value and sustainability of the surrounding communities. Maintaining Missouri’s water quality standards fulfills the goal of restoring and maintaining the chemical, physical, and biological integrity of the receiving stream; and, where attainable, it achieves a level of water quality that provides for the protection and propagation of fish, shellfish, wildlife, and recreation in and on the water.

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

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

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

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

The following table characterizes the current overall socioeconomic condition of the community as compared to the overall socioeconomic condition of Missouri. The following information was compiled using the latest U.S. Census data.

Criterion 5 Table. Socioeconomic Data ^{1, 5-9} for the City of Sedalia

| No. | Administrative Unit | Sedalia City | Missouri State | United States |
|-----|---|---------------|----------------|---------------|
| 1 | Population (2021) | 21,696 | 6,141,534 | 329,725,481 |
| 2 | Percent Change in Population (2000-2021) | 6.7% | 9.8% | 17.2% |
| 3 | 2021 Median Household Income (in 2022 Dollars) | \$48,047 | \$65,928 | \$74,545 |
| 4 | Percent Change in Median Household Income (2000-2021) | -4.5% | -1.1% | 1.1% |
| 5 | Median Age (2021) | 36.2 | 38.8 | 38.4 |
| 6 | Change in Median Age in Years (2000-2021) | 0.4 | 2.7 | 3.1 |
| 7 | Unemployment Rate (2021) | 6.1% | 4.5% | 5.5% |
| 8 | Percent of Population Below Poverty Level (2021) | 18.0% | 12.8% | 12.6% |
| 9 | Percent of Household Received Food Stamps (2021) | 13.6% | 10.1% | 11.4% |
| 10 | (Primary) County Where the Community Is Located | Pettis County | | |

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

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

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

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

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

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

Conclusion and Finding

As a result of new regulations, the Department is proposing modifications to the current operating permit that may require the permittee to increase monitoring. The Department has considered the eight (8) criteria presented in subsection 644.145 RSMo to evaluate the cost associated with the new permit requirements.

This analysis examined whether the new sampling requirements affect the ability of an individual customer or household to pay a utility bill without undue hardship or unreasonable sacrifice in the essential lifestyle or spending patterns of the individual or household. After reviewing the above criteria, the Department finds that the new sampling requirements may result in a low burden with regard to the community's overall financial capability and a low financial impact for most individual customers/households; therefore, the new permit requirements are affordable.

References

1. (A) 2021 MHI in 2021 Dollar: United States Census Bureau. 2017-2021 American Community Survey 5-Year Estimates, Table B19013: Median Household Income in the Past 12 Months (in 2021 Inflation-Adjusted Dollars). <https://data.census.gov/cedsci/table?q=B19013&tid=ACSDT5Y2021.B19013>.
(B) 2000 MHI in 1999 Dollar: (1) For United States, United States Census Bureau (2003) 2000 Census of Population and Housing, Summary Social, Economic, and Housing Characteristics, PHC-2-1 Part 1. United States Summary, Table 5. Work Status and Income in 1999: 2000, Washington, DC. <https://www.census.gov/content/dam/Census/library/publications/2003/dec/phc-2-1-pt1.pdf>.
(2) For Missouri State, United States Census Bureau (2003) 2000 Census of Population and Housing, Summary Social, Economic, and Housing Characteristics, PHC-2-27, Missouri, Table 10. Work Status and Income in 1999: 2000, Washington, DC. <https://www.census.gov/content/dam/Census/library/publications/2003/dec/phc-2-1-pt1.pdf>.
(C) 2022 CPI, 2021 CPI and 1999 CPI: U.S. Department of Labor Bureau of Labor Statistics (2022) Consumer Price Index - All Urban Consumers, U.S. City Average. All Items. 1982-84=100 (unadjusted) - CUUR0000SAO. <https://data.bls.gov/cgi-bin/surveymost?bls>.
(D) 2021 MHI in 2022 Dollar = 2021 MHI in 2021 Dollar x 2022 CPI / 2021 CPI; 2000 MHI in 2021 Dollar = 2000 MHI in 1999 Dollar x 2022 CPI / 1999 CPI.
(E) Percent Change in Median Household Income (2000-2021) = (2021 MHI in 2022 Dollar - 2000 MHI in 2022 Dollar) / (2000 MHI in 2022 Dollar).
2. $(\$176/10,336)/12 = \0.00 (Estimated Monthly User Cost for New Requirements)
3. $(\$0.00/(\$48,047/12))100\% = 0.000\%$ (New Sampling Only)
4. $(\$48.29/(\$48,047/12))100\% = 1.21\%$ (Total User Cost)
5. (A) Total Population in 2021: United States Census Bureau. 2017-2021 American Community Survey 5-Year Estimates, Table B01003: Total Population - Universe: Total Population. <https://data.census.gov/cedsci/table?q=B01003&tid=ACSDT5Y2021.B01003>.
(B) For United States, United States Census Bureau (2002) 2000 Census of Population and Housing, Summary Social, Economic, and Housing Characteristics, PHC-1-1 Part 1. United States Summary, Table 1. Age and Sex: 2000, Washington, DC. <https://www.census.gov/content/dam/Census/library/publications/2003/dec/phc-2-1-pt1.pdf>.
(2) For Missouri State, United States Census Bureau (2002) 2000 Census of Population and Housing, Summary Population and Housing Characteristics, PHC-1-27, Missouri, Table 2. Age and Sex: 2000, Washington, DC. <https://www2.census.gov/library/publications/2003/dec/phc-2-1-pt2.pdf>.
(C) Percent Change in Population (2000-2021) = (Total Population in 2021 - Total Population in 2000) / (Total Population in 2000).
6. Median Age in 2021: United States Census Bureau. 2017-2021 American Community Survey 5-Year Estimates, Table B01002: Median Age by Sex - Universe: Total population. <https://data.census.gov/cedsci/table?q=B01002&tid=ACSDT5Y2021.B01002>.
(B) For United States, United States Census Bureau (2002) 2000 Census of Population and Housing, Summary Social, Economic, and Housing Characteristics, PHC-1-1 Part 1. United States Summary, Table 1. Age and Sex: 2000, Washington, DC., Page 2. <https://www.census.gov/content/dam/Census/library/publications/2003/dec/phc-2-1-pt1.pdf>.
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