

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



## MISSOURI STATE OPERATING PERMIT

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

|                                 |  |
|---------------------------------|--|
| Permit No.                      | MO-0136328   |
| Owner:                          | City of Cape Girardeau                                 |
| Address:                        | 2007 Southern Expressway, Cape Girardeau, MO 63703     |
| Continuing Authority:           | Same as above  |
| Address:                        | Same as above  |
| Facility Name:                  | Cape Girardeau Municipal Wastewater Treatment Facility |
| Facility Address:               | 2061 Corporate Circle, Cape Girardeau, MO 63703        |
| 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   |

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

### FACILITY DESCRIPTION


See Page 2

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

October 1, 2019  
Effective Date

  
Edward B. Galbraith, Director, Division of Environmental Quality

June 30, 2024  
Expiration Date

  
Chris Wieberg, 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 / basket screen / mechanical bar screen (2) / manual bar screen / grit chamber (2) / Sequencing Batch Reactor (4 basins) / UV disinfection / cascade aeration / sludge dewatering / sludge drying / dried biosolids are marketed as a Class A unrestricted use organic fertilizer and registered with the Missouri Fertilizer Control Services in the state of Missouri / untreated sludge is landfilled / facility does not have materials stored or conduct operations in a manner that would cause the discharge of pollutants via stormwater

Design population equivalent is 110,000.

Design flow is 11 MGD.

Actual flow is 6.26 MGD.

Design sludge production is 2,235 dry tons/year.

|                                 |                                       |
|---------------------------------|---------------------------------------|
| Legal Description:              | Landgrant 2199, Cape Girardeau County |
| UTM Coordinates:                | X = 807939, Y = 4131348               |
| Receiving Stream:               | Mississippi River (P)                 |
| First Classified Stream and ID: | Mississippi River (P) (3701)          |
| USGS Basin & Sub-watershed No.: | (07140105-0503)                       |

**Permitted Feature INF** – Influent Monitoring Location

**Permitted Feature SM1** – Instream Monitoring – Upstream – See Special Condition #18.

| OUTFALL<br>#001  | TABLE A-1.<br>FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS |                            |                   |                               |                          |                |
|--|--|----------------------------|-------------------|-------------------------------|--------------------------|----------------|
| The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations in <b>Table A-1</b> shall become effective on <b>October 1, 2019</b> and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below: |  |                            |                   |                               |                          |                |
| EFFLUENT PARAMETER(S)  | UNITS  | FINAL EFFLUENT LIMITATIONS |                   |                               | MONITORING REQUIREMENTS  |                |
|  |  | DAILY<br>MAXIMUM           | WEEKLY<br>AVERAGE | MONTHLY<br>AVERAGE            | MEASUREMENT<br>FREQUENCY | SAMPLE<br>TYPE |
| Limit Set: M   |  |                            |                   |                               |                          |                |
| Flow   | MGD  | *                          |                   | *                             | once/day                 | 24 hr. total   |
| Biochemical Oxygen Demand <sub>5</sub>   | mg/L   |                            | 45                | 30                            | once/week                | composite**    |
| Total Suspended Solids   | mg/L   |                            | 45                | 30                            | once/week                | composite**    |
| <i>E. coli</i> (Note 1)  | #/100mL  |                            | 1,030             | 206                           | once/week                | grab           |
| Ammonia as N   | mg/L   | *                          |                   | *                             | once/month               | composite**    |
| Oil & Grease   | mg/L   | 15                         |                   | 10                            | once/month               | grab           |
| Total Phosphorus   | mg/L   | *                          |                   | *                             | once/month               | composite**    |
| Total Kjeldahl Nitrogen  | mg/L   | *                          |                   | *                             | once/month               | composite**    |
| Nitrite + Nitrate  | mg/L   | *                          |                   | *                             | once/month               | composite**    |
| EFFLUENT PARAMETER(S)  | UNITS  | MINIMUM                    |                   | MAXIMUM                       | MEASUREMENT<br>FREQUENCY | SAMPLE<br>TYPE |
| pH – Units***  | SU   | 6.0                        |                   | 9.0                           | once/week                | grab           |
| EFFLUENT PARAMETER(S)  |  |                            | UNITS             | MONTHLY<br>AVERAGE<br>MINIMUM | MEASUREMENT<br>FREQUENCY | SAMPLE<br>TYPE |
| Biochemical Oxygen Demand <sub>5</sub> – Percent Removal (Note 2)  |  |                            | %                 | 85                            | once/month               | calculated     |
| Total Suspended Solids – Percent Removal (Note 2)  |  |                            | %                 | 85                            | once/month               | calculated     |
| MONITORING REPORTS SHALL BE SUBMITTED <b>MONTHLY</b> ; THE FIRST REPORT IS DUE <b>NOVEMBER 28, 2019</b> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.  |  |                            |                   |                               |                          |                |

\* Monitoring requirement only.

\*\* A 24-hour composite sample is composed of at least 24 aliquots (subsamples) collected by an automatic sampler calibrated to a flow metering device that takes a minimum of one aliquot per batch discharge from each reactor basin. In the event this sampling method is unavailable, a 24-hour composite sample is to be composed of 48 aliquots collected at 30 minutes intervals by an automatic sampling device.

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

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

|  |   |       |                            |                    |                          |                         |  |
|--|---|-------|----------------------------|--------------------|--------------------------|-------------------------|--|
| OUTFALL<br>#001  | TABLE A-2.<br>WHOLE EFFLUENT TOXICITY<br>FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS   |       |                            |                    |                          |                         |  |
|  | The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations in <b>Table A-2</b> shall become effective on <b>October 1 2019</b> and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below: |       |                            |                    |                          |                         |  |
|  | EFFLUENT PARAMETER(S)   | UNITS | FINAL EFFLUENT LIMITATIONS |                    |                          | MONITORING REQUIREMENTS |  |
| DAILY<br>MAXIMUM   |   |       | WEEKLY<br>AVERAGE          | MONTHLY<br>AVERAGE | MEASUREMENT<br>FREQUENCY | SAMPLE<br>TYPE          |  |
| Limit Set: WA  |   |       |                            |                    |                          |                         |  |
| Acute Whole Effluent Toxicity (Note 3)   | TU <sub>a</sub>   | *     |                            |                    | once/year                | composite**             |  |
| ACUTE WET TEST MONITORING REPORTS SHALL BE SUBMITTED <b>ANNUALLY</b> ; THE FIRST REPORT IS DUE <u>MARCH 28, 2020</u> . |   |       |                            |                    |                          |                         |  |

Note 3 – The Acute WET test shall be conducted once per year during the permit cycle. See Special Condition #17 for additional requirements.

| PERMITTED<br>FEATURE<br><u>INF</u>   | TABLE B-1.<br>INFLUENT MONITORING REQUIREMENTS |                         |                   |                    |                          |             |
|--|--|-------------------------|-------------------|--------------------|--------------------------|-------------|
| The monitoring requirements in <b>Table B-1</b> shall become effective on <u>October 1 2019</u> 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<br>MAXIMUM        | WEEKLY<br>AVERAGE | MONTHLY<br>AVERAGE | MEASUREMENT<br>FREQUENCY | SAMPLE TYPE |
| Limit Set: IM  |  |                         |                   |                    |                          |             |
| Biochemical Oxygen Demand <sub>5</sub> (Note 2)  | mg/L   |                         |                   | *                  | once/month               | composite** |
| Total Suspended Solids (Note 2)  | 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               | composite** |
| Nitrite + Nitrate  | mg/L   | *                       |                   | *                  | once/month               | composite** |
| MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>NOVEMBER 28, 2019</u> .  |  |                         |                   |                    |                          |             |

\* Monitoring requirement only.

\*\* A 24-hour composite sample is composed of at least 24 aliquots (subsamples) collected by an automatic sampler calibrated to a flow metering device that takes a minimum of one aliquot per batch discharge from each reactor basin. In the event this sampling method is unavailable, a 24-hour composite sample is to be composed of 48 aliquots collected at 30 minutes intervals by an automatic sampling device.

Note 2 – Influent sampling for BOD<sub>5</sub> and TSS is not required when the facility does not discharge effluent during the reporting period. Samples are to be collected prior to any biological 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.

| PERMITTED<br>FEATURE<br><u>SM1</u>   | TABLE C-1.<br>INSTREAM MONITORING REQUIREMENTS |                         |  |                    |                          |                |
|--|--|-------------------------|--|--------------------|--------------------------|----------------|
| The monitoring requirements in <b>Table C-1</b> shall become effective on <u><b>October 1 2019</b></u> 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<br>MAXIMUM        |  | MONTHLY<br>AVERAGE | MEASUREMENT<br>FREQUENCY | SAMPLE<br>TYPE |
| <b>Limit Set: UM</b>   |  |                         |  |                    |                          |                |
| Ammonia as N   | mg/L   | *                       |  | *                  | once/month               | grab           |
| Total Phosphorus   | mg/L   | *                       |  | *                  | once/month               | grab           |
| Total Kjeldahl Nitrogen  | mg/L   | *                       |  | *                  | once/month               | grab           |
| Nitrite + Nitrate  | mg/L   | *                       |  | *                  | once/month               | grab           |
| MONITORING REPORTS SHALL BE SUBMITTED <u><b>MONTHLY</b></u> ; THE FIRST REPORT IS DUE <u><b>NOVEMBER 28, 2019</b></u> .  |  |                         |  |                    |                          |                |

\* 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.

#### **E. SPECIAL CONDITIONS**

1. Electronic Discharge Monitoring Report (eDMR) Submission System.
  - (a) Discharge Monitoring Reporting Requirements. The permittee must electronically submit compliance monitoring data via the eDMR system. In regards to Standard Conditions Part I, Section B, #7, the eDMR system is currently the only Department approved reporting method for this permit.
  - (b) Programmatic Reporting Requirements. The following reports (if required by this permit) must be electronically submitted as an attachment to the eDMR system until such a time the current or a new system is available to allow direct input of the data:
    - (1) Collection System Maintenance Annual Reports;
    - (2) Sludge/Biosolids Annual Reports;
      - i. In addition to the annual Sludge/Biosolids report submitted to the Department, the permittee must submit Sludge/Biosolids Annual Reports electronically using EPA's NPDES Electronic Reporting Tool ("NeT") (<https://cdx.epa.gov/>).
    - (3) Pretreatment Program Reports; and
    - (4) Any additional report required by the permit excluding bypass reporting.

After such a system has been made available by the Department, required data shall be directly input into the system by the next report due date.
  - (c) Other actions. The following shall be submitted electronically after such system has been made available by the Department:
    - (1) Notices of Termination (NOTs);
    - (2) No Exposure Certifications (NOEs); and
    - (3) Bypass reporting, See Special Condition #10 for 24-hr. bypass reporting requirements.
  - (d) Electronic Submissions. To access the eDMR system, use the following link in your web browser: <https://edmr.dnr.mo.gov/edmr/E2/Shared/Pages/Main/Login.aspx>.
  - (e) Waivers from Electronic Reporting. The permittee must submit compliance monitoring data and reports electronically. The Department may grant a waiver to a permittee in compliance with 40 CFR Part 127. The permittee may obtain an electronic reporting waiver by first submitting an eDMR Waiver Request Form: <http://dnr.mo.gov/forms/780-2692-f.pdf>. The Department will either approve or deny this electronic reporting waiver request within 120 calendar days. Only permittees with an approved waiver request may submit monitoring data and reports on paper to the Department for the period that the approved electronic reporting waiver is effective.

**E. SPECIAL CONDITIONS (continued)**

2. The full implementation of this operating permit, which includes implementation of any applicable schedules of compliance, shall constitute compliance with all applicable federal and state statutes and regulations in accordance with §644.051.16, RSMo, and the Clean Water Act (CWA) section 402(k); however, this permit may be reopened and modified, or alternatively revoked and reissued:
  - (a) To comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the CWA, if the effluent standard or limitation so issued or approved:
    - (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
    - (2) controls any pollutant not limited in the permit.
  - (b) To incorporate an approved pretreatment program or modification thereto pursuant to 40 CFR 403.8(c) or 40 CFR 403.18(e), respectively.
3. All outfalls must be clearly marked in the field.
4. Permittee will cease discharge by connection to a facility with an area-wide management plan per 10 CSR 20-6.010(2)(B) within the timeframe allotted by the continuing authority with its notice of its availability. The permittee shall obtain Department approval for closure according to section 10 CSR 20-6.010(12) or alternate use of these facilities.
5. Report as no-discharge when a discharge does not occur during the report period.
6. Reporting of Non-Detects:
  - (a) An analysis conducted by the permittee or their contracted laboratory shall be conducted in such a way that the precision and accuracy of the analyzed result can be enumerated.
  - (b) The permittee shall not report a sample result as “Non-Detect” without also reporting the detection limit of the test. Reporting as “Non Detect” without also including the detection limit will be considered failure to report, which is a violation of this permit.
  - (c) The permittee shall provide the “Non-Detect” sample result using the less than sign and the minimum detection limit (e.g. <10).
  - (d) Where the permit contains a Minimum Level (ML) and the permittee is granted authority in the permit to report zero in lieu of the < ML for a specified parameter (conventional, priority pollutants, metals, etc.), then zero (0) is to be reported for that parameter.
  - (e) See Standard Conditions Part I, Section A, #4 regarding proper detection limits used for sample analysis.
  - (f) When calculating monthly averages, use one-half of the method detection limit (MDL) instead of a zero. Where all data are below the MDL, the “<MDL” shall be reported as indicated in item (c).
7. It is a violation of the Missouri Clean Water Law to fail to pay fees associated with this permit (644.055 RSMo).
8. 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.
9. The permittee shall develop and implement a program for maintenance and repair of the collection system. The recommended guidance is the US EPA’s Guide for Evaluating Capacity, Management, Operation, And Maintenance (CMOM) Programs at Sanitary Sewer Collection Systems (Document number EPA 305-B-05-002) or the Department’s CMOM Model located at <http://dnr.mo.gov/env/wpp/permits/docs/cmom-template.doc>. For additional information regarding the Departments’ CMOM Model, see the CMOM Plan Model Guidance document at <http://dnr.mo.gov/pubs/pub2574.htm>.

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

- (a) A summary of the efforts to locate and eliminate specific sources of excessive infiltration and inflow into the collection system serving the facility for the previous year.
- (b) A summary of the general maintenance and repairs to the collection system serving the facility for the previous year.
- (c) A summary of any planned maintenance and repairs to the collection system serving the facility for the upcoming calendar year. This list shall include locations (GPS, 911 address, manhole number, etc.) and actions to be taken.

**E. SPECIAL CONDITIONS (continued)**

10. 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 Southeast Regional Office during normal business hours or by using the online Sanitary Sewer Overflow/Facility Bypass Application located at: <https://dnr.mo.gov/mogem/> or the Environmental Emergency Response spill-line at 573-634-2436 outside of normal business hours. Once an electronic reporting system compliant with 40 CFR Part 127, the National Pollutant Discharge Elimination System (NPDES) Electronic Reporting Rule, is available all bypasses must be reported electronically via the new system. Blending, which is the practice of combining a partially-treated wastewater process stream with a fully-treated wastewater process stream prior to discharge, is not considered a form of bypass. If the permittee wishes to utilize blending, the permittee shall file an application to modify this permit to facilitate the inclusion of appropriate monitoring conditions.
11. The facility must be sufficiently secured to restrict entry by children, livestock and unauthorized persons as well as to protect the facility from vandalism.
12. 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.
13. An all-weather access road to the treatment facility shall be maintained.
14. The outfall sewer shall be protected and maintained against the effects of floodwater, ice, or other hazards as to reasonably insure its structural stability, freedom from stoppage, and that a sample of the effluent can be obtained at a point after the final treatment process and before the discharge mixes with the receiving waters.
15. Biosolids treatment, storage, and disposal practices shall be conducted in accordance with Standard Conditions Part III.
16. Permittee must sample and analyze for the pollutants listed in 40 CFR 122.21 Appendix J, Table 2. Pursuant to 40 CFR 122.21(j)(4) the permittee shall provide this data with the permit renewal application from a minimum of three samples taken within four and one-half years prior to the date of the permit application. 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 to detect pollutant concentrations below the Water Quality Criteria established in 10 CSR 20-7.031.
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:
    - The fathead minnow, *Pimephales promelas* (Acute Toxicity EPA Test Method 2000.0).
    - The daphnid, *Ceriodaphnia dubia* (Acute Toxicity EPA Test Method 2002.0).
  - (b) Chemical and physical analysis of the upstream control sample and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping. Where upstream receiving water is not available or known to be toxic, other approved control water may be used.
  - (c) Test conditions must meet all test acceptability criteria required by the EPA Method used in the analysis.
  - (d) The Allowable Effluent Concentration (AEC) is 9%; the dilution series is: 36%, 18%, 9%, 4.5%, 2.25%.
  - (e) All chemical and physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% effluent concentration.
  - (f) The facility must submit a full laboratory report for all toxicity testing. The report must include a quantification of acute toxic units ( $TU_a = 100/LC_{50}$ ) reported according to the test methods manual chapter on report preparation and test review. The Lethal Concentration 50 Percent ( $LC_{50}$ ) is the effluent concentration that would cause death in 50 percent of the test organisms at a specific time.

**E. SPECIAL CONDITIONS (continued)**

18. Receiving Water Monitoring Conditions

- (a) The upstream receiving water sample should be collected at a point upstream from any influence of the effluent, where the water is visibly flowing down stream. 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) 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:
  - If turbidity in the stream increases notably;
  - If river level exceeds 4 feet above flood stage; or
  - If rainfall over the past two weeks exceeds 2.5 inches or exceeds 1 inch in the last 24 hours
- (c) In the event that a sample cannot be collected during the reporting period, simply report as “No Discharge” with the appropriate NODI code in the eDMR system for all instream parameters.
- (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.
- (e) Please contact the Department if you need additional instructions or assistance

19. 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 31<sup>st</sup> 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) Pursuant to 40 CFR 122.44(j)(2)(ii), 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 **April 1, 2020**. 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.

20. The permittee shall update their pretreatment program to incorporate the requirements of 10 CSR 20-6.100, effective October 30, 2012, which adopted the 2005 “Streamlining” revisions to the federal pretreatment rule, 40 CFR 403. This update to city code will include at the minimum the “required streamlining” 40 CFR 403 rule updates. The permittee shall submit the draft revision to the pretreatment program along with the draft revisions to the city code to the Department by **October 1, 2021**, for review and approval. After draft review, the formal submission of the program modification will follow the requirements of 40 CFR 403.18. The permittee shall immediately finalize implement the updates to the pretreatment program and adopt the revised city code no later than **6 months** after Department approval of the changes. The permittee shall submit notification of city code adoption to the Department no later than **7 months** after Department approval.



**MISSOURI DEPARTMENT OF NATURAL RESOURCES**  
**FACT SHEET**  
**FOR THE PURPOSE OF RENEWAL**  
**OF**  
**MO-0136328**  
**CAPE GIRARDEAU MUNICIPAL WASTEWATER TREATMENT FACILITY**

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

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

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

This Factsheet is for a Major facility.

**Part I – Facility Information**

Facility Type: POTW

Facility Description: Influent pump station / basket screen / mechanical bar screen (2) / manual bar screen / grit chamber (2) / Sequencing Batch Reactor (4 basins) / UV disinfection / cascade aeration / sludge dewatering / sludge drying / dried biosolids are marketed as a Class A unrestricted use organic fertilizer and registered with the Missouri Fertilizer Control Services in the state of Missouri / untreated sludge is landfilled / facility does not have materials stored or conduct operations in a manner that would cause the discharge of pollutants via stormwater

Design population equivalent is 110,000.

Design flow is 11 MGD. Actual flow is 6.26 MGD.

Design sludge production is 2,235 dry tons/year.

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

✓ No.

Application Date: 12/08/18

Expiration Date: 06/30/19

**OUTFALL(S) TABLE:**

| OUTFALL | DESIGN FLOW (CFS) | TREATMENT LEVEL | EFFLUENT TYPE |
|---------|-------------------|-----------------|---------------|
| #001    | 17.05             | Secondary       | Domestic      |

**Facility Performance History:**

This facility was last inspected on March 5, 2018. The conditions of the facility at the time of inspection were found to be satisfactory.

A review of Discharge Monitoring Reports shows exceedances for the following (month/year): pH – 3/16; TSS – 4/15.

**Comments:**

Changes in this permit include the addition of influent, effluent, and instream monitoring for Total Phosphorus, Total Nitrogen (speciated); and influent and instream monitoring for Ammonia. The following parameters were removed from this permit: Total Recoverable Cadmium, Chromium (III), Copper, Lead, Nickel, Silver, and Zinc; Total Dissolved Chromium (VI); and Cyanide, Amenable to Chlorination. Part VI of the Fact Sheet for further information regarding the addition, revision, and removal of effluent

parameters. Special conditions were updated to include the addition of the following requirements: reporting of Non-detects, bypass reporting, Expanded Effluent Testing, and the Electronic Discharge Monitoring Report (eDMR) submission system.

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

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

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

Owned or operated by or for a

☒ - Municipalities

☐ - County

☐ - Public Sewer District

☐ - State agency

☐ - Public Water Supply Districts

☐ - Private Sewer Company regulated by the Public Service Commission

Each of the above entities are only applicable if they have a Population Equivalent greater than two hundred (200).

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: Todd Fulton  
Certification Number: 5626  
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.

## **Part III – Operational Control Testing Requirements**

Missouri Clean Water Commission regulation 10 CSR 20-9.010 requires certain publically 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 publically owned treatment works and privately owned facilities regulated by the Public Service Commission has a Population Equivalent greater than two hundred (200).

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

- ✓ As per [10 CSR 20-9.010(4)], the facility is required to conduct operational monitoring. The facility is a mechanical plant and is required to conduct operational control monitoring as follows:

| <b>Operational Monitoring Parameter</b> | <b>Frequency</b> |
|---|------------------|
| 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)      |

## Part IV – Receiving Stream Information

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

| WATER-BODY NAME   | CLASS | WBID | DESIGNATED USES*                         | 12-DIGIT HUC  | DISTANCE TO CLASSIFIED SEGMENT (MI) |
|-------------------|-------|------|--|---------------|-------------------------------------|
| Mississippi River | P     | 3701 | AQL, DWS, HHP, IND, IRR, LWW, SCR, WBC-B | 07140105-0503 | Direct Discharge                    |

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

Uses found in the receiving streams table, above:

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

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

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

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

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

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

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

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

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

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

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

**DWS** = Drinking Water Supply;

**IND** = Industrial water supply

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

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

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

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

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

| RECEIVING STREAM  | LOW-FLOW VALUES (CFS)* |        |        |
|-------------------|------------------------|--------|--------|
|                   | 1Q10                   | 7Q10   | 30Q10  |
| Mississippi River | 66,238                 | 68,994 | 73,775 |

\* - Data from USGS Gauge Station 07022000 located on the Mississippi River at Thebes, IL. This stream gauge is located approximately seven (7) miles downstream from Outfall #001. Due to the fact that there are no major dischargers between Outfall #001 and the stream gauge, the calculated actual flow was subtracted from the stream gauge data to determine the approximate flow upstream of the facility.

### MIXING CONSIDERATIONS TABLE:

| MIXING ZONE (CFS)<br>[10 CSR 20-7.031(5)(A)4.B.(II)(a)] |          |           | ZONE OF INITIAL DILUTION (CFS)<br>[10 CSR 20-7.031(5)(A)4.B.(II)(b)] |       |        |
|---|----------|-----------|--|-------|--------|
| 1Q10  | 7Q10     | 30Q10     | 1Q10*  | 7Q10* | 30Q10* |
| 16,559.5  | 17,248.5 | 18,443.75 | 170.5  | 170.5 | 170.5  |

\* - The Zone of Initial Dilution (ZID) was calculated as follows: 1Q10 - 1,655.95 cfs, 7Q10 - 1724.9 cfs, and 30Q10 - 1844.375 cfs. In accordance with 10 CSR 20-7.031(5)(A)4.B.(III)(b), the ZID cannot exceed 10x the design flow. 10x the design flow is 170.5 cfs, which is less than the ZID for 1Q10, 7Q10, and 30Q10. Therefore, 170.5 cfs is the maximum allowable ZID flow.

### RECEIVING STREAM MONITORING REQUIREMENTS:

#### Permitted Feature SM1 - Upstream.

Facilities with a design flow greater than or equal to 1 MGD are required to sample their effluent monthly for Total Phosphorus and Total Kjeldahl Nitrogen, Nitrite + Nitrate and Ammonia per 10 CSR 20-7.015(9)(D)8.B. Upstream monitoring for these parameters is necessary to determine background concentrations in order to complete calculations related to nutrient loading to the receiving stream.

#### Receiving Water Body's Water Quality

Currently, 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.

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

### **ALTERNATIVE EVALUATIONS FOR NEW FACILITIES:**

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

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

### **ANTI-BACKSLIDING:**

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

- ✓ Limitations in this operating permit for the reissuance of this permit conform to the anti-backsliding provisions of Section 402(o) of the Clean Water Act, and 40 CFR Part 122.44.
- ✓ 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.
  - **Metals.** A Reasonable Potential Analysis was conducted and it was determined that there is no reasonable potential to cause an excursion of water quality standards for Total Recoverable Cadmium, Chromium (III), Copper, Lead, Nickel, Silver, Zinc; Total Dissolved Chromium (VI); or Cyanide, Amenable to Chlorination in the receiving stream. As a result, monitoring requirements have been removed. This determination will be reassessed at renewal. Please see **Appendix – RPA Results** for more information.
  - **Sampling and Reporting Frequencies.** The previous permit contained weekday sampling and reporting frequencies for BOD<sub>5</sub>, TSS, and pH. This permit contains weekly sampling and reporting frequencies for these parameters due to consistency amongst effluent data and compliance with effluent limits. The permit is still protective of water quality.
- ✓ The Department determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under section 402(a)(1)(b).
  - **General Criteria.** The previous permit contained a special condition which described a specific set of prohibitions related to general criteria found in 10 CSR 20-7.031(4). In order to comply with 40 CFR 122.44(d)(1), the permit writer has conducted reasonable potential determinations for each general criterion and established numeric effluent limitations where reasonable potential exists. While the removal of the previous permit special condition creates the appearance of backsliding, since this permit establishes numeric limitations where reasonable potential to cause or contribute to an excursion of the general criteria exists the permit maintains sufficient effluent limitations and monitoring requirements in order to protect water quality, this permit is equally protective as compared to the previous permit. Therefore, given this new information, and the fact that the previous permit special condition was not consistent with 40 CFR 122.44(d)(1), an error occurred in the establishment of the general criteria as a special condition of the previous permit. Please see Part VI – Effluent Limits Determination for more information regarding the reasonable potential determinations for each general criterion related to this facility.

### **ANTIDEGRADATION:**

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

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

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

- ✓ The facility 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 by submitting, as part of the application, when a higher level authority is available, must submit information to the Department for review and approval, provided it does not conflict with any area-wide management plan approved under section 208 of the Federal Clean Water Act or any other regional sewage service and treatment plan approved for higher preference authority by the Department.

**BIOSOLIDS & SEWAGE SLUDGE:**

Biosolids are solid materials resulting from domestic wastewater treatment that meet federal and state criteria for beneficial uses (i.e. fertilizer). Sewage sludge is solids, semi-solids, or liquid residue generated during the treatment of domestic sewage in a treatment works; including but not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment process; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in a treatment works.

- ✓ Permittee is authorized to land apply biosolids in accordance with Standard Conditions III. The facility utilizes a direct drying and pelletization process for sludge. The process contains seven phases: dewatering, mixing, drying, air and solids separation, pellet sorting, pellet cooling and storage, and air treatment and recirculation. The final product is a Class A dry biosolids pellet that is marketed as a registered organic fertilizer for commercial and private agricultural and/or horticultural markets. The City of Cape Girardeau may retain the option of utilizing land application or hauling cake biosolids to a landfill.

**COMPLIANCE AND ENFORCEMENT:**

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

- ✓ The facility is not currently under Water Protection Program enforcement action.

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

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

Operational Monitoring Lagoon: <http://dnr.mo.gov/forms/780-2801-f.pdf>  
Operational Monitoring Mechanical: <http://dnr.mo.gov/forms/780-2800-f.pdf>  
I&I Report: <http://dnr.mo.gov/forms/780-2690-f.pdf>

Per 40 CFR 127.15 and 127.24, permitted facilities may request a temporary waiver for up to 5 years or a permanent waiver from electronic reporting from the Department. To obtain an electronic reporting waiver, a permittee must first submit an eDMR Waiver Request Form: <http://dnr.mo.gov/forms/780-2692-f.pdf>. 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.

**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 ANALYSIS (RPA):**

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

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

- ✓ An RPA was conducted on appropriate parameters. Please see **APPENDIX – RPA RESULTS**.

**REMOVAL EFFICIENCY:**

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

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

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

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

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

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

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

#### **SCHEDULE OF COMPLIANCE (SOC):**

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

A SOC is not allowed:

- For effluent limitations based on technology-based standards established in accordance with federal requirements, if the deadline for compliance established in federal regulations has passed. 40 CFR § 125.3.
- For a newly constructed facility in most cases. Newly constructed facilities must meet applicable effluent limitations when discharge begins, because the facility has installed the appropriate control technology as specified in a permit or antidegradation review. A SOC is allowed for a new water quality based effluent limit that was not included in a previously public noticed permit or antidegradation review, which may occur if a regulation changes during construction.
- To develop a TMDL, UAA, or other study 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 SOC's, and attain a greater level of consistency, on April 9, 2015 the Department issued an updated policy on development of SOC's. This policy provides guidance to Permit Writers on the standard time frames for schedules for common activities, and guidance on factors that may modify the length of the schedule such as a Cost Analysis for Compliance.

- ✓ This permit does not contain an SOC.

#### **SEWER EXTENSION AUTHORITY SUPERVISED PROGRAM:**

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

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

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

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

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



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

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

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

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

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

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

- ✓ 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 (<http://dnr.mo.gov/forms/780-1805-f.pdf>) 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/forms/780-2828-f.pdf>) to the Department’s Water Protection Program, Operating Permits Section. Upon approval of the No Exposure Certification, the permit will be modified and the Special Condition to develop and implement a SWPPP will be removed.

The City of Cape Girardeau submitted a No Exposure Certification for Exclusion from NPDES Stormwater Permitting, which was approved by the Department on May 26, 2019. This exclusion will be reevaluated at the time of renewal.



**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<sub>e</sub> = effluent concentration  
Cs = upstream concentration              Q<sub>e</sub> = effluent flow  
Q<sub>s</sub> = upstream flow

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

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

**Number of Samples "n":**

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

**WLA MODELING:**

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

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

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

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

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

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

✓ The permittee is required to conduct 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.

✓ This facility does not anticipate bypassing.

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

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

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

✓ This facility does not discharge to a 303(d) listed stream.

## Part VI – Effluent Limits Determination

### CATEGORIES OF WATERS OF THE STATE:

As per Missouri's Effluent Regulations [10 CSR 20-7.015], the waters of the state are divided into the below listed seven (7) categories. Each category lists effluent limitations for specific parameters, which are presented in each outfall's Effluent Limitation Table and further discussed in the Derivation & Discussion of Limits section.

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Missouri or Mississippi River [10 CSR 20-7.015(2)] | <input type="checkbox"/> Special Streams [10 CSR 20-7.015(6)]   |
| <input type="checkbox"/> Lakes or Reservoirs [10 CSR 20-7.015(3)]                      | <input type="checkbox"/> Subsurface Waters [10 CSR 20-7.015(7)] |
| <input type="checkbox"/> Losing Streams [10 CSR 20-7.015(4)]                           | <input type="checkbox"/> All Other Waters [10 CSR 20-7.015(8)]  |
| <input type="checkbox"/> Metropolitan No-Discharge Streams [10 CSR 20-7.015(5)]        |   |

### OUTFALL #001 – MAIN FACILITY OUTFALL

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

### EFFLUENT LIMITATIONS TABLE:

| PARAMETER                        | Unit    | Basis for Limits | Daily Maximum | Weekly Average | Monthly Average  | Previous Permit Limit | Sampling Frequency | Reporting Frequency | Sample Type **** |
|----------------------------------|---------|------------------|---------------|----------------|------------------|-----------------------|--------------------|---------------------|------------------|
| Flow                             | MGD     | 1                | *             |                | *                | */*                   | 1/day              | monthly             | T                |
| BOD <sub>5</sub>                 | mg/L    | 1                |               | 45             | 30               | 45/30                 | 1/week             | monthly             | C                |
| TSS                              | mg/L    | 1                |               | 45             | 30               | 45/30                 | 1/week             | monthly             | C                |
| <i>Escherichia coli</i> **       | #/100mL | 1, 3             |               | 1,030          | 206              | 1,030/206             | 1/week             | monthly             | G                |
| Ammonia as N                     | mg/L    | 2, 3             | *             |                | *                | */*                   | 1/month            | monthly             | C                |
| Oil & Grease                     | mg/L    | 1, 3             | 15            |                | 10               | 15/10                 | 1/month            | monthly             | G                |
| Total Phosphorus                 | mg/L    | 1                | *             |                | *                | ***                   | 1/month            | monthly             | C                |
| Total Kjeldahl Nitrogen          | mg/L    | 1                | *             |                | *                | ***                   | 1/month            | monthly             | C                |
| Nitrite + Nitrate                | mg/L    | 1                | *             |                | *                | ***                   | 1/month            | monthly             | C                |
| Acute Whole Effluent Toxicity    | TUa     | 1, 9             | *             |                |                  | *                     | 1/year             | annually            | C                |
| PARAMETER                        | Unit    | Basis for Limits | Minimum       |                | Maximum          | Previous Permit Limit | Sampling Frequency | Reporting Frequency | Sample Type      |
| pH                               | SU      | 1                | 6.0           |                | 9.0              | 6.0-9.0               | 1/week             | monthly             | G                |
| PARAMETER                        | Unit    | Basis for Limits | Daily Minimum |                | Monthly Avg. Min | Previous Permit Limit | Sampling Frequency | Reporting Frequency | Sample Type      |
| BOD <sub>5</sub> Percent Removal | %       | 1                |               |                | 85               | 85                    | 1/month            | monthly             | M                |
| TSS Percent Removal              | %       | 1                |               |                | 85               | 85                    | 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

M = Measured/calculated

#### Basis for Limitations Codes:

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

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

- Flow.** In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the Department, which may require the submittal of an operating permit modification.

- **Biochemical Oxygen Demand (BOD<sub>5</sub>)**. Operating permit retains 45 mg/L as a Weekly Average and 30 mg/L as a Monthly Average from the previous permit. Please see the **CATEGORIZATION OF WATERS OF THE STATE** sub-section of the **Effluent Limits Determination**.
- **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. Please see the **CATEGORIZATION OF WATERS OF THE STATE** sub-section of the **Effluent Limits Determination**.
- **Escherichia coli (E. coli)**. Monthly average of 206 per 100 mL as a geometric mean and Weekly Average of 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 = 5<sup>th</sup> root of (1)(4)(6)(10)(5) = 5<sup>th</sup> root of 1,200 = 4.1 #/100mL.
- **Total Ammonia Nitrogen**. 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. The calculated MDL and AML for both seasons was well above medium to high-strength Ammonia concentrations for raw untreated wastewater. Therefore, monitoring requirements have been retained. Please see **Appendix – RPA Results**.
- **Oil & Grease**. Conventional pollutant, effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.
- **Total Phosphorus and Total Nitrogen (Speciated)**. Effluent monitoring for Total Phosphorus, Total Kjeldahl Nitrogen, and Nitrite + Nitrate are required per 10 CSR 20-7.015(9)(D)8.
- **pH**. 6.0-9.0 SU. pH limitations [10 CSR 20-7.015] are protective of the water quality standard [10 CSR 20-7.031(5)(E)], due to the assimilative capacity of the receiving stream.
- **Biochemical Oxygen Demand (BOD<sub>5</sub>) 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 BOD<sub>5</sub> and TSS for Publicly Owned Treatment Works (POTWs)/municipals. This facility is required to meet 85% removal efficiency for BOD<sub>5</sub>.
- **Total Suspended Solids (TSS) Percent Removal**. In accordance with 40 CFR Part 133, removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to BOD<sub>5</sub> and TSS for Publicly Owned Treatment Works (POTWs)/municipals. This facility is required to meet 85% removal efficiency for TSS.

#### **Whole Effluent Toxicity**

- **Acute Whole Effluent Toxicity**. Monitoring requirement only. Monitoring is required to determine if reasonable potential exists for this facility's discharge to exceed water quality standards
  - ✓ Classified P with other than default Mixing Considerations, the AEC% is determined as follows:

$$\text{Acute AEC\%} = \{[(17.05 + 170.5) / 17.05]^{-1}\} \times 100 = \mathbf{9\%}$$

#### **Parameters Removed.**

- **Metals**. A Reasonable Potential Analysis was conducted and it was determined that there is no reasonable potential to cause an excursion of water quality standards for Total Recoverable Cadmium, Chromium (III), Copper, Lead, Nickel, Silver, Zinc; Total Dissolved Chromium (VI); or Cyanide, Amenable to Chlorination in the receiving stream. As a result, monitoring requirements have been removed. This determination will be reassessed at renewal. Please see **Appendix – RPA Results** for more information.

**Sampling Frequency Justification**: Sampling and Reporting Frequency was retained from previous permit, with the exception of BOD<sub>5</sub>, TSS, and pH, which were reduced from once per weekday to once per week. 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.

### **Acute Whole Effluent Toxicity**

- ✓ **No less than ONCE/YEAR:**
  - Facility is designated as a Major facility or has a design flow  $\geq 1.0$  MGD.
  - Facility incorporates a pretreatment program.

**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.

### **INFLUENT MONITORING TABLE:**

| PARAMETER               | Unit | Basis for Limits | Daily Maximum | Weekly Average | Monthly Average | Previous Permit Limit | Sampling Frequency | Reporting Frequency | Sample Type **** |
|-------------------------|------|------------------|---------------|----------------|-----------------|-----------------------|--------------------|---------------------|------------------|
| BOD <sub>5</sub>        | mg/L | 1                |               |                | *               | ***                   | 1/month            | monthly             | C                |
| TSS                     | mg/L | 1                |               |                | *               | ***                   | 1/month            | monthly             | C                |
| Ammonia as N            | mg/L | 1                | *             |                | *               | ***                   | 1/month            | monthly             | C                |
| Total Phosphorus        | mg/L | 1                | *             |                | *               | ***                   | 1/month            | monthly             | C                |
| Total Kjeldahl Nitrogen | mg/L | 1                | *             |                | *               | ***                   | 1/month            | monthly             | C                |
| Nitrite + Nitrate       | mg/L | 1                | *             |                | *               | ***                   | 1/month            | monthly             | C                |

\* - Monitoring requirement only.

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

\*\*\*\* - C = Composite

#### **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 (BOD<sub>5</sub>) 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 BOD<sub>5</sub> 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, Nitrite + Nitrate, and Ammonia parameters were established to match the required sampling frequency of these parameters in the effluent, per [10 CSR 20-7.015(9)(D)8.]. The sampling and reporting frequencies for influent BOD<sub>5</sub> and TSS have been established to match the required sampling frequency of these parameters in the effluent.

**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 (UPSTREAM)**

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 **** |
|-------------------------|------|------------------|---------------|----------------|-----------------|-----------------------|--------------------|---------------------|------------------|
| Ammonia as N            | mg/L | 7                | *             |                | *               | ***                   | 1/month            | monthly             | G                |
| Total Phosphorus        | mg/L | 7                | *             |                | *               | ***                   | 1/month            | monthly             | G                |
| Total Kjeldahl Nitrogen | mg/L | 7                | *             |                | *               | ***                   | 1/month            | monthly             | G                |
| Nitrite + Nitrate       | mg/L | 7                | *             |                | *               | ***                   | 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 Phosphorus, Total Kjeldahl Nitrogen, Nitrite + Nitrate, and Ammonia.** Facilities with a design flow greater than or equal to 1 MGD are required to sample their effluent monthly for Total Phosphorus and Total Kjeldahl Nitrogen, Nitrite + Nitrate and Ammonia per 10 CSR 20-7.015(9)(D)8. Upstream monitoring for these parameters is necessary to determine background stream concentrations in order to complete calculations that determine instream nutrient loading.

**Sampling Frequency Justification:** The sampling and reporting frequency for Total Phosphorus and Total Nitrogen (speciated) parameters has been established to match the required sampling frequency of these parameters in the effluent.

**Sampling Type Justification:** For the purposes of instream data collection, and as the upstream 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 recent Report of Compliance Inspection for the inspection conducted on March 5, 2018, 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 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. 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 VII – Cost Analysis for Compliance**

Pursuant to Section 644.145, RSMo, when issuing permits under this chapter that incorporate a new requirement for discharges from publicly owned combined or separate sanitary or storm sewer systems or publicly owned treatment works, or when enforcing provisions of this chapter or the Federal Water Pollution Control Act, 33 U.S.C. 1251 et seq., pertaining to any portion of a publicly owned combined or separate sanitary or storm sewer system or [publicly owned] treatment works, the Department of Natural Resources shall make a “finding of affordability” on the costs to be incurred and the impact of any rate changes on ratepayers upon which to base such permits and decisions, to the extent allowable under this chapter and the Federal Water Pollution Control Act. This process is completed through a cost analysis for compliance. Permits that do not include new requirements may be deemed affordable.

- ✓ The Department is required to determine “findings of affordability” because the permit applies to a combined or separate sanitary sewer system for a publically-owned treatment works.

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

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 Cape Girardeau**

| New Permit Requirements   |                                      |                             |                               |
|---|--------------------------------------|-----------------------------|-------------------------------|
| Monthly sampling for influent, effluent, and instream monitoring for Total Kjeldahl Nitrogen, Nitrate + Nitrite, and Total Phosphorus; and influent and instream monitoring for Ammonia |                                      |                             |                               |
| Estimated Annual Cost   | Annual Median Household Income (MHI) | Estimated Monthly User Rate | User Rate as a Percent of MHI |
| \$3,972   | \$43,106                             | \$33.57                     | 0.93%                         |

## **Part VIII – Administrative Requirements**

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

### **WATER QUALITY STANDARD REVISION:**

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

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

### **PERMIT SYNCHRONIZATION:**

The Department of Natural Resources is currently undergoing a synchronization process for operating permits. Permits are normally issued on a five-year term, but to achieve synchronization many permits will need to be issued for less than the full five years allowed by regulation. The intent is that all permits within a watershed will move through the Watershed Based Management (WBM) cycle together and all expire in the same fiscal year. This will allow further streamlining by placing multiple permits within a smaller geographic area on public notice simultaneously, thereby reducing repeated administrative efforts. This will also allow the Department to explore a watershed based permitting effort at some point in the future. Renewal applications must continue to be submitted within 180 days of expiration, however, in instances where effluent data from the previous renewal is less than 4 years old, that data may be re-submitted to meet the requirements of the renewal application. If the permit provides a schedule of compliance for meeting new water quality based effluent limits beyond the expiration date of the permit, the time remaining in the schedule of compliance will be allotted in the renewed permit.

### **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 August 3, 2019 to September 3, 2019. No comments received.

**DATE OF FACT SHEET:** JUNE 24, 2019; **REVISED:** JULY 22, 2019

### **COMPLETED BY:**

**ASHLEY KEELY, ENVIRONMENTAL SPECIALIST**  
**MISSOURI DEPARTMENT OF NATURAL RESOURCES**  
**WATER PROTECTION PROGRAM**  
**OPERATING PERMITS SECTION - DOMESTIC WASTEWATER UNIT**  
**(573) 751-7326**  
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## 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.) | 10              |
| Design Flow (avg. day) or peak month's flow (avg. day) whichever is larger   | 1 pt. / MGD or major fraction thereof. (Max 10 pts.)     | 10              |
| Effluent Discharge   |  |                 |
| Missouri or Mississippi River  | 0  | 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, or 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  |                 |
| 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  |                 |
| 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   |                 |
| Carbon regeneration  | 4  |                 |
| Total from page <b>ONE (1)</b>   | ----   | 46              |

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

| ITEM   | POINTS POSSIBLE | POINTS ASSIGNED |
|--|-----------------|-----------------|
| <b>Solids Handling</b>   |                 |                 |
| Sludge Holding   | 5               |                 |
| Anaerobic digestion  | 10              |                 |
| Aerobic digestion  | 6               |                 |
| Evaporative sludge drying  | 2               | 2               |
| Mechanical dewatering  | 8               | 8               |
| Solids reduction (incineration, wet oxidation)   | 12              |                 |
| Land application   | 6               | 6               |
| <b>Disinfection</b>  |                 |                 |
| Chlorination or comparable   | 5               |                 |
| On-site generation of disinfectant (except UV light)   | 5               |                 |
| Dechlorination   | 2               |                 |
| UV light   | 4               | 4               |
| <b>Required Laboratory Control Performed by Plant Personnel (highest level only)</b>                               |                 |                 |
| 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 <b>TWO (2)</b>   | ----            | 27              |
| Total from page <b>ONE (1)</b>   | ---             | 46              |
| Grand Total  | ---             | 73              |

- ☒ - 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<br>Acute* | CCC*  | RWC<br>Chronic* | n** | Range<br>max/min | CV*** | MF   | RP<br>Yes/No |
|---|--------|---------------|-------|-----------------|-----|------------------|-------|------|--------------|
| Total Ammonia as Nitrogen<br>(Summer) mg/L  | 12.1   | 1.55          | 1.5   | 0.03            | 25  | 9.03/0.01        | 2.86  | 1.87 | NO           |
| Total Ammonia as Nitrogen<br>(Winter) mg/L  | 12.1   | 0.15          | 3.1   | 0.01            | 25  | 0.69/0.01        | 2.53  | 2.25 | NO           |
| Cadmium, Total Recoverable<br>(µg/L)        | 11.3   | 0.18          | 0.5   | 0.00            | 50  | 2.5/1            | 0.2   | 0.78 | NO           |
| Chromium III, Total<br>Recoverable (µg/L)   | 3439.4 | 0.23          | 164.4 | 0.00            | 50  | 2.5/2.5          | 0.0   | 1.00 | NO           |
| Chromium VI, Dissolved<br>(µg/L)            | 15.0   | 0.23          | 10.0  | 0.00            | 50  | 2.5/2.5          | 0.0   | 1.00 | NO           |
| Copper, Total Recoverable<br>(µg/L)         | 29.4   | 3.59          | 18.3  | 0.04            | 50  | 20/2             | 0.8   | 1.97 | NO           |
| Lead, Total Recoverable<br>(µg/L)           | 222.7  | 0.45          | 8.7   | 0.00            | 50  | 5/5              | 0.0   | 1.00 | NO           |
| Nickel, Total Recoverable<br>(µg/L)         | 914.8  | 1.36          | 101.7 | 0.01            | 50  | 23/1             | 0.3   | 0.65 | NO           |
| Silver, Total Recoverable<br>(µg/L)         | 14.7   | 0.17          | NA    | NA              | 50  | 2.5/1            | 0.2   | 0.76 | NO           |
| Zinc, Total Recoverable<br>(µg/L)           | 234.2  | 10.01         | 232.3 | 0.11            | 50  | 60/1.5           | 0.8   | 1.84 | NO           |
| Cyanide, Amenable to<br>Chlorination (µg/L) | 22.0   | 0.23          | 5.0   | 0.00            | 50  | 2.5/2.5          | 0.0   | 1.00 | 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 – ALTERNATIVE:**



**APPENDIX – COST ANALYSIS FOR COMPLIANCE:**

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

**Cape Girardeau Municipal Wastewater Treatment Facility, Permit Renewal  
City of Cape Girardeau  
Missouri State Operating Permit #MO-0136328**

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 requirements for monthly influent, effluent, and instream monitoring for Total Kjeldahl Nitrogen, Nitrate + Nitrite, and Total Phosphorus; and influent and instream monitoring for Ammonia

**Connections**

The number of connections was reported by the permittee on the Financial Questionnaire.

| Connection Type | Number        |
|-----------------|---------------|
| Residential     | 14,251        |
| Commercial      | 2,296         |
| Industrial      | 0             |
| <b>Total</b>    | <b>16,547</b> |

**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 (<http://dnr.mo.gov/forms/780-2511-f.pdf>) 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. 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 Cape Girardeau |             |
|---|-------------|
| Current Monthly User Rates per 5,000 gallons*                                   | \$33.55     |
| Median Household Income (MHI) <sup>1</sup>                                      | \$43,106    |
| Current Annual Operating Costs (excludes depreciation)                          | \$2,368,603 |

\*User Rates were reported by the permittee on the Financial Questionnaire.

**(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:

| <b>Criterion 2A Table. Estimated Cost Breakdown of New Permit Requirements</b> |           |                |                       |
|--|-----------|----------------|-----------------------|
| New Requirement  | Frequency | Estimated Cost | Estimated Annual Cost |
| Total Phosphorus – Influent, Effluent, Instream                                | Quarterly | \$24           | \$864                 |
| Total Kjeldahl Nitrogen – Influent, Effluent, Instream                         | Quarterly | \$33           | \$1,188               |
| Nitrate + Nitrite – Influent, Effluent, Instream                               | Quarterly | \$40           | \$1,440               |
| Ammonia – Influent, Instream   | Quarterly | \$20           | \$480                 |
| Total Estimated Annual Cost of New Permit Requirements                         |           |                | \$3,972               |

| <b>Criterion 2B Table. Estimated Costs for New Permit Requirements</b> |   |         |
|--|---|---------|
| (1)  | Estimated Annual Cost   | \$3,972 |
| (2)  | Estimated Monthly User Cost for New Requirements <sup>2</sup>                     | \$0.02  |
|  | Estimated Monthly User Cost for New Requirements as a Percent of MHI <sup>3</sup> | 0.001%  |
| (3)  | Total Monthly User Cost*  | \$33.57 |
|  | Total Monthly User Cost as a Percent of MHI <sup>4</sup>                          | 0.935%  |

\* 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.

**Nutrient Monitoring**

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

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

The community reported that their outstanding debt for their current wastewater collection and treatment systems is \$67,035,000. The community reported that each user pays \$33.55 monthly, of which, 36.1% (\$12.11) is used toward payments on the current outstanding debt.

**(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 <sup>1, 5-9</sup> for the City of Cape Girardeau**

| No. | Administrative Unit                                   | Cape Girardeau City   | Missouri State | United States |
|-----|---|-----------------------|----------------|---------------|
| 1   | Population (2017)                                     | 39,092                | 6,075,300      | 321,004,416   |
| 2   | Percent Change in Population (2000-2017)              | 10.6%                 | 8.6%           | 14.1%         |
| 3   | 2017 Median Household Income (in 2018 Dollars)        | \$43,106              | \$52,801       | \$59,060      |
| 4   | Percent Change in Median Household Income (2000-2017) | -11.9%                | -7.7%          | -6.7%         |
| 5   | Median Age (2017)                                     | 33.1                  | 38.4           | 37.8          |
| 6   | Change in Median Age in Years (2000-2017)             | -0.5                  | 2.3            | 2.5           |
| 7   | Unemployment Rate (2017)                              | 6.0%                  | 5.8%           | 6.6%          |
| 8   | Percent of Population Below Poverty Level (2017)      | 24.6%                 | 14.6%          | 14.6%         |
| 9   | Percent of Household Received Food Stamps (2017)      | 12.9%                 | 12.2%          | 12.6%         |
| 10  | (Primary) County Where the Community Is Located       | Cape Girardeau 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 Cape Girardeau 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

- (A) 2017 MHI in 2017 Dollar: United States Census Bureau. United States Census Bureau. 2013-2017 American Community Survey 5-Year Estimates, Table B19013: Median Household Income in the Past 12 Months (in 2017 Inflation-Adjusted Dollars).  
[http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS\\_17\\_5YR\\_B19013&prodType=table](http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_17_5YR_B19013&prodType=table).  
(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/prod/cen2000/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/prod/cen2000/phc-2-27-pt1.pdf>.  
(C) 2018 CPI, 2017 CPI and 1999 CPI: U.S. Department of Labor Bureau of Labor Statistics (2018) Consumer Price Index - All Urban Consumers, U.S. City Average. All Items. 1982-84=100. [http://data.bls.gov/timeseries/CUUR0000SA0?data\\_tool=Xgtable](http://data.bls.gov/timeseries/CUUR0000SA0?data_tool=Xgtable).  
(D) 2017 MHI in 2018 Dollar = 2017 MHI in 2017 Dollar x 2018 CPI / 2017 CPI; 2000 MHI in 2018 Dollar = 2000 MHI in 1999 Dollar x 2018 CPI / 1999 CPI.  
(E) Percent Change in Median Household Income (2000-2017) = (2017 MHI in 2018 Dollar - 2000 MHI in 2018 Dollar) / (2000 MHI in 2018 Dollar).
- $(\$3,972/16,547)/12 = \$0.02$  (Estimated Monthly User Cost for New Requirements)
- $(\$0.02/(\$43,106/12))100\% = 0.001\%$  (New Sampling Only)
- $(\$33.57/(\$43,106/12))100\% = 0.935\%$  (Total User Cost)
- (A) Total Population in 2017: United States Census Bureau. 2013-2017 American Community Survey 5-Year Estimates, Table B01003: Total Population - Universe: Total Population.  
[http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS\\_17\\_5YR\\_B01003&prodType=table](http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_17_5YR_B01003&prodType=table). (B) Total Population in 2000: (1) 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/prod/cen2000/phc-1-1-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. <http://www.census.gov/prod/cen2000/phc-2-27-pt1.pdf>.  
(C) Percent Change in Population (2000-2017) = (Total Population in 2017 - Total Population in 2000) / (Total Population in 2000).
- (A) Median Age in 2017: United States Census Bureau. 2013-2017 American Community Survey 5-Year Estimates, Table B01002: Median Age by Sex - Universe: Total population.  
[http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS\\_17\\_5YR\\_B01002&prodType=table](http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_17_5YR_B01002&prodType=table).  
(B) Median Age in 2000: (1) 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/prod/cen2000/phc-1-1-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. <http://www.census.gov/prod/cen2000/phc-2-27-pt1.pdf>.  
(C) Change in Median Age in Years (2000-2017) = (Median Age in 2017 - Median Age in 2000).
- United States Census Bureau. 2013-2017 American Community Survey 5-Year Estimates, B23025: Employment Status for the Population 16 Years and Over - Universe: Population 16 years and Over.  
[http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS\\_17\\_5YR\\_B23025&prodType=table](http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_17_5YR_B23025&prodType=table).
- United States Census Bureau. 2013-2017 American Community Survey 5-Year Estimates, Table S1701: Poverty Status in the Past 12 Months.  
[http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS\\_17\\_5YR\\_S1701&prodType=table](http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_17_5YR_S1701&prodType=table).
- United States Census Bureau. 2013-2017 American Community Survey 5-Year Estimates, Table B22003: Receipt of Food Stamps/SNAP in the Past 12 Months by Poverty Status in the Past 12 Months for Households - Universe: Households.  
[http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS\\_17\\_5YR\\_B22003&prodType=table](http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_17_5YR_B22003&prodType=table)





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

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

## Part I – General Conditions

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

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

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

### Section B – Reporting Requirements

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



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

## Section C – Bypass/Upset Requirements

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

## Section D – Administrative Requirements

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



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- imposed in a pretreatment program approved under section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal penalties of \$2,500 to \$25,000 per day of violation, or imprisonment of not more than one (1) year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than \$50,000 per day of violation, or by imprisonment of not more than two (2) years, or both. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of \$5,000 to \$50,000 per day of violation, or imprisonment for not more than three (3) years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than \$100,000 per day of violation, or imprisonment of not more than six (6) years, or both. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than \$250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than \$500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the CWA, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than \$1,000,000 and can be fined up to \$2,000,000 for second or subsequent convictions.
- c. Any person may be assessed an administrative penalty by the EPA Director for violating section 301, 302, 306, 307, 308, 318 or 405 of this Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this Act. Administrative penalties for Class I violations are not to exceed \$10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed \$25,000. Penalties for Class II violations are not to exceed \$10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed \$125,000.
- d. It is unlawful for any person to cause or permit any discharge of water contaminants from any water contaminant or point source located in Missouri in violation of sections 644.006 to 644.141 of the Missouri Clean Water Law, or any standard, rule or regulation promulgated by the commission. In the event the commission or the director determines that any provision of sections 644.006 to 644.141 of the Missouri Clean Water Law or standard, rules, limitations or regulations promulgated pursuant thereto, or permits issued by, or any final abatement order, other order, or determination made by the commission or the director, or any filing requirement pursuant to sections 644.006 to 644.141 of the Missouri Clean Water Law or any other provision which this state is required to enforce pursuant to any federal water pollution control act, is being, was, or is in imminent danger of being violated, the commission or director may cause to have instituted a civil action in any court of competent jurisdiction for the injunctive relief to prevent any such violation or further violation or for the assessment of a penalty not to exceed \$10,000 per day for each day, or part thereof, the violation occurred and continues to occur, or both, as the court deems proper. Any person who willfully or negligently commits any violation in this paragraph shall, upon conviction, be punished by a fine of not less than \$2,500 nor more than \$25,000 per day of violation, or by imprisonment for not more than one year, or both. Second and successive convictions for violation of the same provision of this paragraph by any person shall be punished by a fine of not more than \$50,000 per day of violation, or by imprisonment for not more than two (2) years, or both.
2. **Duty to Reapply.**
- a. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit.
- b. A permittee with a currently effective site-specific permit shall submit an application for renewal at least 180 days before the expiration date of the existing permit, unless permission for a later date has been granted by the Department. (The Department shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)
- c. A permittee with currently effective general permit shall submit an application for renewal at least 30 days before the existing permit expires, unless the permittee has been notified by the Department that an earlier application must be made. The Department may grant permission for a later submission date. (The Department shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)
3. **Need to Halt or Reduce Activity Not a Defense.** It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
4. **Duty to Mitigate.** The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.
5. **Proper Operation and Maintenance.** The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.
6. **Permit Actions.**
- a. Subject to compliance with statutory requirements of the Law and Regulations and applicable Court Order, this permit may be modified, suspended, or revoked in whole or in part during its term for cause including, but not limited to, the following:
- i. Violations of any terms or conditions of this permit or the law;
- ii. Having obtained this permit by misrepresentation or failure to disclose fully any relevant facts;
- iii. A change in any circumstances or conditions that requires either a temporary or permanent reduction or elimination of the authorized discharge; or
- iv. Any reason set forth in the Law or Regulations.
- b. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.
7. **Permit Transfer.**
- a. Subject to 10 CSR 20-6.010, an operating permit may be transferred upon submission to the Department of an application to transfer signed by the existing owner and the new owner, unless prohibited by the terms of the permit. Until such time the permit is officially transferred, the original permittee remains responsible for complying with the terms and conditions of the existing permit.
- b. The Department may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Missouri Clean Water Law or the Federal Clean Water Act.
- c. The Department, within 30 days of receipt of the application, shall notify the new permittee of its intent to revoke or reissue or transfer the permit.
8. **Toxic Pollutants.** The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Federal Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the Federal Clean Water Act within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.
9. **Property Rights.** This permit does not convey any property rights of any sort, or any exclusive privilege.



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





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

**1. Definitions**

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

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

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

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

**2. Identification of Industrial Discharges**

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

**3. Application Information**

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

**4. Notice to the Department**

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

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

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

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

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

**SECTION A – GENERAL REQUIREMENTS**

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

## **SECTION B – DEFINITIONS**

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

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

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

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

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

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

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

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

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

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

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



**TABLE 1**

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

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

**TABLE 2**

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

- e. Annual pollutant loading rate.

**Table 3**

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

- f. Cumulative pollutant loading rates.

**Table 4**

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

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

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

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

## SECTION H – SEPTAGE

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

## SECTION I– CLOSURE REQUIREMENTS

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

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

## SECTION J – MONITORING FREQUENCY

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

**TABLE 5**

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

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

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

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

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

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

## SECTION K – RECORD KEEPING AND REPORTING REQUIREMENTS

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


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

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

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

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

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|   |                        |  |                   |
|---|------------------------|--|-------------------|
|  <b>MISSOURI DEPARTMENT OF NATURAL RESOURCES</b><br>WATER PROTECTION PROGRAM, WATER POLLUTION CONTROL BRANCH<br><b>FORM B2 – APPLICATION FOR AN OPERATING PERMIT FOR FACILITIES THAT RECEIVE PRIMARILY DOMESTIC WASTE AND HAVE A DESIGN FLOW MORE THAN 100,000 GALLONS PER DAY</b> |                        | <b>FOR AGENCY USE ONLY</b><br>CHECK NUMBER<br>DATE RECEIVED<br>FEE SUBMITTED |                   |
|   |                        | 1-23-19  | A 88              |
| <b>PART A – BASIC APPLICATION INFORMATION</b>   |                        |  |                   |
| <b>1. THIS APPLICATION IS FOR:</b>  |                        |  |                   |
| <input type="checkbox"/> An operating permit for a new or unpermitted facility.<br>(Include completed Antidegradation Review or request to conduct an Antidegradation Review, see instructions)   |                        | Construction Permit # _____  |                   |
| <input checked="" type="checkbox"/> An operating permit renewal: Permit #MO- <u>0136328</u>   |                        | Expiration Date <u>06/30/2019</u>  |                   |
| <input type="checkbox"/> An operating permit modification: Permit #MO- _____  |                        | Reason: _____  |                   |
| 1.1 Is the appropriate fee included with the application (see instructions for appropriate fee)?  |                        | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO          |                   |
| <b>2. FACILITY</b>  |                        |  |                   |
| NAME<br>Cape Girardeau Municipal Wastewater Treatment Facility  |                        | TELEPHONE NUMBER WITH AREA CODE<br>573-339-6640                              |                   |
| ADDRESS (PHYSICAL)<br>2061 Corporate Circle   | CITY<br>Cape Girardeau | STATE<br>Missouri  | ZIP CODE<br>63703 |
| 2.1 LEGAL DESCRIPTION (Facility Site): ¼, ¼, SW ¼, Sec. 7, T 30, R 14E  |                        | COUNTY<br>Cape Girardeau   |                   |
| 2.2 UTM Coordinates Easting (X): <u>807939</u> Northing (Y): <u>4131348</u><br>For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)   |                        |  |                   |
| 2.3 Name of receiving stream: Mississippi River   |                        |  |                   |
| 2.4 Number of Outfalls: 2 wastewater outfalls, 1 stormwater outfalls, 1 instream monitoring sites   |                        |  |                   |
| <b>3. OWNER</b>   |                        |  |                   |
| NAME<br>City of Cape Girardeau  |                        | TELEPHONE NUMBER WITH AREA CODE<br>573-339-6351                              |                   |
| ADDRESS<br>2007 Southern Expressway   |                        | EMAIL ADDRESS<br>spolivick@cityofcape.org                                    |                   |
| CITY<br>Cape Girardeau  |                        | STATE<br>Missouri  | ZIP CODE<br>63703 |
| 3.1 Request review of draft permit prior to Public Notice?  |                        | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO          |                   |
| 3.2 Are you a Publically Owned Treatment Works (POTW)?  |                        | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO          |                   |
| If yes, is the Financial Questionnaire attached?  |                        | <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO          |                   |
| 3.3 Are you a Privately Owned Treatment Facility?   |                        | <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO          |                   |
| 3.4 Are you a Privately Owned Treatment Facility regulated by the Public Service Commission (PSC)?  |                        | <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO          |                   |
| <b>4. CONTINUING AUTHORITY: Permanent organization which will serve as the continuing authority for the operation, maintenance and modernization of the facility.</b>   |                        |  |                   |
| NAME<br>Cape Girardeau  |                        | TELEPHONE NUMBER WITH AREA CODE<br>573-339-6351                              |                   |
| ADDRESS<br>2007 Southern Expressway   |                        | EMAIL ADDRESS<br>spolivick@cityofcape.org                                    |                   |
| CITY<br>Cape Girardeau  |                        | STATE<br>Missouri  | ZIP CODE<br>63703 |
| If the Continuing Authority is different than the Owner, include a copy of the contract agreement between the two parties and a description of the responsibilities of both parties within the agreement.   |                        |  |                   |
| <b>5. OPERATOR</b>  |                        |  |                   |
| NAME<br>Todd Fulton   |                        | CERTIFICATE NUMBER (IF APPLICABLE)<br>5626                                   |                   |
| TITLE<br>Plant Manager  |                        | TELEPHONE NUMBER WITH AREA CODE<br>573-339-6641                              |                   |
| EMAIL ADDRESS<br>tfulton@cityofcape.org   |                        |  |                   |
| <b>6. FACILITY CONTACT</b>  |                        |  |                   |
| NAME<br>Stan Polivick   |                        | TITLE<br>Public Works Director   |                   |
| EMAIL ADDRESS<br>spolivick@cityofcape.org   |                        | TELEPHONE NUMBER WITH AREA CODE<br>573-339-6351                              |                   |
| ADDRESS<br>2007 Southern Expressway   |                        | CITY<br>Cape Girardeau   | STATE<br>Missouri |
|   |                        |  | ZIP CODE<br>63703 |





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

FACILITY NAME

Cape Girardeau Municipal Wastewater Treatment Facility

PERMIT NO.

MO-0136328

COUNTY

Cape Girardeau

**APPLICATION OVERVIEW**

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

**BASIC APPLICATION INFORMATION**

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

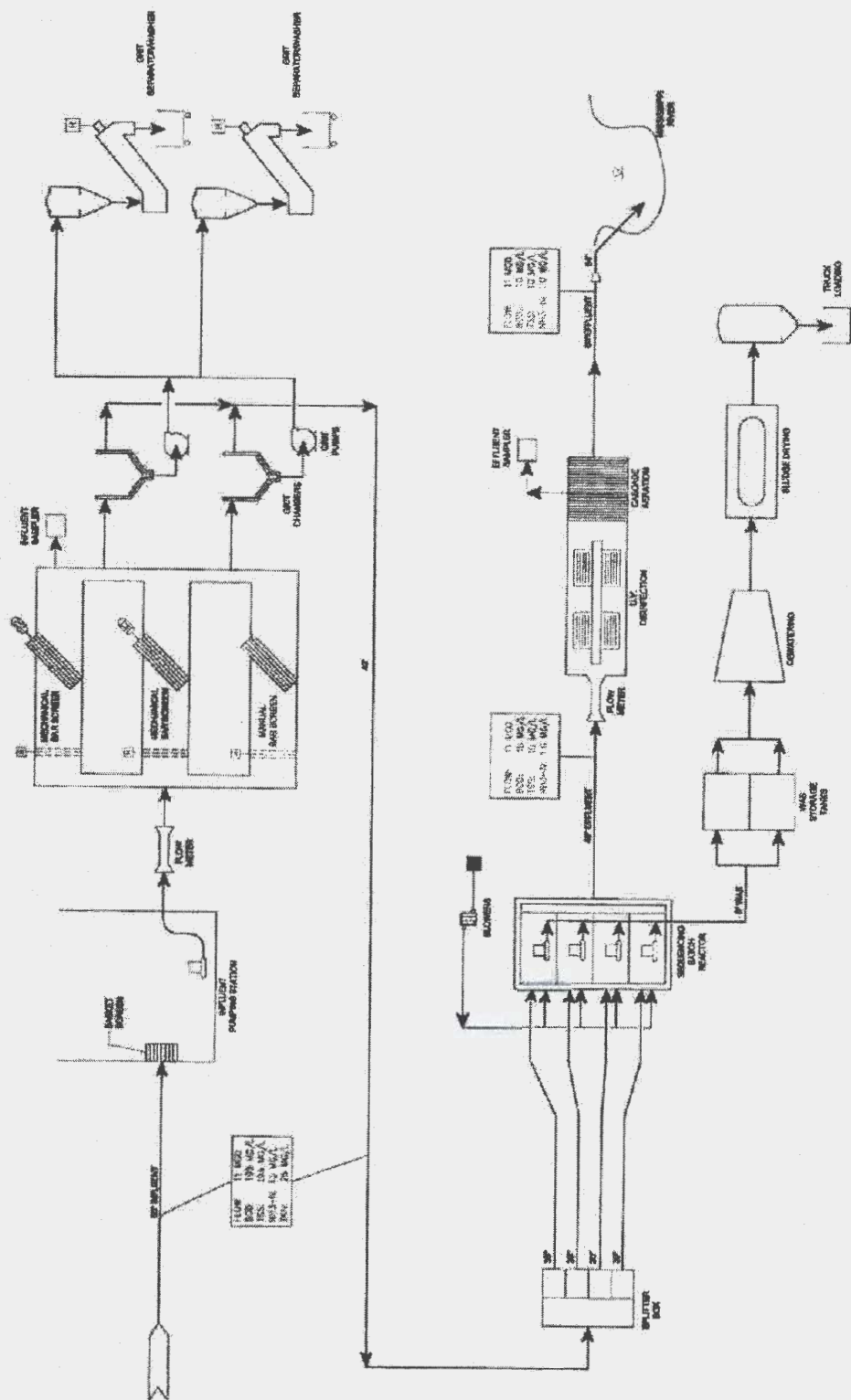
**SUPPLEMENTAL APPLICATION INFORMATION**

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

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

|  |                |                          |                    |
|--|----------------|--------------------------|--------------------|
| FACILITY NAME  | Cape Gir. WWTF | PERMIT NO<br>MO- 0136328 | OUTFALL NO.<br>001 |
| <b>PART A – BASIC APPLICATION INFORMATION</b>  |                |                          |                    |
| <b>7. FACILITY INFORMATION</b>   |                |                          |                    |
| <p><b>7.1 Process Flow Diagram or Schematic.</b> Provide a diagram showing the processes of the treatment plant. Show all of the treatment units, including disinfection (e.g. – Chlorination and Dechlorination), influents, and outfalls. Specify where samples are taken. Indicate any treatment process changes in the routing of wastewater during dry weather and peak wet weather. Include a brief narrative description of the diagram.<br/>Attach sheets as necessary.</p> <p>Attachments:</p> <ol style="list-style-type: none"> <li>1. Process Flow Diagram</li> <li>2. Site Location</li> <li>3. Discharge Location</li> </ol> <p>Narrative Description:</p> <p>The WWTF is designed to treat an average flow of 11 MGD and a peak hourly flow of 50 MGD. The WWTF includes the following major components:</p> <p>Influent pumping station with 6 submersible pumps with a firm capacity of 50 MGD.<br/> Headworks building to house fine screens and grit removal system.<br/> Sequencing batch reactor activated sludge system with four identical basins.<br/> A splitter box to split and discharge the flow equally to the four basins.<br/> Parshall Flume flow meter to measure plant effluent flow.<br/> Two parallel channels with ultra violet light disinfection system.<br/> Cascade aeration and outfall sewer.<br/> Two waste activated sludge storage tanks.<br/> Two centrifuges for sludge dewatering.<br/> Belt drying equipment for drying and pelletizing.<br/> Dried pellet storage silo and truck loading system.</p> |                |                          |                    |





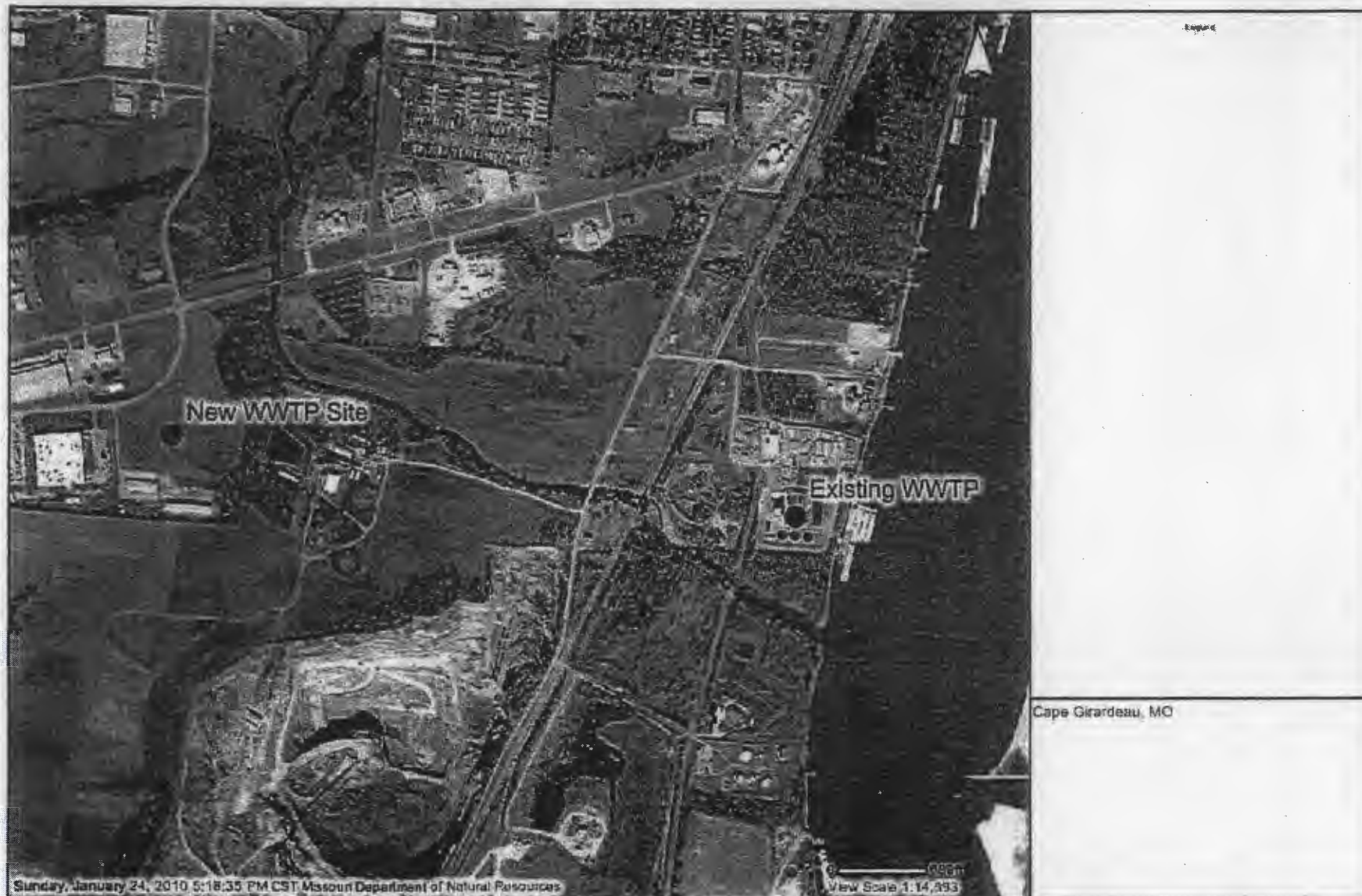
**WASTEWATER TREATMENT PLANT  
CAPE GIRARDEAU, MO**

**SEQUENCING BATCH REACTOR  
PROCESS FLOW DIAGRAM**

|  |   |  |
|--|---|--|
| FACILITY NAME<br><b>Cape Girardeau Municipal WWTF</b>  | PERMIT NO.<br><b>MO- 0136328</b>        | OUTFALL NO.<br><b>001</b>              |
| <b>PART A – BASIC APPLICATION INFORMATION</b>  |   |  |
| <b>7. FACILITY INFORMATION (continued)</b>   |   |  |
| <b>7.2 Topographic Map.</b> Attach to this application a topographic map of the area extending at least one mile beyond facility property boundaries. This map must show the outline of the facility and the following information. <ul style="list-style-type: none"> <li>a. The area surrounding the treatment plant, including all unit processes.</li> <li>b. The location of the downstream landowner(s). (See Item 10.)</li> <li>c. The major pipes or other structures through which wastewater enters the treatment works and the pipes or other structures through which treated wastewater is discharged from the treatment plant. Include outfalls from bypass piping, if applicable.</li> <li>d. The actual point of discharge.</li> <li>e. Wells, springs, other surface water bodies and drinking water wells that are: 1) within ¼ mile of the property boundaries of the treatment works, and 2) listed in public record or otherwise known to the applicant.</li> <li>f. Any areas where the sewage sludge produced by the treatment works is stored, treated, or disposed.</li> <li>g. If the treatment works receives waste that is classified as hazardous under the Resource Conservation and Recovery Act (RCRA) by truck, rail, or special pipe, show on the map where that hazardous waste enters the treatment works and where it is treated, stored, or disposed.</li> </ul> |   |  |
| <b>7.3</b> Facility SIC Code:<br><u>4952</u>   | Discharge SIC Code:<br><u>4952</u>      |  |
| <b>7.4</b> Number of people presently connected or population equivalent (P.E.): <u>64,000</u>   | Design P.E. <u>110,000</u>              |  |
| <b>7.5</b> Connections to the facility:<br>Number of units presently connected:<br>Homes <u>13,416</u> * Trailers _____ Apartments _____ Other (including industrial) <u>2021</u><br>Number of Commercial Establishments: <u>3</u> * Homes includes trailers and apartments  |   |  |
| <b>7.6</b> Design Flow<br><u>11 MGD</u>  | Actual Flow<br><u>5.5 MGD</u>           |  |
| <b>7.7</b> Will discharge be continuous through the year? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/><br>Discharge will occur during the following months: _____ How many days of the week will discharge occur? _____<br>This is a batch discharge but on an hourly basis . Discharge will occur 7 days a week all 12 months.   |   |  |
| <b>7.8</b> Is industrial wastewater discharged to the facility? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/><br>If yes, describe the number and types of industries that discharge to your facility. Attach sheets as necessary<br><br><u>2 hospitals, 1 commercial laundry</u><br><br>Refer to the APPLICATION OVERVIEW to determine whether additional information is needed for Part F.  |   |  |
| <b>7.9</b> Does the facility accept or process leachate from landfills?: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>   |   |  |
| <b>7.10</b> Is wastewater land applied? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/><br>If yes, is Form I attached? Yes <input type="checkbox"/> No <input type="checkbox"/>  |   |  |
| <b>7.11</b> Does the facility discharge to a losing stream or sinkhole? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>  |   |  |
| <b>7.12</b> Has a wasteload allocation study been completed for this facility? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>   |   |  |
| <b>8. LABORATORY CONTROL INFORMATION</b>   |   |  |
| <b>LABORATORY WORK CONDUCTED BY PLANT PERSONNEL</b>  |   |  |
| Lab work conducted outside of plant.   | Yes <input type="checkbox"/>            | No <input checked="" type="checkbox"/> |
| Push-button or visual methods for simple test such as pH, settleable solids.   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |
| Additional procedures such as Dissolved Oxygen, Chemical Oxygen Demand, Biological Oxygen Demand, titrations, solids, volatile content.  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |
| More advanced determinations such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc.  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |
| Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph.   | Yes <input type="checkbox"/>            | No <input checked="" type="checkbox"/> |



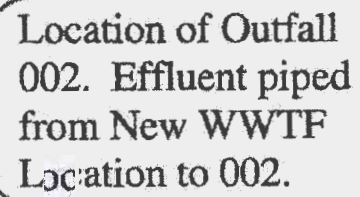
# Site Locations



Missouri  
Department of  
Natural Resources

Disclaimer: Although this map has been compiled by the Missouri Department of Natural Resources, no warranty, expressed or implied, is made by the department as to the accuracy of the data and related materials. The act of distribution shall not constitute any such warranty, and no responsibility is assumed by the department in the use of these data or related materials.

This map makes use of SENSITIVE and/or PROVISIONAL data and is NOT INTENDED FOR DISTRIBUTION outside the Mexican Department of Natural Resources.



Outfall has since changed to Outfall 001



|  |                   |                         |                           |                         |                     |                      |                                |              |
|--|-------------------|-------------------------|---------------------------|-------------------------|---------------------|----------------------|--------------------------------|--------------|
| FACILITY NAME<br>Cape Girardeau Municipal Wastewater Treatment Facility  |                   |                         | PERMIT NO.<br>MO- 0136328 |                         |                     | OUTFALL NO.<br>001 A |                                |              |
| <b>PART B – ADDITIONAL APPLICATION INFORMATION</b>   |                   |                         |                           |                         |                     |                      |                                |              |
| <b>14. EFFLUENT TESTING DATA</b>   |                   |                         |                           |                         |                     |                      |                                |              |
| Applicants must provide effluent testing data for the following parameters. Provide the indicated effluent data for each outfall through which effluent is discharged. Do not include information of combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least three samples and must be no more than four and one-half years apart. |                   |                         |                           |                         |                     |                      |                                |              |
| Outfall Number 001 A   |                   |                         |                           |                         |                     |                      |                                |              |
| PARAMETER  |                   | MAXIMUM DAILY VALUE     |                           |                         | AVERAGE DAILY VALUE |                      |                                |              |
|  |                   | Value                   | Units                     | Value                   | Units               | Number of Samples    |                                |              |
| pH (Minimum)   |                   | 6.5                     | S.U.                      |                         | S.U.                | 1,000                |                                |              |
| pH (Maximum)   |                   | 8.6                     | S.U.                      |                         | S.U.                | 1,000                |                                |              |
| Flow Rate  |                   | 30.00                   | MGD                       | 5.99                    | MGD                 | 1,452                |                                |              |
| * For pH report a minimum and a maximum daily value  |                   |                         |                           |                         |                     |                      |                                |              |
| POLLUTANT  |                   | MAXIMUM DAILY DISCHARGE |                           | AVERAGE DAILY DISCHARGE |                     |                      | ANALYTICAL METHOD              | ML/MDL       |
|  |                   | Conc.                   | Units                     | Conc.                   | Units               | Number of Samples    |                                |              |
| Conventional and Nonconventional Compounds   |                   |                         |                           |                         |                     |                      |                                |              |
| BIOCHEMICAL OXYGEN DEMAND (Report One)   | BOD <sub>5</sub>  | 94                      | mg/L                      | 4.6                     | mg/L                | 998                  | SM-5210B 23rd Edition (2017)   | 2 mg/L       |
|  | CBOD <sub>5</sub> |                         | mg/L                      |                         | mg/L                |                      |                                |              |
| E. COLI  |                   | 3,600                   | #/100 mL                  | 7.5                     | #/100 mL            | 133                  | SM 9223 B Colilert Quanti-Tray | 1 MPN/100 mL |
| TOTAL SUSPENDED SOLIDS (TSS)   |                   | 225                     | mg/L                      | 5.0                     | mg/L                | 1,001                | SM-2540D 23rd Edition (2017)   | 1 mg/L       |
| AMMONIA (as N)   |                   | 13.1                    | mg/L                      | 0.734                   | mg/L                | 47                   | Lachat-10-107-06-1-K           | 0.02 mg/L    |
| CHLORINE* (TOTAL RESIDUAL, TRC)  |                   |                         | mg/L                      |                         | mg/L                |                      |                                |              |
| DISSOLVED OXYGEN   |                   | 10.80                   | mg/L                      | 8.20                    | mg/L                | 1,000                | Hach LDO Method 10360          | 0.01 mg/L    |
| OIL and GREASE   |                   | 8.5                     | mg/L                      | 4.2                     | mg/L                | 59                   | EPA 1664B                      | 2 mg/L       |
| OTHER  |                   |                         | mg/L                      |                         | mg/L                |                      |                                |              |
| * Report only if facility chlorinates  |                   |                         |                           |                         |                     |                      |                                |              |
| <b>END OF PART B</b>   |                   |                         |                           |                         |                     |                      |                                |              |

|   |                                  |                           |
|---|----------------------------------|---------------------------|
| FACILITY NAME<br><b>Cape Girardeau Municipal WWTF</b> | PERMIT NO.<br><b>MO- 0136328</b> | OUTFALL NO.<br><b>001</b> |
|---|----------------------------------|---------------------------|

# **PART C - CERTIFICATION**


## **15. CERTIFICATION**

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

### **ALL APPLICANTS MUST COMPLETE THE FOLLOWING CERTIFICATION.**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

|                                      |   |
|--------------------------------------|---|
| PRINTED NAME<br><b>Stan Polivick</b> | OFFICIAL TITLE (MUST BE AN OFFICER OF THE COMPANY OR CITY OFFICIAL)<br><b>Public Works Director</b> |
|--------------------------------------|---|

|  |
|--|
| SIGNATURE<br> |
|--|

|  |
|--|
| TELEPHONE NUMBER WITH AREA CODE<br><b>573-339-6351</b> |
|--|

|                                |
|--------------------------------|
| DATE SIGNED<br><b>12-12-18</b> |
|--------------------------------|

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

Send Completed Form to:

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

### **END OF PART C**

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

Do not complete the remainder of this application, unless at least one of the following statements applies to your facility:

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

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

| MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL   |                         |       |       |       |                           |       |       |       |                      |                         |          |
|--|-------------------------|-------|-------|-------|---------------------------|-------|-------|-------|----------------------|-------------------------|----------|
| FACILITY NAME<br>Cape Girardeau Municipal Wastewater Treatment Facility  |                         |       |       |       | PERMIT NO.<br>MO- 0136328 |       |       |       | OUTFALL NO.<br>001 A |                         |          |
| <b>PART D – EXPANDED EFFLUENT TESTING DATA</b>   |                         |       |       |       |                           |       |       |       |                      |                         |          |
| <b>17. EXPANDED EFFLUENT TESTING DATA</b>  |                         |       |       |       |                           |       |       |       |                      |                         |          |
| Refer to the APPLICATION OVERVIEW to determine whether Part D applies to the treatment works.  |                         |       |       |       |                           |       |       |       |                      |                         |          |
| If the treatment works has a design flow greater than or equal to 1 million gallons per day or it has (or is required to have) a pretreatment program, or is otherwise required by the permitting authority to provide the data, then provide effluent testing data for the following pollutants. Provide the indicated effluent testing information for each outfall through which effluent is discharged. Do not include information of combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. The facility shall use sufficiently sensitive analytical methods for detecting, identifying, and measuring the concentrations of pollutants. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. Indicate in the blank rows provided below any data you may have on pollutants not specifically listed in this form. At a minimum, effluent testing data must be based on at least three pollutant scans and must be no more than four and one-half years apart. |                         |       |       |       |                           |       |       |       |                      |                         |          |
| Outfall Number (Complete Once for Each Outfall Discharging Effluent to Waters of the State.)   |                         |       |       |       |                           |       |       |       |                      |                         |          |
| POLLUTANT  | MAXIMUM DAILY DISCHARGE |       |       |       | AVERAGE DAILY DISCHARGE   |       |       |       |                      | ANALYTICAL METHOD       | ML/MDL   |
|  | Conc.                   | Units | Mass  | Units | Conc.                     | Units | Mass  | Units | No. of Samples       |                         |          |
| <b>METALS (TOTAL RECOVERABLE), CYANIDE, PHENOLS AND HARDNESS</b>   |                         |       |       |       |                           |       |       |       |                      |                         |          |
| ALUMINUM   | 55.0                    | µg/L  | <2.04 | Lbs   | 44.0                      | µg/L  | 1.33  | Lbs   | 3                    | EPA-200.7 Rev. 4.4      | 100 µg/L |
| ANTIMONY   | <10.0                   | µg/L  | <0.36 | Lbs   | <8.3                      | µg/L  | <0.31 | Lbs   | 3                    | EPA-200.7 Rev. 4.4      | 5 µg/L   |
| ARSENIC  | <15.0                   | µg/L  | <0.55 | Lbs   | <13.3                     | µg/L  | <0.50 | Lbs   | 3                    | EPA-200.7 Rev. 4.4      | 10 µg/L  |
| BERYLLIUM  | <10.0                   | µg/L  | <0.36 | Lbs   | <4.0                      | µg/L  | <0.15 | Lbs   | 3                    | EPA-200.7 Rev. 4.4      | 1 µg/L   |
| CADMIUM  | <3.0                    | µg/L  | <0.06 | Lbs   | <3.0                      | µg/L  | <0.06 | Lbs   | 3                    | SM-3111 B-2011          | 3 µg/L   |
| CHROMIUM III   | <5.0                    | µg/L  | <0.10 | Lbs   | <5.0                      | µg/L  | <0.09 | Lbs   | 3                    | SM-3111/3500-Cr B-2011  | 5 µg/L   |
| CHROMIUM VI  | <5.0                    | µg/L  | <0.10 | Lbs   | <5.0                      | µg/L  | <0.09 | Lbs   | 13                   | SM-3500-Cr B-2011       | 5 µg/L   |
| COPPER   | 8.0                     | µg/L  | 0.29  | Lbs   | 5.3                       | µg/L  | 0.19  | Lbs   | 3                    | SM-3111 B-2011          | 2 µg/L   |
| IRON   | <20.0                   | µg/L  | <0.41 | Lbs   | <20.0                     | µg/L  | <0.38 | Lbs   | 3                    | SM-3111 B-2011          | 20 µg/L  |
| LEAD   | <10.0                   | µg/L  | <0.18 | Lbs   | <8.3                      | µg/L  | <0.15 | Lbs   | 3                    | EPA-200.7 Rev. 4.4      | 5 µg/L   |
| MERCURY  | <0.2                    | µg/L  | <5.00 | Lbs   | <0.2                      | µg/L  | <5.00 | Lbs   | 3                    | SM-3112 B-2011          | .2 µg/L  |
| NICKEL   | <15.0                   | µg/L  | <0.31 | Lbs   | <15.0                     | µg/L  | <0.28 | Lbs   | 3                    | SM-3111 B-2011          | 15 µg/L  |
| SELENIUM   | <10.0                   | µg/L  | <0.18 | Lbs   | <7.0                      | µg/L  | <0.13 | Lbs   | 3                    | EPA-200.7 Rev. 4.4      | 1 µg/L   |
| SILVER   | <3.0                    | µg/L  | <0.06 | Lbs   | <3.0                      | µg/L  | <0.06 | Lbs   | 3                    | SM-3111 B-2011          | 3 µg/L   |
| THALLIUM   | <20.0                   | µg/L  | <0.36 | Lbs   | <13.7                     | µg/L  | <0.25 | Lbs   | 3                    | EPA-200.7 Rev. 4.4      | 1 µg/L   |
| ZINC   | 28.0                    | µg/L  | 1.14  | Lbs   | 25.7                      | µg/L  | 0.97  | Lbs   | 3                    | SM-3111 B-2011          | 4 µg/L   |
| CYANIDE  | <5.0                    | µg/L  | <0.20 | Lbs   | <5.0                      | µg/L  | <0.19 | Lbs   | 3                    | Lachat-CN2/SM-4500 CN E | 5 µg/L   |
| TOTAL PHENOLIC COMPOUNDS   | <50.0                   | µg/L  | <1.02 | Lbs   | <50.0                     | µg/L  | <0.94 | Lbs   | 3                    | EPA 420.1 or 420.4 M    | 50 µg/L  |
| HARDNESS (as CaCO3)  | 220.0                   | µg/L  | 8.30  | Lbs   | 203.7                     | µg/L  | 7.67  | Lbs   | 3                    | SM-2340 C-2011          | 2 mg/L   |
| <b>VOLATILE ORGANIC COMPOUNDS</b>  |                         |       |       |       |                           |       |       |       |                      |                         |          |
| ACROLEIN   | <50.0                   | µg/L  | <2.04 | Lbs   | <50.0                     | µg/L  | <1.88 | Lbs   | 3                    | EPA 624                 | 50 µg/L  |
| ACRYLONITRILE  | <10.0                   | µg/L  | <0.41 | Lbs   | <10.0                     | µg/L  | <0.38 | Lbs   | 3                    | EPA 624                 | 10 µg/L  |
| BENZENE  | <5.0                    | µg/L  | <0.20 | Lbs   | <5.0                      | µg/L  | <0.19 | Lbs   | 3                    | EPA 624                 | 5 µg/L   |
| BROMOFORM  | <5.0                    | µg/L  | <0.20 | Lbs   | <5.0                      | µg/L  | <0.19 | Lbs   | 3                    | EPA 624                 | 5 µg/L   |
| CARBON TETRACHLORIDE   | <5.0                    | µg/L  | <0.20 | Lbs   | <5.0                      | µg/L  | <0.19 | Lbs   | 3                    | EPA 624                 | 5 µg/L   |



|  |                         |       |       |                           |                         |       |       |                      |                |                   |                  |
|--|-------------------------|-------|-------|---------------------------|-------------------------|-------|-------|----------------------|----------------|-------------------|------------------|
| FACILITY NAME<br>Cape Girardeau Municipal Wastewater Treatment Facility    |                         |       |       | PERMIT NO.<br>MO- 0136328 |                         |       |       | OUTFALL NO.<br>001 A |                |                   |                  |
| PART D – EXPANDED EFFLUENT TESTING DATA                                    |                         |       |       |                           |                         |       |       |                      |                |                   |                  |
| 17. EXPANDED EFFLUENT TESTING DATA   |                         |       |       |                           |                         |       |       |                      |                |                   |                  |
| Complete Once for Each Outfall Discharging Effluent to Waters of the State |                         |       |       |                           |                         |       |       |                      |                |                   |                  |
| POLLUTANT  | MAXIMUM DAILY DISCHARGE |       |       |                           | AVERAGE DAILY DISCHARGE |       |       |                      |                | ANALYTICAL METHOD | ML/MDL           |
|  | Conc.                   | Units | Mass  | Units                     | Conc.                   | Units | Mass  | Units                | No. of Samples |                   |                  |
| CHLOROBENZENE  | <5.0                    | µg/L  | <0.20 | Lbs                       | <5.0                    | µg/L  | <0.19 | Lbs                  | 3              | EPA 624           | 5 µg/L           |
| CHLORODIBROMO- METHANE   | <5.0                    | µg/L  | <0.20 | Lbs                       | <5.0                    | µg/L  | <0.19 | Lbs                  | 3              | EPA 624           | 5 µg/L           |
| CHLOROETHANE   | <10.0                   | µg/L  | <0.41 | Lbs                       | <10.0                   | µg/L  | <0.38 | Lbs                  | 3              | EPA 624           | 10 µg/L          |
| 2-CHLORO-ETHYL VINYL ETHER   | <5.0                    | µg/L  | <0.20 | Lbs                       | <5.0                    | µg/L  | <0.19 | Lbs                  | 3              | EPA 624           | 5 µg/L           |
| CHLOROFORM   | <5.0                    | µg/L  | <0.20 | Lbs                       | <5.0                    | µg/L  | <0.19 | Lbs                  | 3              | EPA 624           | 5 µg/L           |
| DICHLOROBROMO- METHANE   | <5.0                    | µg/L  | <0.20 | Lbs                       | <5.0                    | µg/L  | <0.19 | Lbs                  | 3              | EPA 624           | 5 µg/L           |
| 1,1-DICHLORO-ETHANE  | <5.0                    | µg/L  | <0.20 | Lbs                       | <5.0                    | µg/L  | <0.19 | Lbs                  | 3              | EPA 624           | 5 µg/L           |
| 1,2-DICHLORO-ETHANE  | <5.0                    | µg/L  | <0.20 | Lbs                       | <5.0                    | µg/L  | <0.19 | Lbs                  | 3              | EPA 624           | 5 µg/L           |
| TRANS-1,2-DICHLOROETHYLENE   | <10.0                   | µg/L  | <0.41 | Lbs                       | <10.0                   | µg/L  | <0.38 | Lbs                  | 3              | EPA 624           | 10 µg/L          |
| 1,1-DICHLORO- ETHYLENE   | <5.0                    | µg/L  | <0.20 | Lbs                       | <5.0                    | µg/L  | <0.19 | Lbs                  | 3              | EPA 624           | 5 µg/L           |
| 1,2-DICHLORO-PROPANE   | <5.0                    | µg/L  | <0.20 | Lbs                       | <5.0                    | µg/L  | <0.19 | Lbs                  | 3              | EPA 624           | 5 µg/L           |
| 1,3-DICHLORO- PROPYLENE  | <10.0                   | µg/L  | <0.41 | Lbs                       | <10.0                   | µg/L  | <0.38 | Lbs                  | 3              | EPA 624           | 10 µg/L          |
| ETHYLBENZENE   | <5.0                    | µg/L  | <0.20 | Lbs                       | <5.0                    | µg/L  | <0.19 | Lbs                  | 3              | EPA 624           | 5 µg/L           |
| METHYL BROMIDE   | <10.0                   | µg/L  | <0.41 | Lbs                       | <10.0                   | µg/L  | <0.38 | Lbs                  | 3              | EPA 624           | 10 µg/L          |
| METHYL CHLORIDE  | <10.0                   | µg/L  | <0.41 | Lbs                       | <10.0                   | µg/L  | <0.38 | Lbs                  | 3              | EPA 624           | 10 µg/L          |
| METHYLENE CHLORIDE   | <5.0                    | µg/L  | <0.20 | Lbs                       | <5.0                    | µg/L  | <0.19 | Lbs                  | 3              | EPA 624           | 5 µg/L           |
| 1,1,2,2-TETRA- CHLOROETHANE  | <5.0                    | µg/L  | <0.20 | Lbs                       | <5.0                    | µg/L  | <0.19 | Lbs                  | 3              | EPA 624           | 5 µg/L           |
| TETRACHLORO-ETHANE   | <5.0                    | µg/L  | <0.20 | Lbs                       | <5.0                    | µg/L  | <0.19 | Lbs                  | 3              | EPA 624           | 5 µg/L           |
| TOLUENE  | <5.0                    | µg/L  | <0.20 | Lbs                       | <5.0                    | µg/L  | <0.19 | Lbs                  | 3              | EPA 624           | 5 µg/L           |
| 1,1,1-TRICHLORO- ETHANE  | <5.0                    | µg/L  | <0.20 | Lbs                       | <5.0                    | µg/L  | <0.19 | Lbs                  | 3              | EPA 624           | 5 µg/L           |
| 1,1,2-TRICHLORO- ETHANE  | <5.0                    | µg/L  | <0.20 | Lbs                       | <5.0                    | µg/L  | <0.19 | Lbs                  | 3              | EPA 624           | 5 µg/L           |
| TRICHLORETHYLENE   | <5.0                    | µg/L  | <0.20 | Lbs                       | <5.0                    | µg/L  | <0.19 | Lbs                  | 3              | EPA 624           | 5 µg/L           |
| VINYL CHLORIDE   | <5.0                    | µg/L  | <0.20 | Lbs                       | <5.0                    | µg/L  | <0.19 | Lbs                  | 3              | EPA 624           | 5 µg/L           |
| ACID-EXTRACTABLE COMPOUNDS   |                         |       |       |                           |                         |       |       |                      |                |                   |                  |
| P-CHLORO-M-CRESOL  | <10.0                   | µg/L  | <0.41 | Lbs                       | <10.0                   | µg/L  | <0.38 | Lbs                  | 3              | EPA 625           | 10 µg/L          |
| 2-CHLOROPHENOL   | <10.0                   | µg/L  | <0.41 | Lbs                       | <10.0                   | µg/L  | <0.38 | Lbs                  | 3              | EPA 625           | 10 µg/L          |
| 2,4-DICHLOROPHENOL   | <10.0                   | µg/L  | <0.41 | Lbs                       | <10.0                   | µg/L  | <0.38 | Lbs                  | 3              | EPA 625           | 10 µg/L          |
| 2,4-DIMETHYLPHENOL   | <10.0                   | µg/L  | <0.41 | Lbs                       | <10.0                   | µg/L  | <0.38 | Lbs                  | 3              | EPA 625           | 10 µg/L          |
| 4,6-DINITRO-O-CRESOL   | <50.0                   | µg/L  | <2.04 | Lbs                       | <36.7                   | µg/L  | <1.41 | Lbs                  | 3              | EPA 625           | 10 µg/L, 50 µg/L |
| 2,4-DINITROPHENOL  | <20.0                   | µg/L  | <0.82 | Lbs                       | <16.7                   | µg/L  | <0.64 | Lbs                  | 3              | EPA 625           | 10 µg/L, 20 µg/L |
| 2-NITROPHENOL  | <10.0                   | µg/L  | <0.41 | Lbs                       | <10.0                   | µg/L  | <0.38 | Lbs                  | 3              | EPA 625           | 10 µg/L          |
| 4-NITROPHENOL  | <20.0                   | µg/L  | <0.82 | Lbs                       | <16.7                   | µg/L  | <0.64 | Lbs                  | 3              | EPA 625           | 10 µg/L, 20 µg/L |



|   |                         |       |       |                           |                         |       |       |                      |                |                   |                  |
|---|-------------------------|-------|-------|---------------------------|-------------------------|-------|-------|----------------------|----------------|-------------------|------------------|
| FACILITY NAME<br>Cape Girardeau Municipal Wastewater Treatment Facility     |                         |       |       | PERMIT NO.<br>MO- 0136328 |                         |       |       | OUTFALL NO.<br>001 A |                |                   |                  |
| PART D – EXPANDED EFFLUENT TESTING DATA                                     |                         |       |       |                           |                         |       |       |                      |                |                   |                  |
| 17. EXPANDED EFFLUENT TESTING DATA  |                         |       |       |                           |                         |       |       |                      |                |                   |                  |
| Complete Once for Each Outfall Discharging Effluent to Waters of the State. |                         |       |       |                           |                         |       |       |                      |                |                   |                  |
| POLLUTANT   | MAXIMUM DAILY DISCHARGE |       |       |                           | AVERAGE DAILY DISCHARGE |       |       |                      |                | ANALYTICAL METHOD | ML/MDL           |
|   | Conc.                   | Units | Mass  | Units                     | Conc.                   | Units | Mass  | Units                | No. of Samples |                   |                  |
| PENTACHLOROPHENOL   | <50.0                   | µg/L  | <2.04 | Lbs                       | <36.7                   | µg/L  | <1.41 | Lbs                  | 3              | EPA 625           | 10 µg/L, 50 µg/L |
| PHENOL  | <10.0                   | µg/L  | <0.41 | Lbs                       | <10.0                   | µg/L  | <0.38 | Lbs                  | 3              | EPA 625           | 10 µg/L          |
| 2,4,6-TRICHLOROPHENOL   | <20.0                   | µg/L  | <0.82 | Lbs                       | <16.7                   | µg/L  | <0.64 | Lbs                  | 3              | EPA 625           | 10 µg/L, 20 µg/L |
| BASE-NEUTRAL COMPOUNDS  |                         |       |       |                           |                         |       |       |                      |                |                   |                  |
| ACENAPHTHENE  | <10.0                   | µg/L  | <0.41 | Lbs                       | <10.0                   | µg/L  | <0.38 | Lbs                  | 3              | EPA 625           | 10 µg/L          |
| ACENAPHTHYLENE  | <10.0                   | µg/L  | <0.41 | Lbs                       | <10.0                   | µg/L  | <0.38 | Lbs                  | 3              | EPA 625           | 10 µg/L          |
| ANTHRACENE  | <10.0                   | µg/L  | <0.41 | Lbs                       | <10.0                   | µg/L  | <0.38 | Lbs                  | 3              | EPA 625           | 10 µg/L          |
| BENZIDINE   | <80.0                   | µg/L  | <3.27 | Lbs                       | <56.7                   | µg/L  | <2.18 | Lbs                  | 3              | EPA 625           | 10 µg/L, 80 µg/L |
| BENZO(A)ANTHRACENE  | <10.0                   | µg/L  | <0.41 | Lbs                       | <10.0                   | µg/L  | <0.38 | Lbs                  | 3              | EPA 625           | 10 µg/L          |
| BENZO(A)PYRENE  | <10.0                   | µg/L  | <0.41 | Lbs                       | <10.0                   | µg/L  | <0.38 | Lbs                  | 3              | EPA 625           | 10 µg/L          |
| 3,4-BENZO- FLUORANTHENE   | <10.0                   | µg/L  | <0.41 | Lbs                       | <10.0                   | µg/L  | <0.38 | Lbs                  | 3              | EPA 625           | 10 µg/L          |
| BENZO(GH) PHERYLENE   | <10.0                   | µg/L  | <0.41 | Lbs                       | <10.0                   | µg/L  | <0.38 | Lbs                  | 3              | EPA 625           | 10 µg/L          |
| BENZO(K) FLUORANTHENE   | <10.0                   | µg/L  | <0.41 | Lbs                       | <10.0                   | µg/L  | <0.38 | Lbs                  | 3              | EPA 625           | 10 µg/L          |
| BIS (2-CHLOROTHOXY) METHANE   | <10.0                   | µg/L  | <0.41 | Lbs                       | <10.0                   | µg/L  | <0.38 | Lbs                  | 3              | EPA 625           | 10 µg/L          |
| BIS (2-CHLOROETHYL) – ETHER   | <10.0                   | µg/L  | <0.41 | Lbs                       | <10.0                   | µg/L  | <0.38 | Lbs                  | 3              | EPA 625           | 10 µg/L          |
| BIS (2-CHLOROISO- PROPYL) ETHER   | <10.0                   | µg/L  | <0.41 | Lbs                       | <10.0                   | µg/L  | <0.38 | Lbs                  | 3              | EPA 625           | 10 µg/L          |
| BIS (2-ETHYLHEXYL) PHTHALATE  | <10.0                   | µg/L  | <0.41 | Lbs                       | <10.0                   | µg/L  | <0.38 | Lbs                  | 3              | EPA 625           | 10 µg/L          |
| 4-BROMOPHENYL PHENYL ETHER  | <10.0                   | µg/L  | <0.41 | Lbs                       | <10.0                   | µg/L  | <0.38 | Lbs                  | 3              | EPA 625           | 10 µg/L          |
| BUTYL BENZYL PHTHALATE  | <10.0                   | µg/L  | <0.41 | Lbs                       | <10.0                   | µg/L  | <0.38 | Lbs                  | 3              | EPA 625           | 10 µg/L          |
| 2-CHLORONAPH- THALENE   | <10.0                   | µg/L  | <0.41 | Lbs                       | <10.0                   | µg/L  | <0.38 | Lbs                  | 3              | EPA 625           | 10 µg/L          |
| 4-CHLORPHENYL PHENYL ETHER  | <10.0                   | µg/L  | <0.41 | Lbs                       | <10.0                   | µg/L  | <0.38 | Lbs                  | 3              | EPA 625           | 10 µg/L          |
| CHRYSENE  | <10.0                   | µg/L  | <0.41 | Lbs                       | <10.0                   | µg/L  | <0.38 | Lbs                  | 3              | EPA 625           | 10 µg/L          |
| DI-N-BUTYL PHTHALATE  | <10.0                   | µg/L  | <0.41 | Lbs                       | <10.0                   | µg/L  | <0.38 | Lbs                  | 3              | EPA 625           | 10 µg/L          |
| DI-N-OCTYL PHTHALATE  | <10.0                   | µg/L  | <0.41 | Lbs                       | <10.0                   | µg/L  | <0.38 | Lbs                  | 3              | EPA 625           | 10 µg/L          |
| DIBENZO (A,H) ANTHRACENE  | <10.0                   | µg/L  | <0.41 | Lbs                       | <10.0                   | µg/L  | <0.38 | Lbs                  | 3              | EPA 625           | 10 µg/L          |
| 1,2-DICHLORO-BENZENE  | <5.0                    | µg/L  | <0.20 | Lbs                       | <5.0                    | µg/L  | <0.19 | Lbs                  | 3              | EPA 624           | 5 µg/L           |
| 1,3-DICHLORO-BENZENE  | <5.0                    | µg/L  | <0.20 | Lbs                       | <5.0                    | µg/L  | <0.19 | Lbs                  | 3              | EPA 624           | 5 µg/L           |
| 1,4-DICHLORO-BENZENE  | <5.0                    | µg/L  | <0.20 | Lbs                       | <5.0                    | µg/L  | <0.19 | Lbs                  | 3              | EPA 624           | 5 µg/L           |
| 3,3-DICHLORO- BENZIDINE   | <20.0                   | µg/L  | <0.82 | Lbs                       | <16.7                   | µg/L  | <0.64 | Lbs                  | 3              | EPA 625           | 10 µg/L, 20 µg/L |
| DIETHYL PHTHALATE   | <10.0                   | µg/L  | <0.41 | Lbs                       | <10.0                   | µg/L  | <0.38 | Lbs                  | 3              | EPA 625           | 10 µg/L          |
| DIMETHYL PHTHALATE  | <10.0                   | µg/L  | <0.41 | Lbs                       | <10.0                   | µg/L  | <0.38 | Lbs                  | 3              | EPA 625           | 10 µg/L          |





**MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL**

|  |                                  |                           |
|--|----------------------------------|---------------------------|
| FACILITY NAME<br><b>Cape Girardeau Mun. WWTF</b> | PERMIT NO.<br><b>MO- 0136328</b> | OUTFALL NO.<br><b>001</b> |
|--|----------------------------------|---------------------------|

**PART E - TOXICITY TESTING DATA**
**17. TOXICITY TESTING DATA**

Refer to the APPLICATION OVERVIEW to determine whether Part E applies to the treatment works.

Publicly owned treatment works, or POTWs, meeting one or more of the following criteria must provide the results of whole effluent toxicity tests for acute or chronic toxicity for each of the facility's discharge points.

- A. POTWs with a design flow rate greater than or equal to 1 million gallons per day
- B. POTWs with a pretreatment program (or those that are required to have one under 40 CFR Part 403)
- C. POTWs required by the permitting authority to submit data for these parameters
  - At a minimum, these results must include quarterly testing for a 12-month period within the past one year using multiple species (minimum of two species), or the results from four tests performed at least annually in the four and one-half years prior to the application, provided the results show no appreciable toxicity, and testing for acute or chronic toxicity, depending on the range of receiving water dilution. Do not include information about combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136.
  - If EPA methods were not used, report the reason for using alternative methods. If test summaries are available that contain all of the information requested below, they may be submitted in place of Part E. If no biomonitoring data is required, do not complete Part E. Refer to the application overview for directions on which other sections of the form to complete.

Indicate the number of whole effluent toxicity tests conducted in the past four and one-half years: \_\_\_\_\_ chronic ☒ acute

Complete the following chart for the last three whole effluent toxicity tests. Allow one column per test. Copy this page if more than three tests are being reported.

|   | Most Recent              | 2 <sup>ND</sup> Most Recent | 3 <sup>RD</sup> Most Recent |
|---|--------------------------|-----------------------------|-----------------------------|
| <b>A. Test Information</b>  |                          |                             |                             |
| Test Method Number  | SEE ALL 4 ATTACHED       |                             |                             |
| Final Report Number   |                          |                             |                             |
| Outfall Number  |                          |                             |                             |
| Dates Sample Collected  |                          |                             |                             |
| Date Test Started   |                          |                             |                             |
| Duration  |                          |                             |                             |
| <b>B. Toxicity Test Methods Followed</b>  |                          |                             |                             |
| Manual Title  |                          |                             |                             |
| Edition Number and Year of Publication  |                          |                             |                             |
| Page Number(s)  |                          |                             |                             |
| <b>C. Sample collection method(s) used. For multiple grab samples, indicate the number of grab samples used</b> |                          |                             |                             |
| 24-Hour Composite   |                          |                             |                             |
| Grab  |                          |                             |                             |
| <b>D. Indicate where the sample was taken in relation to disinfection (Check all that apply for each)</b>       |                          |                             |                             |
| Before Disinfection   | <input type="checkbox"/> | <input type="checkbox"/>    | <input type="checkbox"/>    |
| After Disinfection  | <input type="checkbox"/> | <input type="checkbox"/>    | <input type="checkbox"/>    |
| After Dechlorination  | <input type="checkbox"/> | <input type="checkbox"/>    | <input type="checkbox"/>    |
| <b>E. Describe the point in the treatment process at which the sample was collected</b>                         |                          |                             |                             |
| Sample Was Collected:   | after all treatment      |                             |                             |
| <b>F. Indicate whether the test was intended to assess chronic toxicity, acute toxicity, or both</b>            |                          |                             |                             |
| Chronic Toxicity  | <input type="checkbox"/> | <input type="checkbox"/>    | <input type="checkbox"/>    |
| Acute Toxicity  | <input type="checkbox"/> | <input type="checkbox"/>    | <input type="checkbox"/>    |
| <b>G. Provide the type of test performed</b>  |                          |                             |                             |
| Static  | <input type="checkbox"/> | <input type="checkbox"/>    | <input type="checkbox"/>    |
| Static-renewal  | <input type="checkbox"/> | <input type="checkbox"/>    | <input type="checkbox"/>    |
| Flow-through  | <input type="checkbox"/> | <input type="checkbox"/>    | <input type="checkbox"/>    |
| <b>H. Source of dilution water. If laboratory water, specify type; if receiving water, specify source</b>       |                          |                             |                             |
| Laboratory Water  | <input type="checkbox"/> | <input type="checkbox"/>    | <input type="checkbox"/>    |
| Receiving Water   | <input type="checkbox"/> | <input type="checkbox"/>    | <input type="checkbox"/>    |



|  |             |                    |                   |
|--|-------------|--------------------|-------------------|
| FACILITY NAME  |             | PERMIT NO.<br>MO-  | OUTFALL NO.       |
| <b>PART E – TOXICITY TESTING DATA</b>  |             |                    |                   |
| <b>17. TOXICITY TESTING DATA (continued)</b>   |             |                    |                   |
|  | Most Recent | Second Most Recent | Third Most Recent |
| I. Type of dilution water. If salt water, specify "natural" or type of artificial sea salts or brine used.   |             |                    |                   |
| Fresh Water  |             |                    |                   |
| Salt Water   |             |                    |                   |
| J. Percentage of effluent used for all concentrations in the test series   |             |                    |                   |
|  |             |                    |                   |
|  |             |                    |                   |
| K. Parameters measured during the test (State whether parameter meets test method specifications)  |             |                    |                   |
| pH   |             |                    |                   |
| Salinity   |             |                    |                   |
| Temperature  |             |                    |                   |
| Ammonia  |             |                    |                   |
| Dissolved Oxygen   |             |                    |                   |
| L. Test Results  |             |                    |                   |
| Acute:   |             |                    |                   |
| Percent Survival in 100% Effluent  |             |                    |                   |
| LC <sub>50</sub>   |             |                    |                   |
| 95% C.I.   |             |                    |                   |
| Control Percent Survival   |             |                    |                   |
| Other (Describe)   |             |                    |                   |
| Chronic:   |             |                    |                   |
| NOEC   |             |                    |                   |
| IC <sub>25</sub>   |             |                    |                   |
| Control Percent Survival   |             |                    |                   |
| Other (Describe)   |             |                    |                   |
| M. Quality Control/ Quality Assurance  |             |                    |                   |
| Is reference toxicant data available?  |             |                    |                   |
| Was reference toxicant test within acceptable bounds?  |             |                    |                   |
| What date was reference toxicant test run (MM/DD/YYYY)?  |             |                    |                   |
| Other (Describe)   |             |                    |                   |
| Is the treatment works involved in a toxicity reduction evaluation? <input type="checkbox"/> Yes <input type="checkbox"/> No   |             |                    |                   |
| If yes, describe:  |             |                    |                   |
|  |             |                    |                   |
| If you have submitted biomonitoring test information, or information regarding the cause of toxicity, within the past four and one-half years, provide the dates the information was submitted to the permitting authority and a summary of the results. |             |                    |                   |
| Date Submitted (MM/DD/YYYY)  |             |                    |                   |
| Summary of Results (See Instructions)  |             |                    |                   |
|  |             |                    |                   |
|  |             |                    |                   |

END OF PART E

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

| MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL  |                                  |                           |                          |
|---|----------------------------------|---------------------------|--------------------------|
| FACILITY NAME<br><b>Cape Girardeau Mun. WWTF</b>  | PERMIT NO.<br><b>MO- 0136328</b> | OUTFALL NO.<br><b>001</b> |                          |
| PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES  |                                  |                           |                          |
| Refer to the APPLICATION OVERVIEW to determine whether Part F applies to the treatment works.   |                                  |                           |                          |
| 18. GENERAL INFORMATION   |                                  |                           |                          |
| <b>18.1</b> Does the treatment works have, or is it subject to, an approved pretreatment program?<br><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  |                                  |                           |                          |
| <b>18.2</b> Number of Significant Industrial Users (SIUs) and Categorical Industrial Users (CIUs). Provide the number of each of the following types of industrial users that discharge to the treatment works:<br>Number of non-categorical SIUs <u>  3  </u><br>Number of CIUs <u>      </u>  |                                  |                           |                          |
| 19. INDUSTRIES CONTRIBUTING MORE THAN 5 PERCENT OF THE ACTUAL FLOW TO THE FACILITY OR OTHER SIGNIFICANT INDUSTRIAL USERS INFORMATION  |                                  |                           |                          |
| Supply the following information for each SIU. If more than one SIU discharges to the treatment works, provide the information requested for each. Submit additional pages as necessary.  |                                  |                           |                          |
| NAME<br><b>St. Francis Medical Center</b>   |                                  |                           |                          |
| MAILING ADDRESS<br><b>211 St. Francis Drive</b>   | CITY<br><b>Cape Girardeau</b>    | STATE<br><b>MO</b>        | ZIP CODE<br><b>63703</b> |
| <b>19.1</b> Describe all of the industrial processes that affect or contribute to the SIU's discharge<br><b>In Patient/Out Patient Care, Clinical Lab Analysis, Food Service, Housekeeping</b>  |                                  |                           |                          |
| <b>19.2</b> Describe all of the principle processes and raw materials that affect or contribute to the SIU's discharge.<br>Principal Product(s): <b>Food (rest is service)</b><br><br>Raw Material(s): <b>Typical Hospital Supplies</b>   |                                  |                           |                          |
| <b>19.3</b> Flow Rate<br>a. PROCESS WASTEWATER FLOW RATE. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day, or gpd, and whether the discharge is continuous or intermittent.<br><b>NA</b> gpd <input type="checkbox"/> Continuous <input type="checkbox"/> Intermittent<br><br>b. NON-PROCESS WASTEWATER FLOW RATE. Indicate the average daily volume of non-process wastewater discharged into the collection system in gallons per day, or gpd, and whether the discharge is continuous or intermittent.<br><b>118,000</b> gpd <input checked="" type="checkbox"/> Continuous <input type="checkbox"/> Intermittent |                                  |                           |                          |
| <b>19.4</b> Pretreatment Standards. Indicate whether the SIU is subject to the following:<br>a. Local Limits <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br>b. Categorical Pretreatment Standards <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br>If subject to categorical pretreatment standards, which category and subcategory?  |                                  |                           |                          |
| <b>19.5</b> Problems at the treatment works attributed to waste discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br><br>If Yes, describe each episode   |                                  |                           |                          |



**MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL**

FACILITY NAME

Cape Girardeau Mun. WWTF

PERMIT NO.

MO- 0136328

OUTFALL NO.

001

**PART F - INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES**

Refer to the APPLICATION OVERVIEW to determine whether Part F applies to the treatment works.

**19. GENERAL INFORMATION****19.1** Does the treatment works have, or is it subject to, an approved pretreatment program?☒ Yes☐ No**19.2** Number of Significant Industrial Users (SIUs) and Categorical Industrial Users (CIUs). Provide the number of each of the following types of industrial users that discharge to the treatment works:Number of non-categorical SIUs 3Number of CIUs       **20. INDUSTRIES CONTRIBUTING MORE THAN 5 PERCENT OF THE ACTUAL FLOW TO THE FACILITY OR OTHER SIGNIFICANT INDUSTRIAL USERS INFORMATION**

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, provide the information requested for each. Submit additional pages as necessary.

NAME

Southeast Missouri Hospital

MAILING ADDRESS

1701 Lacey

CITY

Cape Girardeau

STATE

MO

ZIP CODE

63703

**20.1** Describe all of the industrial processes that affect or contribute to the SIU's discharge  
In Patient/Out Patient Care, Clinical Lab Analysis, Food Service, Housekeeping, Maintenance, X-Ray**20.2** Describe all of the principle processes and raw materials that affect or contribute to the SIU's discharge.

Principal Product(s): Food (rest is service)

Raw Material(s): Typical Hospital Supplies

**20.3 Flow Rate****a. PROCESS WASTEWATER FLOW RATE.** Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day, or gpd, and whether the discharge is continuous or intermittent.

NA

gpd

☐ Continuous☐ Intermittent**b. NON-PROCESS WASTEWATER FLOW RATE.** Indicate the average daily volume of non-process wastewater discharged into the collection system in gallons per day, or gpd, and whether the discharge is continuous or intermittent.

165,000

gpd

☐ Continuous☐ Intermittent**20.4** Pretreatment Standards. Indicate whether the SIU is subject to the following:**a.** Local Limits☐ Yes☒ No**b.** Categorical Pretreatment Standards☐ Yes☒ No

If subject to categorical pretreatment standards, which category and subcategory?

**20.5** Problems at the treatment works attributed to waste discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?☐ Yes☒ No

If Yes, describe each episode

**MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL**

FACILITY NAME

Cape Girardeau Mun. WWTF

PERMIT NO.

MO- 0136328

OUTFALL NO.

001

**PART F - INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES**

Refer to the APPLICATION OVERVIEW to determine whether Part F applies to the treatment works.

**19. GENERAL INFORMATION****19.1** Does the treatment works have, or is it subject to, an approved pretreatment program?☒ Yes☐ No**19.2** Number of Significant Industrial Users (SIUs) and Categorical Industrial Users (CIUs). Provide the number of each of the following types of industrial users that discharge to the treatment works:Number of non-categorical SIUs 3

Number of CIUs \_\_\_\_\_

**20. INDUSTRIES CONTRIBUTING MORE THAN 5 PERCENT OF THE ACTUAL FLOW TO THE FACILITY OR OTHER SIGNIFICANT INDUSTRIAL USERS INFORMATION**

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, provide the information requested for each. Submit additional pages as necessary.

NAME

Tipton Linen and Uniform Service

MAILING ADDRESS

1415 Independence

CITY

Cape Girardeau

STATE

MO

ZIP CODE

63703

**20.1** Describe all of the industrial processes that affect or contribute to the SIU's discharge  
Commercial Laundry Service**20.2** Describe all of the principle processes and raw materials that affect or contribute to the SIU's discharge.

Principal Product(s): Service

Raw Material(s): Typical Laundry Service Supplies

**20.3 Flow Rate****a. PROCESS WASTEWATER FLOW RATE.** Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day, or gpd, and whether the discharge is continuous or intermittent.

NA

gpd

☐ Continuous☐ Intermittent**b. NON-PROCESS WASTEWATER FLOW RATE.** Indicate the average daily volume of non-process wastewater discharged into the collection system in gallons per day, or gpd, and whether the discharge is continuous or intermittent.

35,000

gpd

☐ Continuous☐ Intermittent**20.4** Pretreatment Standards. Indicate whether the SIU is subject to the following:**a.** Local Limits☐ Yes☒ No**b.** Categorical Pretreatment Standards☐ Yes☒ No

If subject to categorical pretreatment standards, which category and subcategory?

**20.5** Problems at the treatment works attributed to waste discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?☐ Yes☒ No

If Yes, describe each episode

**MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL**

FACILITY NAME

Cape Girardeau Municipal WWTF

PERMIT NO.

MO- 0136328

OUTFALL NO.

001

**PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES****20. RCRA HAZARDOUS WASTE RECEIVED BY TRUCK, RAIL, OR DEDICATED PIPELINE**

**20.1** Does the treatment works receive or has it in the past three years received RCRA hazardous waste by truck, rail or dedicated pipe? ☐ Yes ☒ No

**20.2** Method by which RCRA waste is received. (Check all that apply)

☐ Truck☐ Rail☐ Dedicated Pipe**20.3 Waste Description**

| EPA Hazardous Waste Number | Amount (volume or mass) | Units |
|----------------------------|-------------------------|-------|
|                            |                         |       |
|                            |                         |       |
|                            |                         |       |

**21. CERCLA (SUPERFUND) WASTEWATER, RCRA REMEDIATION/CORRECTIVE ACTION WASTEWATER, AND OTHER REMEDIAL ACTIVITY WASTEWATER**

**21.1** Does the treatment works currently (or has it been notified that it will) receive waste from remedial activities?

☐ Yes☒ No

Provide a list of sites and the requested information for each current and future site.

**21.2** Waste Origin. Describe the site and type of facility at which the CERCLA/RCRA/or other remedial waste originates (or is expected to originate in the next five years).

**21.3** List the hazardous constituents that are received (or are expected to be received). Included data on volume and concentration, if known. (Attach additional sheets if necessary)

**21.4 Waste Treatment**

a. Is this waste treated (or will it be treated) prior to entering the treatment works?

☐ Yes☐ No

If Yes, describe the treatment (provide information about the removal efficiency):

b. Is the discharge (or will the discharge be) continuous or intermittent?

☐ Continuous☐ Intermittent

If intermittent, describe the discharge schedule:

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



**MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL**

FACILITY NAME

Cape Girardeau Municipal WWTF

PERMIT NO.

MO- 0136328

OUTFALL NO.

001

**PART G – COMBINED SEWER SYSTEMS**

Refer to the APPLICATION OVERVIEW to determine whether Part G applies to the treatment works.

**22. GENERAL INFORMATION****22.1 System Map.** Provide a map indicating the following: (May be included with basic application information.)

- A. All CSO Discharges.
- B. Sensitive Use Areas Potentially Affected by CSOs. (e.g., beaches, drinking water supplies, shellfish beds, sensitive aquatic ecosystems and Outstanding Natural Resource Waters.)
- C. Waters that Support Threatened and Endangered Species Potentially Affected by CSOs.

**22.2 System Diagram.** Provide a diagram, either in the map provided above or on a separate drawing, of the Combined Sewer Collection System that includes the following information:

- A. Locations of Major Sewer Trunk Lines, Both Combined and Separate Sanitary.
- B. Locations of Points where Separate Sanitary Sewers Feed into the Combined Sewer System.
- C. Locations of In-Line or Off-Line Storage Structures.
- D. Locations of Flow-Regulating Devices.
- E. Locations of Pump Stations.

**22.3** Percent of collection system that is combined sewer**22.4** Population served by combined sewer collection system**22.5** Name of any satellite community with combined sewer collection system**23. CSO OUTFALLS. COMPLETE THE FOLLOWING ONCE FOR EACH CSO DISCHARGE POINT****23.1** Description of Outfall

- a. Outfall Number
- b. Location

c. Distance from Shore (if applicable) \_\_\_\_\_ ft

d. Depth Below Surface (if applicable) \_\_\_\_\_ ft

e. Which of the following were monitored during the last year for this CSO?

- ☐ Rainfall
- ☐ CSO Pollutant Concentrations
- ☐ CSO
- ☐ CSO Flow Volume
- ☐ Receiving Water Quality

f. How many storm events were monitored last year?

**23.2** CSO Events

- a. Give the Number of CSO Events in the Last Year      Events      ☐ Actual      ☐ Approximate
- b.      Give the Average Duration Per CSO Event
- Hours      ☐ Actual      ☐ Approximate
- c.      Give the Average Volume Per CSO Event
- Million Gallons      ☐ Actual      ☐ Approximate
- d. Give the minimum rainfall that caused a CSO event in the last year      \_\_\_\_\_ inches of rainfall

**23.3** Description of Receiving Waters

- a. Name of Receiving Water
- b. Name of Watershed/River/Stream System
- c. U.S. Soil Conservation Service 14-Digit Watershed Code (If Known)
- d. Name of State Management/River Basin
- e. U.S. Geological Survey 8- Digit Hydrologic Cataloging Unit Code (If Known)

**23.4** CSO Operations

Describe any known water quality impacts on the receiving water caused by this CSO (e.g., permanent or intermittent beach closings, permanent or intermittent shellfish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable state water quality standard.)

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

# CITY of CAPE GIRARDEAU

PUBLIC WORKS DEPARTMENT

November 15, 2018

Department of Natural Resources  
Water Protection Program  
Attn: NPDES Permits and Engineering Section  
Post Office Box 176  
Jefferson City, Missouri 65102

RECEIVED  
DEC 18 2018  
Water Protection Program

**Re: Request for Reduction in Testing Frequency**  
**Permit No. MO-0136328**

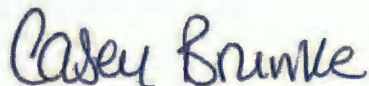
Dear MDNR,

Since the Cape Girardeau Municipal Wastewater Treatment Facility came online in December 2014, required reports have demonstrated that the effluent parameters of BOD and TSS are consistently below permit levels. Currently BOD and TSS tests are performed daily. Limits are permitted to be below 30 mg/L and 45 mg/L for monthly averages and weekly averages, respectively.

We have included summary documents demonstrating the overall performance of these two parameters over the four year life of the treatment works. It is in evaluation of this facility's performance alongside the EPA's *Interim Guidance for Performance-Based Reductions of NPDES Permit Monitoring Frequencies* that we conclude a reduction in testing frequency for BOD and TSS is merited. Please review this data as part of our permit renewal process and should the Department agree there is merit to our request, reduce the frequency required for BOD and TSS tests to once per week.

If you have any questions or need further information, please do not hesitate to contact me or Todd Fulton, Wastewater Plant Manager, at 573-339-6641.

Sincerely,



Casey Brunke, P.E.  
Assistant Public Works Director/City Engineer

Attachments

Copy to: Todd Fulton, City of Cape

#### Facility Enforcement History

The Cape Girardeau Municipal Wastewater Treatment Facility, in service to the citizens of the City of Cape Girardeau, has not been criminally convicted under any Federal or State environmental statute of falsifying data or committing violations which present an imminent and substantial endangerment to public health or welfare.

#### Parameter-by-Parameter Compliance History

The Cape Girardeau Municipal Wastewater Treatment Facility has not had any effluent violations of any parameter in the last year. The attached data summary for BOD and TSS parameters will demonstrate consistent compliance with those parameters going back to May 2015. In the initial start-up phase of the treatment plant there was an exceedance for the weekly average TSS. This singular occurrence occurred approximately 3 ½ years ago, and triggered a review of the circumstances and adjustment of procedures to ensure compliance. This review and adjustment has ensured the consistent compliance that forms the foundation of our argument for reduction in testing frequency.

#### Parameter-by-Parameter Performance History

The BOD monthly averages over the four year life of the treatment facility have range from 2-14 mg/L. The average of those monthly averages is 4.6 mg/L. This puts the ratio of long-term effluent average to monthly average limit at 15%.

The TSS monthly averages over the four year life of the treatment facility have range from 3-14 mg/L. The average of those monthly averages is 5.0 mg/L. This puts the ratio of long-term effluent average to monthly average limit at 17%.

Using the EPA's *Interim Guidance for Performance-Based Reductions of NPDES Permit Monitoring Frequencies* these results put both parameters below the 25% threshold for testing once per week. We have attached approximately 4 years of monthly average effluent data which may assist in establishing the performance basis for the request. Please note, the City's inflow and infiltration program has made many improvements to the collection system, however, the facility is still subject to higher than normal flows during storm and second storm events. The instances of elevated TSS and BOD are acute and irregular, consistent with these events.

#### Continued Eligibility for Reductions

The City of Cape Girardeau will continue to operate the treatment facility in a manner that ensures compliance. All required documentation will be supplied to the Department in compliance with the permit. Should the City of Cape Girardeau Treatment Facility fail to maintain effluent quality and compliance, we understand the Department's responsibility and discretion in increasing monitoring requirements.

#### Future Reduction for Ambient Monitoring

Currently the treatment facility participates in the Voluntary Nutrient Monitoring Program administered by the Department. We take monthly samples of our receiving stream both upstream and downstream of our outfall and have them tested for Ammonia, Total Kjeldahl Nitrogen, Nitrate/Nitrite and Phosphorous. We also take pH, temperature, dissolved oxygen readings and BOD and TSS tests of the Mississippi River upstream of our outfall. The information not submitted to the Department as part of the nutrient program is kept in-house and



is available to the Department upon request or inspection. Any consideration given to further reduce requirements based on this section is appreciated.

#### Cost and Labor Considerations

Currently, the BOD test costs the City of Cape Girardeau \$2.18 in materials and \$27.75 in labor per test. Over the course of a year, 251 tests, this equates to \$7,512.43 in materials and labor. A reduction to once per week testing would result in 80% savings for a final cost of only \$1502.49 per year associated with compliance BOD testing. The TSS test costs \$0.40 in materials and .25 hours in labor or \$1,841.71 per year. A reduction to once per week testing would result in 80% saving for a cost of only \$368.34 per year associated with compliance TSS testing. The expenditures for cost and labor for laboratory testing would benefit a total of \$7483.31 per year. This would allow for increased focus in process control testing, pretreatment and preventative maintenance schedules as well as reducing the overall costs of running the treatment facility.

# Performance History Summary

## Cape Girardeau Municipal Wastewater Treatment Facility

|                |          |   |                                   |       |     |      |      |        |           |         |          |                     |      |      |      |      |
|----------------|----------|---|-----------------------------------|-------|-----|------|------|--------|-----------|---------|----------|---------------------|------|------|------|------|
| BOD            | 2014     | From Startup to Now, Avg Monthly Avg = 4.6 mg/L |                                   |       |     |      |      |        |           |         |          | # of Violations = 0 |      |      |      |      |
|                | December | Coefficient of Variance:                        |                                   |       |     |      |      |        |           |         |          | 2014                | 2015 | 2016 | 2017 | 2018 |
|                | Average  | 13.8  | Note: Low Mean and Downward Trend |       |     |      |      |        |           |         |          |                     | 87%  | 131% | 63%  | 45%  |
| Max Weekly Avg | 35.5     |   |                                   |       |     |      |      |        |           |         |          |                     |      |      |      |      |
| 2015           |          |   |                                   |       |     |      |      |        |           |         |          |                     |      |      |      |      |
|                | January  | February  | March                             | April | May | June | July | August | September | October | November | December            |      |      |      |      |
| Average        | 3.8      | 4.1   | 12.8                              | 8.4   | 5.2 | 3.2  | 5.2  | 4.8    | 5.5       | 4.8     | 4.7      | 6.3                 |      |      |      |      |
| Max Weekly Avg | 4.6      | 4.6   | 23.0                              | 23.6  | 9.0 | 4.8  | 9.0  | 6.2    | 6.6       | 5.2     | 5.6      | 8.5                 |      |      |      |      |
| 2016           |          |   |                                   |       |     |      |      |        |           |         |          |                     |      |      |      |      |
|                | January  | February  | March                             | April | May | June | July | August | September | October | November | December            |      |      |      |      |
| Average        | 3.9      | 3.6   | 2.6                               | 2.5   | 3.7 | 1.7  | 2.1  | 2.7    | 4.4       | 4.1     | 8.0      | 5.7                 |      |      |      |      |
| Max Weekly Avg | 7.0      | 5.0   | 4.2                               | 3.8   | 4.6 | 2.6  | 2.8  | 5.0    | 5.5       | 4.6     | 9.8      | 6.5                 |      |      |      |      |
| 2017           |          |   |                                   |       |     |      |      |        |           |         |          |                     |      |      |      |      |
|                | January  | February  | March                             | April | May | June | July | August | September | October | November | December            |      |      |      |      |
| Average        | 5.8      | 6.1   | 2.8                               | 3.3   | 3.1 | 2.6  | 2.7  | 2.6    | 2.5       | 4.4     | 5.0      | 5.7                 |      |      |      |      |
| Max Weekly Avg | 6.6      | 7.5   | 3.5                               | 3.9   | 5.4 | 3.2  | 3.1  | 3.1    | 3.4       | 5.0     | 5.5      | 6.0                 |      |      |      |      |
| 2018           |          |   |                                   |       |     |      |      |        |           |         |          |                     |      |      |      |      |
|                | January  | February  | March                             | April | May | June | July | August | September | October | November | December            |      |      |      |      |
| Average        | 5.3      | 6.6   | 4.6                               | 4.4   | 4.0 | 3.3  | 3.0  | 3.8    | 3.9       | 3.5     |          |                     |      |      |      |      |
| Max Weekly Avg | 5.6      | 10.4  | 4.9                               | 4.9   | 4.6 | 5.5  | 3.6  | 4.7    | 4.7       | 4.7     |          |                     |      |      |      |      |

TSS

2014

|                |   |                                    |  |      |      |      |      |      |
|----------------|---|------------------------------------|--|------|------|------|------|------|
| December       | From Startup to Now, Avg Monthly Avg = 5.0 mg/L | # of Violations = 1 for Weekly Avg |  |      |      |      |      |      |
| Average        | 9.1   | Coefficient of Variance:           |  | 2014 | 2015 | 2016 | 2017 | 2018 |
| Max Weekly Avg | 28.0  | Note: Low Mean                     |  | 116% | 247% | 71%  | 53%  | 84%  |

2015

|                |          |       |       |      |      |      |        |           |         |          |          |      |
|----------------|----------|-------|-------|------|------|------|--------|-----------|---------|----------|----------|------|
| January        | February | March | April | May  | June | July | August | September | October | November | December |      |
| Average        | 3.8      | 4.3   | 14.0  | 14.4 | 4.4  | 3.5  | 2.2    | 3.2       | 4.2     | 5.1      | 6.3      | 9.0  |
| Max Weekly Avg | 5.0      | 5.6   | 27.4  | 49.8 | 8.4  | 8.2  | 3.4    | 4.6       | 5.0     | 5.8      | 6.8      | 18.8 |

2016

|                |          |       |       |     |      |      |        |           |         |          |          |     |
|----------------|----------|-------|-------|-----|------|------|--------|-----------|---------|----------|----------|-----|
| January        | February | March | April | May | June | July | August | September | October | November | December |     |
| Average        | 8.1      | 4.8   | 4.1   | 4.0 | 4.7  | 2.4  | 3.6    | 3.3       | 3.6     | 3.4      | 6.0      | 5.2 |
| Max Weekly Avg | 17.2     | 5.6   | 6.4   | 4.6 | 6.0  | 3.6  | 4.3    | 6.6       | 6.0     | 3.6      | 7.4      | 7.8 |

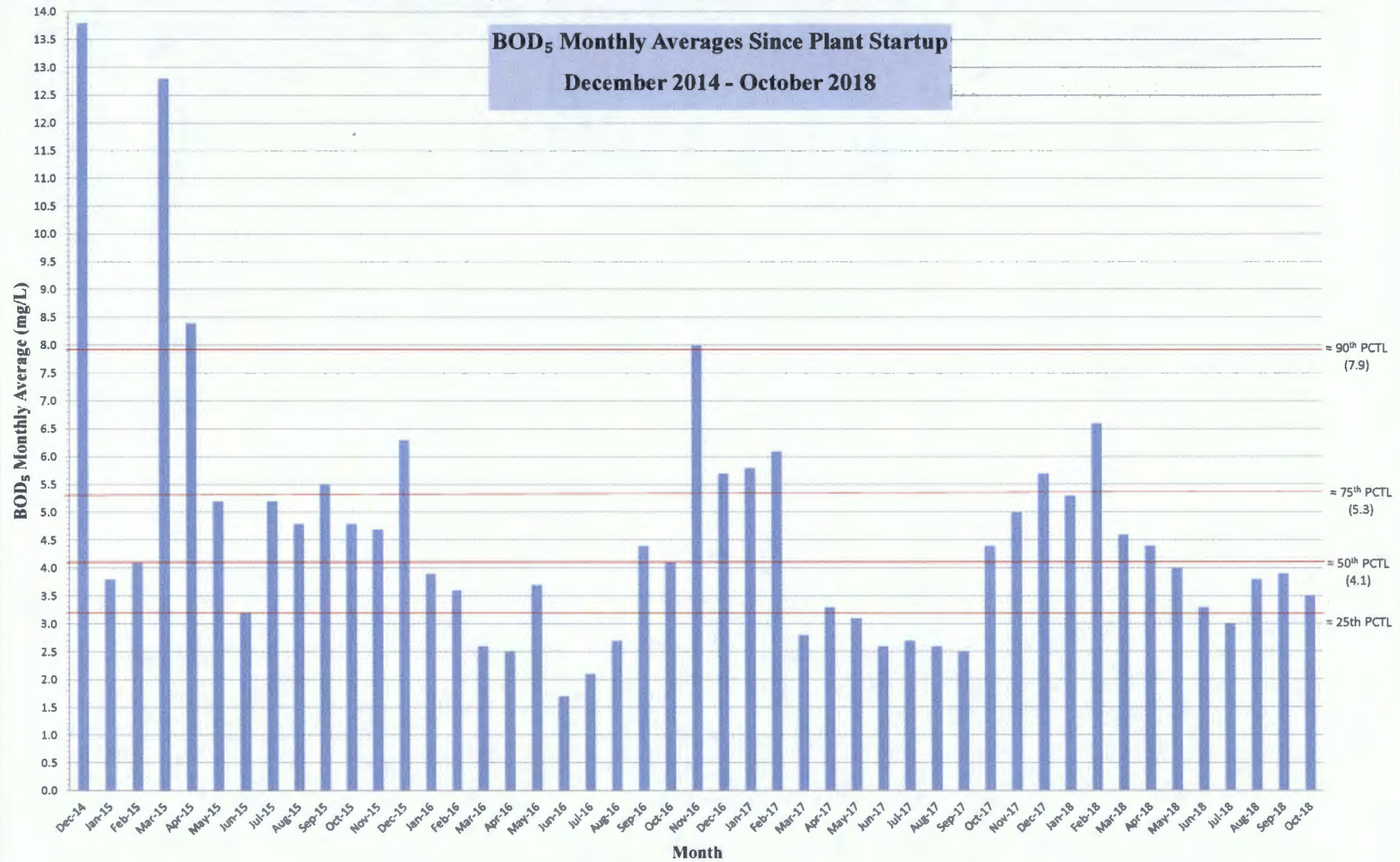
2017

|                |          |       |       |     |      |      |        |           |         |          |          |     |
|----------------|----------|-------|-------|-----|------|------|--------|-----------|---------|----------|----------|-----|
| January        | February | March | April | May | June | July | August | September | October | November | December |     |
| Average        | 5.2      | 5.6   | 2.8   | 4.7 | 5.4  | 2.5  | 2.7    | 3.2       | 2.7     | 6.0      | 6.0      | 7.1 |
| Max Weekly Avg | 5.5      | 7.5   | 4.0   | 6.8 | 11.3 | 2.9  | 3.2    | 4.1       | 4.2     | 7.3      | 7.0      | 7.8 |

2018

|                |          |       |       |     |      |      |        |           |         |          |          |
|----------------|----------|-------|-------|-----|------|------|--------|-----------|---------|----------|----------|
| January        | February | March | April | May | June | July | August | September | October | November | December |
| Average        | 5.9      | 8.7   | 6.1   | 4.7 | 2.7  | 2.7  | 1.8    | 3.3       | 3.3     | 3.8      |          |
| Max Weekly Avg | 7.2      | 17.2  | 8.9   | 6.0 | 3.6  | 6.5  | 2.1    | 4.0       | 3.4     | 7.6      |          |

# **BOD<sub>5</sub> Monthly Averages Since Plant Startup** **December 2014 - October 2018**



# **TSS Monthly Averages Since Plant Startup** **December 2014 - October 2018**

