

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-0126403

Owner: Franklin County Public Water Supply District (FCPWS) #3  
Address: 150 Old Highway 150, Villa Ridge, MO 63089

Continuing Authority: Same as above  
Address: Same as above

Facility Name: FCPWS #3, Eastland Oaks  
Facility Address: St. John's Road, Washington, MO 63090

Legal Description: Landgrant 900; Franklin County  
Latitude/Longitude: +3830502/ -09057084

Receiving Stream: Brown's Branch (C)  
First Classified Stream and ID: Brown's Branch (C) (01689)  
USGS Basin & Sub-watershed No.: (10300200 – 130001)

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

**FACILITY DESCRIPTION**

Outfall #001 - POTW- SIC # 4952- Certified "C" Operator Required.

Lift station/ flow equalization/ extended aeration/ ultraviolet disinfection/ aerated sludge holding tank/ sludge disposal by contract hauler.

Design population equivalent is 300.  
Design flow is 30,000 gallons per day.  
Actual flow is 17,200 gallons per day.  
Design sludge production is 5.4 dry tons/year.

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

December 11, 2009  
\_\_\_\_\_  
Effective Date

  
\_\_\_\_\_  
Mark N. Templeton, Director, Department of Natural Resources

December 10, 2014  
\_\_\_\_\_  
Expiration Date

  
\_\_\_\_\_  
Mike Struckhoff, Director, St. Louis Regional Office

|  |                          |
|--|--------------------------|
| <b>A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS</b> | PAGE NUMBER 2 of 8       |
|  | PERMIT NUMBER MO-0126403 |

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 shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

| OUTFALL NUMBER AND EFFLUENT PARAMETER(S) | UNITS    | FINAL EFFLUENT LIMITATIONS |                |                 | MONITORING REQUIREMENTS |                  |
|--|----------|----------------------------|----------------|-----------------|-------------------------|------------------|
|  |          | DAILY MAXIMUM              | WEEKLY AVERAGE | MONTHLY AVERAGE | MEASUREMENT FREQUENCY   | SAMPLE TYPE      |
| <u>Outfall #001</u>                      |          |                            |                |                 |                         |                  |
| Flow                                     | MGD      | *                          |                | *               | once/month              | 24 hr. total     |
| Biochemical Oxygen Demand <sub>5</sub>   | mg/L     |                            | 45             | 30              | once/month              | 24 hr. composite |
| Total Suspended Solids                   | mg/L     |                            | 45             | 30              | once/month              | 24 hr. composite |
| pH – Units                               | SU       | ***                        |                | ***             | once/month              | grab             |
| Ammonia as N                             | mg/L     | *                          |                | *               | once/month              | grab             |
| Temperature                              | °C       | *                          |                | *               | once/month              | grab             |
| Oil & Grease                             | mg/L     | 15                         |                | 10              | once/month              | grab             |
| Fecal Coliform (Note 1)                  | #/100mls | 1000                       |                | 400             | once/month              | grab             |

MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**; THE FIRST REPORT IS DUE **FEBRUARY 28, 2010**. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

|                                    |            |                         |               |                  |
|------------------------------------|------------|-------------------------|---------------|------------------|
| Whole Effluent Toxicity (WET) test | % Survival | See Special Condition 8 | once/ 5 years | 24 hr. composite |
|------------------------------------|------------|-------------------------|---------------|------------------|

MONITORING REPORTS SHALL BE SUBMITTED **Once/ 5 years**; THE FIRST REPORT IS DUE **NOVEMBER 28, 2013**.

**B. STANDARD CONDITIONS**

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

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\* Monitoring requirement only.

\*\*\* pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.5-9.0 pH units.

Note 1 - Final limitations and monitoring requirements for Fecal Coliform are applicable only during the recreational season from April 1 through October 31. The monthly average for Fecal Coliform is a geometric mean.

| <b>C. INFLUENT MONITORING REQUIREMENTS</b>   |       | PAGE NUMBER 3 of 8       |             |
|--|-------|--------------------------|-------------|
|  |       | PERMIT NUMBER MO-0126403 |             |
| The facility is required to meet a removal efficiency of 85% or more. The monitoring requirements shall become effective upon issuance and remain in effect until expiration of the permit. To determine removal efficiencies, the influent wastewater shall be monitored by the permittee as specified below: |       |                          |             |
| SAMPLING LOCATION AND PARAMETER(S)   | UNITS | MONITORING REQUIREMENTS  |             |
|  |       | MEASUREMENT FREQUENCY    | SAMPLE TYPE |
| <u>Influent</u>  |       |                          |             |
| Biochemical Oxygen Demand <sub>5</sub>   | mg/L  | once/quarter**           | grab        |
| Total Suspended Solids   | mg/L  | once/quarter**           | grab        |
| MONITORING REPORTS SHALL BE SUBMITTED <b><u>QUARTERLY</u></b> ; THE FIRST REPORT IS DUE <b><u>APRIL 28, 2010</u></b> .   |       |                          |             |

MO 780-0010 (8/91)

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|  |                |
|--|----------------|
| Sample the discharge at least once during the months of: | Report is due: |
| January, February and March (1 <sup>st</sup> Quarter)    | April 28       |
| April, May and June (2 <sup>nd</sup> Quarter)            | July 28        |
| July, August and September (3 <sup>rd</sup> Quarter)     | October 28     |
| October, November and December (4 <sup>th</sup> Quarter) | January 28     |

#### D. SPECIAL CONDITIONS

1. This permit may be reopened and modified, or alternatively revoked and reissued, to:
  - (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
    - (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
    - (2) controls any pollutant not limited in the permit.
  - (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
  - (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

2. All outfalls must be clearly marked in the field.
3. Permittee will cease discharge by connection to area-wide wastewater treatment system within 90 days of notice of its availability.
4. Changes in Discharges of Toxic Substances

The permittee shall notify the Director as soon as it knows or has reason to believe:

- (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels."
  - (1) One hundred micrograms per liter (100 µg/L);

D. SPECIAL CONDITIONS (continued)

- (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
  - (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
  - (4) The level established in Part A of the permit by the Director.
  - (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.
5. Report as no-discharge when a discharge does not occur during the report period.
6. Water Quality Standards
- (a) Discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.
  - (b) General Criteria. The following general water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
    - (1) 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;
    - (2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
    - (3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
    - (4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
    - (5) There shall be no significant human health hazard from incidental contact with the water;
    - (6) There shall be no acute toxicity to livestock or wildlife watering;
    - (7) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
    - (8) 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.
7. Sludge and Biosolids Use For Domestic Wastewater Treatment Facilities
- (a) Permittee shall comply with the pollutant limitations, monitoring, reporting, and other requirements in accordance with the attached permit Standard Conditions.
  - (b) If sludge is not removed by a contract hauler, permittee is authorized to land apply biosolids. Permit Standard Conditions, Part III shall apply to the land application of biosolids. Permittee shall notify the department at least 180 days prior to the planned removal of biosolids. The department may require submittal of a biosolids management plan for department review and approval as determined appropriate on a case-by-case basis.
8. Whole Effluent Toxicity (WET) tests shall be conducted as follows:

| SUMMARY OF WET TESTING FOR THIS PERMIT |          |               |                   |                                     |
|--|----------|---------------|-------------------|-------------------------------------|
| OUTFALL                                | A.E.C. % | FREQUENCY     | SAMPLE TYPE       | MONTH                               |
| 001                                    | 100      | Once/ 5 years | 24 hour composite | August 2013, but report in November |

- (a) Test Schedule and Follow-Up Requirements
  - (1) Perform a SINGLE-dilution test in the months and at the frequency specified above. For tests which are successfully passed, submit test results USING THE DEPARTMENT'S WET TEST REPORT FORM #MO-780-1899 along with complete copies of the test reports as received from the laboratory, including copies of chain-of-custody forms within 30 calendar days of availability to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102. If the effluent passes the test, do not repeat the test until the next test period.

D. SPECIAL CONDITIONS (continued)

- (a) For discharges of stormwater, samples shall be collected within three hours from when discharge first occurs.
  - (b) Samples submitted for analysis of stormwater discharges shall be collected as a grab.
  - (c) For discharges of non-stormwater, samples shall be collected only when precipitation has not occurred for a period of forty-eight hours prior to sample collection. In no event shall sample collection occur simultaneously with the occurrence of precipitation.
  - (d) A twenty-four hour composite sample shall be submitted for analysis of non-stormwater discharges.
  - (e) Upstream receiving water samples, where required, shall be collected upstream from any influence of the effluent where downstream flow is clearly evident.
  - (f) Samples submitted for analysis of upstream receiving water may be collected as either a grab or twenty-four-hour composite as appropriate to the nature of the discharge.
  - (g) Chemical and physical analysis of the upstream control 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.
  - (h) Any and all chemical or physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% Effluent concentration in addition to analyses performed upon any other effluent concentration.
  - (i) All chemical analyses included in the Missouri Department of Natural Resources WET test report form #MO-780-1899 shall be performed and results shall be recorded in the appropriate field of the report form.
  - (j) Where flow-weighted composite sample is required for analysis, the samples shall be composited at the laboratory where the test is to be performed.
  - (k) Where in stream testing is required downstream from the discharge, sample collection shall occur immediately below the established Zone of Initial Dilution in conjunction with or immediately following a release or discharge.
  - (l) Samples submitted for analysis of downstream receiving water may be collected as either a grab or twenty-four-hour composite as appropriate to the nature of the discharge.
  - (m) All instream samples, including downstream samples, shall be tested for toxicity at the 100% concentration in addition to any other assigned AEC for in-stream samples.
- 2) All failing test results along with complete copies of the test reports as received from the laboratory, including those tests conducted under condition (3) below, shall be reported to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the availability of the results.
  - 3) If the effluent fails the test, a multiple dilution test shall be performed within 30 calendar days and biweekly thereafter, until one of the following conditions are met:
    - (a) **THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS.** No further tests need to be performed until next regularly scheduled test period.
    - (b) **A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.**
  - (4) Failure of at least three multiple-dilution tests during any period of accelerated monitoring violates the permit narrative requirement for aquatic life protection.
  - (5) The permittee shall submit a concise summary of all test results for the test series to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the third failed test.
  - (6) Additionally, the following shall apply upon failure of the third MULTIPLE DILUTION test: A toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE) is automatically triggered. The permittee shall contact THE WATER PROTECTION PROGRAM within 14 calendar days from availability of the test results to ascertain as to whether a TIE or TRE is appropriate. The permittee shall submit a plan for conducting a TIE or TRE to the WATER PROTECTION PROGRAM within 60 calendar days of the date of DNR's direction to perform either a TIE or TRE. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.

C. SPECIAL CONDITIONS (continued)

- (7) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.
- (8) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in the permit, without the follow-up requirements, will be required during this period.
- (9) When WET test sampling is required to run over one DMR period, each DMR report shall contain A COPY OF THE DEPARTMENT'S WET TEST REPORT FORM THAT WAS generated during the reporting period.
- (10) Submit a concise summary in tabular format of all test results with the annual report.

(b) PASS/FAIL procedure and effluent limitations:

- (1) To pass a single-dilution test, mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level;  $p = 0.05$ ) than that observed in the upstream receiving-water control sample. Where upstream receiving water is not available mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level;  $p = 0.05$ ) than that observed in the laboratory control. The appropriate statistical tests of significance shall be consistent with the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms or other federal guidelines as appropriate or required.
- (2) To pass a multiple-dilution test:
  - (a) FOR FACILITIES WITH A computed percent effluent at the edge of the zone of initial dilution, Allowable Effluent Concentration (AEC), OF 30% OR LESS THE AEC must be less than three-tenths (0.3) of the  $LC_{50}$  concentration for the most sensitive of the test organisms; OR,
  - (b) FOR FACILITIES WITH AN AEC GREATER THAN 30% THE  $LC_{50}$  CONCENTRATION MUST BE GREATER THAN 100%; AND,
  - (c) all EFFLUENT CONCENTRATIONS equal to or LESS THAN the AEC must be nontoxic. Mortality observed in all effluent concentrations equal to or less than the AEC shall not be significantly different (at the 95% confidence level;  $p = 0.05$ ) than that observed in the upstream receiving-water control sample. Where upstream receiving water is not available mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level;  $p = 0.05$ ) than that observed in the laboratory control. The appropriate statistical tests of significance shall be consistent with the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms or other federal guidelines as appropriate or required. Failure of one multiple-dilution test may be considered an effluent limit violation.

(c) Test Conditions

- (1) Test Type: Acute Static non-renewal
- (2) Test species: Ceriodaphnia dubia and Pimephales promelas (fathead minnow). Organisms used in WET testing shall come from cultures reared for the purpose of conducting toxicity tests and cultured in a manner consistent with the most current USEPA guidelines. All test animals shall be cultured as described in the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms.
- (3) Test period: 48 hours at the "Acceptable Effluent Concentration" (AEC) specified above.

D. SPECIAL CONDITIONS (continued)

- (4) When dilutions are required, upstream receiving stream water shall be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used as dilution water. Procedures for generating reconstituted water will be supplied by the MDNR upon request.
- (5) Single-dilution tests will be run with:
  - (a) Effluent at the AEC concentration;
  - (b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
  - (c) reconstituted water.
- (6) Multiple-dilution tests will be run with:
  - (a) 100%, 50%, 25%, 12.5%, and 6.25% effluent, unless the AEC is less than 25% effluent, in which case dilutions will be 4 times the AEC, two times the AEC, AEC, 1/2 AEC and 1/4 AEC;
  - (b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
  - (c) reconstituted water.
- (7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.
- (8) If upstream control mortality exceeds 10%, the entire test will be rerun using reconstituted water as the dilutant.

D. SPECIAL CONDITIONS (continued)

## SUMMARY OF TEST METHODOLOGY FOR WHOLE-EFFLUENT TOXICITY TESTS

Whole-effluent-toxicity test required in NPDES permits shall use the following test conditions when performing single or multiple dilution methods. Any future changes in methodology will be supplied to the permittee by the Missouri Department of Natural Resources (MDNR). Unless more stringent methods are specified by the DNR, the procedures shall be consistent with the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms,

Test conditions for *Ceriodaphnia dubia*:

|                                  |   |
|----------------------------------|---|
| Test duration:                   | 48 h  |
| Temperature:                     | 25 ± 1°C Temperatures shall not deviate by more than 3°C during the test.   |
| Light Quality:                   | Ambient laboratory illumination   |
| Photoperiod:                     | 16 h light, 8 h dark  |
| Size of test vessel:             | 30 mL (minimum)   |
| Volume of test solution:         | 15 mL (minimum)   |
| Age of test organisms:           | <24 h old   |
| No. of animals/test vessel:      | 5   |
| No. of replicates/concentration: | 4   |
| No. of organisms/concentration:  | 20 (minimum)  |
| Feeding regime:                  | None (feed prior to test)   |
| Aeration:                        | None  |
| Dilution water:                  | Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.   |
| Endpoint:                        | Pass/Fail (Statistically significant Mortality when compared to upstream receiving water control or synthetic control if upstream water was not available at p< 0.05) |
| Test acceptability criterion:    | 90% or greater survival in controls   |

Test conditions for (*Pimephales promelas*):

|                                  |   |
|----------------------------------|---|
| Test duration:                   | 48 h  |
| Temperature:                     | 25 ± 1°C Temperatures shall not deviate by more than 3°C during the test.   |
| Light Quality:                   | Ambient laboratory illumination   |
| Photoperiod:                     | 16 h light/ 8 h dark  |
| Size of test vessel:             | 250 mL (minimum)  |
| Volume of test solution:         | 200 mL (minimum)  |
| Age of test organisms:           | 1-14 days (all same age)  |
| No. of animals/test vessel:      | 10  |
| No. of replicates/concentration: | 4 (minimum) single dilution method<br>2 (minimum) multiple dilution method  |
| No. of organisms/concentration:  | 40 (minimum) single dilution method<br>20 (minimum) multiple dilution method  |
| Feeding regime:                  | None (feed prior to test)   |
| Aeration:                        | None, unless DO concentration falls below 4.0 mg/L; rate should not exceed 100 bubbles/min.   |
| Dilution water:                  | Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.   |
| Endpoint:                        | Pass/Fail (Statistically significant Mortality when compared to upstream receiving water control or synthetic control if upstream water was not available at p< 0.05) |
| Test Acceptability criterion:    | 90% or greater survival in controls   |

**Missouri Department of Natural Resources**  
**Statement of Basis**  
**FCPWSD #3 Eastland Oaks**  
**NPDES #: MO-0126403**  
**Franklin County**

A Statement of Basis (Statement) gives pertinent information regarding the applicable regulations and rationale for the development of the NPDES Missouri State Operating Permit (operating permit). This Statement includes Waste load Allocations, Water Quality Based Effluent Limitations, and Reasonable Potential Analysis calculations as well as any other calculations that effect the effluent limitations of this operating permit. This Statement does not pertain to operating permits that include sewage sludge land application plans and variance procedures, and does not include the public comment process for this operating permit.

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

**Part I – Facility Information**

Facility Type: (POTW)  
Facility SIC Code(s): 4952

Facility Description:

Lift station/ flow equalization/ extended aeration/ ultraviolet disinfection/ aerated sludge holding tank/ sludge disposal by contract hauler.

**OUTFALL(S) TABLE:**

| OUTFALL | DESIGN FLOW (MGD) | TREATMENT LEVEL | EFFLUENT TYPE | DISTANCE TO CLASSIFIED SEGMENT (MI) |
|---------|-------------------|-----------------|---------------|-------------------------------------|
| 001     | 30,000            | Secondary       | Domestic      | 0.04                                |

Water Quality History:

One violation for excessive Fecal Coliform on 7/2007; One violation for high pH on 5/2008 and three violations for non-reporting pH (11/2004), Flow (10/2005) and Fecal Coliform (8/2006).

Comments:

Average flow and location of outfall based upon additional information and data provided by facility contact.

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

As per [10 CSR 20-6.010(8) Terms and Conditions of a Permit], permittee shall operate and maintain facilities to comply with the Missouri Clean Water Law and applicable permit conditions and regulations. Operators or supervisors of operations at regulated wastewater treatment facilities shall be certified in accordance with [10 CSR 20-9.020(2)] and any other applicable state law or regulation. As per [10 CSR 20-9.010(2)(A)], requirements for operation by certified personnel shall apply to all wastewater treatment systems, if applicable, as listed below:

Check boxes below that are applicable to the facility;

- Owned or operated by or for:
  - Municipalities
  - Public Sewer District:
  - County
  - Public Water Supply Districts:
  - Private sewer company regulated by the Public Service Commission:
  - State or Federal agencies:

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

Operator’s Name: Terry McDaniel  
Certification Number: 5792  
Certification Level: A

**Part III – Receiving Stream Information**

**APPLICABLE DESIGNATIONS 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 list 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.

- Missouri or Mississippi River [10 CSR 20-7.015(2)]:
- Lake or Reservoir [10 CSR 20-7.015(3)]:
- Losing [10 CSR 20-7.015(4)]:
- Metropolitan No-Discharge [10 CSR 20-7.015(5)]:
- Special Stream [10 CSR 20-7.015(6)]:
- Subsurface Water [10 CSR 20-7.015(7)]:
- All Other Waters [10 CSR 20-7.015(8)]:

10 CSR 20-7.031 Missouri Water Quality Standards, the department defines the Clean Water Commission water quality objectives in terms of "water uses to be maintained and the criteria to protect those uses." The receiving stream and/or 1<sup>st</sup> classified receiving stream’s beneficial water uses to be maintained are located in the Receiving Stream Table located below in accordance with [10 CSR 20-7.031(3)].

**RECEIVING STREAM(S) TABLE:**

| WATERBODY NAME | CLASS | WBID  | DESIGNATED USES* | 8-DIGIT HUC | EDU**                       |
|----------------|-------|-------|------------------|-------------|-----------------------------|
| Brown’s Branch | C     | 01689 | LWW, AQL, WBC-B  | 10300200    | Ozark/<br>Moreau/<br>Loutre |

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

\*\* - Ecological Drainage Unit

\*\*\* - UAA has not been conducted.

**RECEIVING STREAM(S) LOW-FLOW VALUES TABLE:**

| RECEIVING STREAM (U, C, P) | LOW-FLOW VALUES (CFS) |      |       |
|----------------------------|-----------------------|------|-------|
|                            | 1Q10                  | 7Q10 | 30Q10 |
| Brown’s Branch (C)         | 0                     | 0    | 0.1   |

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

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

## **Part IV – 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.

Not Applicable ;

The facility does not discharge to a Losing Stream as defined by [10 CSR 20-2.010(36)] & [10 CSR 20-7.031(1)(N)], or is an existing facility.

### **ANTI-BACKSLIDING:**

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

- All limits in this statement are at least as protective as those previously established; therefore, backsliding does not apply.

### **ANTIDegradation:**

In accordance with Missouri's Water Quality Standard [10 CSR 20-7.031(2)], the department is to document by means of Antidegradation Review that the use of a water body's available assimilative capacity is justified. Degradation is justified by documenting the socio-economic importance of a discharging activity after determining the necessity of the discharge.

- Renewal no degradation proposed and no further review necessary.

### **APPLICABLE PERMIT PARAMETERS:**

Effluent parameters for conventional, non-conventional, and toxic pollutants have been obtained from the previous NPDES operating permit for this facility, technology based effluent limits, water quality based effluent limits, and from appropriate sections of the renewal application.

### **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.

Not Applicable ;

The permittee/facility is not currently under Water Protection Program enforcement action.

### **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

Not Applicable ;

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

### **REASONABLE POTENTIAL ANALYSIS (RPA):**

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

Not Applicable ;

A RPA was not conducted for this facility.

**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. Please see the United States Environmental Protection Agency's (EPA) website for interpretation of percent removal requirements for National Pollutant Discharge Elimination System Permit Application Requirements for Publicly Owned Treatment Works and Other Treatment Works Treating Domestic Sewage @ [www.epa.gov/fedrgstr/EPA-WATER/1999/August/Day-04/w18866.htm](http://www.epa.gov/fedrgstr/EPA-WATER/1999/August/Day-04/w18866.htm)

Applicable ;

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

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

Collection systems are a critical element in the successful performance of the wastewater treatment process. Under certain conditions, poorly designed, built, managed, operated, and/or maintained systems can pose risks to public health, the environment, or both. Causes of SSOs include, but are not limited to, the following: high levels of I&I during wet weather; blockages; structural, mechanical, or electrical failures; collapsed or broken sewer pipes; insufficient conveyance capacity; and vandalism. Effective and continuous management, operation, and maintenance, as well as ensuring adequate capacity and rehabilitation when necessary are critical to maintaining collection system capacity and performance while extending the life of the system.

Not Applicable ;

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

**SCHEDULE OF COMPLIANCE (SOC):**

A schedule of remedial measures included in a permit, including 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.

Not Applicable ;

This permit does not contain a SOC.

**STORM WATER POLLUTION PREVENTION PLAN (SWPPP):**

A plan to schedule activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the state. The plan may include, but is not limited to, treatment requirements, operating procedures, and practices to control facility site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Not Applicable ;

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

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

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

Not Applicable ;

Wasteload allocations were not calculated.

**WLA MODELING:**

Not Applicable ;

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.

Applicable ;

In accordance with the 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. Furthermore, WET testing is a means by which the department determines that [10 CSR 20-7.031(3)(D, F, & G)] are being met by the permitted facility. In addition to justification for the WET testing, WET tests are required under [10 CSR 20-6.010(8)(A)4] to be performed by specialist who are properly trained in conducting the test according to the methods prescribed by the Federal Government as referenced in [40 CFR Part 136]. WET test will be required by all facilities meeting the following criteria:

- Facility is a designated Major.
- Facility continuously or routinely exceeds its design flow.
- Facility (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 or domestic discharger with a Design Flow  $\geq$  22,500 gpd.
- Other – please justify.

**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

Not Applicable ;

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

## Part V – Effluent Limits Determination

### Outfall #001 – Main Facility Outfall

#### EFFLUENT LIMITATIONS TABLE:

| PARAMETER                          | UNIT   | BASIS FOR LIMITS | DAILY MAXIMUM   | WEEKLY AVERAGE | MONTHLY AVERAGE | MODIFIED | PREVIOUS PERMIT LIMITATIONS |
|------------------------------------|--|------------------|---|----------------|-----------------|----------|-----------------------------|
| FLOW                               | GPD  | 1                | *   |                | *               | NO       | S                           |
| BOD <sub>5</sub>                   | MG/L   | 1                |   | 45             | 30              | NO       | S                           |
| TSS                                | MG/L   | 1                |   | 45             | 30              | NO       | S                           |
| pH                                 | SU   | 1                | 6.5 – 9.0   |                | 6.5– 9.0        | NO       | 6.0/9.0                     |
| TEMPERATURE                        | °C   | 1/8              | *   |                | *               | YES      | ****                        |
| AMMONIA AS N                       | MG/L   | 2/3/5            | *   |                | *               | YES      | ****                        |
| ESCHERICHIA COLI                   | **   | 1/2              | Please see Escherichia Coli (E. coli) in the Derivation and Discussion Section below. |                |                 |          |                             |
| FECAL COLIFORM                     | ***  | 1/2              | 1000  |                | 400             | NO       | S                           |
| OIL & GREASE                       | MG/L   | 1                | 15  |                | 10              | NO       | ****                        |
| WHOLE EFFLUENT TOXICITY (WET) TEST | Please see WET Test in the Derivation and Discussion Section below.  |                  |   |                |                 |          |                             |
| MONITORING FREQUENCY               | Please see Minimum Sampling and Reporting Frequency Requirements in the Derivation and Discussion Section below. |                  |   |                |                 |          |                             |

\* - Monitoring requirement only

\*\*\* - # of colonies/100mL; the Monthly Average for Fecal Coliform is a geometric mean.

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

N/A – Not applicable

S – Same as previous operating permit

#### Basis for Limitations Codes:

- |  |                                    |
|--|------------------------------------|
| 1. State or Federal Regulation/Law       | 7. Antidegradation Policy          |
| 2. Water Quality Standard (includes RPA) | 8. Water Quality Model             |
| 3. Water Quality Based Effluent Limits   | 9. Best Professional Judgement     |
| 4. Lagoon Policy                         | 10. TMDL or Permit in lieu of TMDL |
| 5. Ammonia Policy                        | 11. WET test Policy                |
| 6. Dissolved Oxygen Policy               |                                    |

#### 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>).** Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information.**
- **Total Suspended Solids (TSS).** Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information.**
- **pH.** Effluent limitations have been changed to comply with 10 CSR 20-7.031 (4) (E).
- **Temperature.** Monitoring requirement due to the toxicity of Ammonia varies by temperature.
- **Total Ammonia Nitrogen.** Monitoring requirement only. Monitoring for temperature and ammonia are included to determine whether “reasonable potential” to exceed water quality standards exists.

- **Escherichia coli (E. coli).** This facility may be required to have *E. coli* effluent limitations when Missouri adopts the implementation of the *E. coli* standards, as per [10 CSR 20-7.031(4)(A)].
- **Fecal Coliform.** Discharge shall not contain more than a monthly geometric mean of 400 colonies/100 mL and a daily maximum of 1000 colonies/100 mL during the recreational season (April 1 – October 31), please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information.** Future renewals of the facility operating permit will contain effluent limitations for *E. coli*, which will replace fecal coliform as the applicable bacteria criteria in Missouri's water quality standards.
- **Oil & Grease.** Conventional pollutant, effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.
- **WET Test.** WET Testing schedules and intervals are established in accordance with the department's Permit Manual; Section 5.2 *Effluent Limits / WET Testing for Compliance Bio-monitoring.* It is recommended that WET testing be conducted during the period of lowest stream flow.
- - Chronic (justification needed at this time)
  - Acute (default)
  - No less than ONCE/PERMIT CYCLE:**
    - Municipality or domestic facility with a design flow  $\geq$  22,500 gpd, but less than 1.0 MGD.
    - Other, please justify.
  - No less than ONCE/YEAR:**
    - Facility is designated as a Major facility or has a design flow  $\geq$  1.0 MGD.
    - Facility continuously or routinely exceeds their design flow.
    - Facility exceeds its design population equivalent (PE) for BOD<sub>5</sub> whether or not its design flow is being exceeded.
    - Facility has Water Quality-based effluent limitations for toxic substances (other than NH<sub>3</sub>).
  - No less than TWICE/YEAR:**
    - Facility is subject to production processes alterations throughout the year.
    - Facility handles large quantities of toxic substances, or substances that are toxic in large amounts.
    - Facility has been granted seasonal relief of numeric limitations.

Allowable Effluent Concentration (AEC) calculations determine if the facility is to conduct single dilution or multiple dilution WET testing. Facilities that discharge to unclassified or Class C receiving streams, the AEC% is 100%. Facilities with less than 100% for an AEC% will have multiple dilution WET testing. Facilities that discharge to Lakes and have Acute WET testing, the AEC% is 100% due to [10 CSR 20-7.031(4)(A)4.B.(IV)(b)] ZID not allowed for Lakes.

- **Minimum Sampling and Reporting Frequency Requirements.**

| PARAMETER        | SAMPLING FREQUENCY | REPORTING FREQUENCY |
|------------------|--------------------|---------------------|
| FLOW             | ONCE/MONTH         | ONCE/MONTH          |
| BOD <sub>5</sub> | ONCE/MONTH         | ONCE/MONTH          |
| TSS              | ONCE/MONTH         | ONCE/MONTH          |
| PH               | ONCE/MONTH         | ONCE/MONTH          |
| TEMPERATURE      | ONCE/MONTH         | ONCE/MONTH          |
| AMMONIA AS N     | ONCE/MONTH         | ONCE/MONTH          |
| FECAL COLIFORM   | ONCE/MONTH         | ONCE/MONTH          |
| OIL & GREASE     | ONCE/MONTH         | ONCE/MONTH          |

## **Part VI – 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.

**Date of Factsheet:** July 31, 2009

Ed Pate  
WWPD/ WIMB  
Region VII  
U. S. Environmental Protection Agency  
901 North 5<sup>th</sup> Street  
Kansas City, Kansas 66101  
pate.ed@epa.gov

**DATE OF FACT SHEET: SEPTEMBER 28, 2009**

**REVIEWED ON SEPTEMBER 28, 2009 BY:**

**STEVE LANG, ENVIRONMENTAL ENGINEER  
ST. LOUIS REGIONAL OFFICE  
(314) 416-2960  
STEVE.LANG@DNR.MO.GOV**

## Part VII – Appendices

### APPENDIX A - CLASSIFICATION WORKSHEET:

| ITEM  | POINTS POSSIBLE                            | POINTS ASSIGNED |
|---|--|-----------------|
| Maximum Population Equivalent (P.E.) served (Max 10 pts.)   | 1 pt./10,000 PE or major fraction thereof. | 0               |
| Maximum: 10 pt Design Flow (avg. day) or peak month; use greater (Max 10 pts.)                                    | 1 pt. / MGD or major fraction thereof.     | 0               |
| <b>EFFLUENT DISCHARGE RECEIVING WATER SENSITIVITY:</b>  |  |                 |
| Missouri or Mississippi River   | 0  |                 |
| All other stream discharges except to losing streams and stream reaches supporting whole body contact             | 1  | 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  |                 |
| <b>PRELIMINARY TREATMENT - Headworks</b>  |  |                 |
| Screening and/or comminution  | 3  |                 |
| Grit removal  | 3  |                 |
| Plant pumping of main flow (lift station at the headworks)  | 3  | 3               |
| <b>PRIMARY TREATMENT</b>  |  |                 |
| Primary clarifiers  | 5  |                 |
| Combined sedimentation/digestion  | 5  |                 |
| Chemical addition (except chlorine, enzymes)  | 4  |                 |
| <b>REQUIRED LABORATORY CONTROL – performed by plant personnel (highest level only)</b>                            |  |                 |
| Lab work conducted outside of 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  | 5               |
| More advanced determinations such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc. | 7  |                 |
| Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph                             | 10   |                 |
| <b>ALTERNATIVE FATE OF EFFLUENT</b>   |  |                 |
| Direct reuse or recycle of effluent   | 6  |                 |
| Land Disposal – low rate  | 3  |                 |
| High rate   | 5  |                 |
| Overland flow   | 4  |                 |
| Total from page <b>ONE (1)</b>  | ----                                       | 9               |

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

| ITEM   | POINTS POSSIBLE | POINTS ASSIGNED |
|--|-----------------|-----------------|
| <b>VARIATION IN RAW WASTE (highest level only) (DMR exceedances and Design Flow exceedances)</b> |                 |                 |
| Variation do not exceed those normally or typically expected                                     | 0               |                 |
| Recurring deviations or excessive variations of 100 to 200 % in strength and/or flow             | 2               |                 |
| Recurring deviations or excessive variations of more than 200 % in strength and/or flow          | 4               |                 |
| Raw wastes subject to toxic waste discharge  | 6               |                 |
| <b>SECONDARY TREATMENT</b>   |                 |                 |
| Trickling filter and other fixed film media with secondary clarifiers                            | 10              |                 |
| Activated sludge with secondary clarifiers (including extended aeration and oxidation ditches)   | 15              | 15              |
| Stabilization ponds without aeration   | 5               |                 |
| Aerated lagoon   | 8               |                 |
| Advanced Waste Treatment Polishing Pond  | 2               |                 |
| Chemical/physical – without secondary  | 15              |                 |
| Chemical/physical – following secondary  | 10              |                 |
| Biological or chemical/biological  | 12              |                 |
| Carbon regeneration  | 4               |                 |
| <b>DISINFECTION</b>  |                 |                 |
| Chlorination or comparable   | 5               |                 |
| Dechlorination   | 2               |                 |
| On-site generation of disinfectant (except UV light)   | 5               |                 |
| UV light   | 4               | 4               |
| <b>SOLIDS HANDLING - SLUDGE</b>  |                 |                 |
| Solids Handling Thickening   | 5               |                 |
| Anaerobic digestion  | 10              |                 |
| Aerobic digestion  | 6               | 6               |
| Evaporative sludge drying  | 2               |                 |
| Mechanical dewatering  | 8               |                 |
| Solids reduction (incineration, wet oxidation)   | 12              |                 |
| Land application   | 6               |                 |
| Total from page <b>TWO (2)</b>   | ----            | 25              |
| Total from page <b>ONE (1)</b>   | ---             | 9               |
| Grand Total  | ---             | 34              |

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