



Jeremiah W. (Jay) Nixon, Governor

Sara Parker Pauley, Director

## DEPARTMENT OF NATURAL RESOURCES

[dnr.mo.gov](http://dnr.mo.gov)

City of Mansfield  
P.O. Box 467  
Mansfield, MO 65704

Dear Permittee:

Pursuant to the Federal Water Pollution Control Act, under the authority granted to the State of Missouri and in compliance with the Missouri Clean Water Law, we have issued and are enclosing your State Operating Permit to discharge from Mansfield Wastewater Treatment Facility, Wright County, Missouri.

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

Monitoring reports required by the special conditions must be submitted on a periodic basis. The required forms are enclosed. Please make copies for your use. Completed forms should be mailed to this office.

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

**Please be aware that nothing in this permit relieves the permittee of any other legal obligations or restrictions, such as other federal or state laws, court orders, or county or other local ordinances or restrictions.**

If you were adversely affected by this decision, you may be entitled to an appeal before the administrative hearing commission pursuant to 10 CSR 20-1.020 and Section 621.250, RSMo. To appeal, you must file a petition with the administrative hearing commission within thirty days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the administrative hearing commission. Any appeal shall be directed to: Administrative Hearing Commission, Truman Building, Room 640, 301 W. High Street, P.O. Box 1557, Jefferson City, MO 65102, Phone: 573-751-2422, Fax: 573-751-5018, website: [www.oh.mo.gov/ahc](http://www.oh.mo.gov/ahc).



Recycled Paper

City of Mansfield  
Page 2 of 2

If you have questions concerning this permit please contact Mr. Sieu T. Dang, P.E., of my staff by calling 417-891-4300 or via mail at Southwest Regional Office, 2040 W. Woodland, Springfield, MO 65807-5912.

Sincerely,

SOUTHWEST REGIONAL OFFICE

A handwritten signature in cursive script that reads "Cynthia S. Davies".

Cynthia S. Davies  
Regional Director

CSD/sdk

Enclosures

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-0050610

Owner: City of Mansfield  
Address: P O Box 467, Mansfield, MO 65704

Continuing Authority: Same as Above  
Address: Same as Above

Facility Name: Mansfield WWTF **Class B operator needed**  
Facility Address: 1000 Eastside Lane, Mansfield, MO 65704

Legal Description: SW¼, NE¼, Sec. 15, T28N, R15W, Wright County  
UTM (X/Y): 538797 / 4108181

Receiving Stream: Unnamed Tributary to Fry Creek (U) (Losing)  
First Classified Stream and ID: Wolf Creek (C) (01500) (Losing)  
USGS Basin & Sub-watershed No.: (10290201-0102)

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

Oxidation ditch / filtration / ultraviolet disinfection / sludge is land applied.  
Design organic population equivalent is 4,565  
Design flow is 0.310000 MGD  
Actual flow is 0.2130000 MGD  
Design sludge production is 96 dry tons/year.

Outfall #002 – Peak flow clarifier / settling basin

Diversion from secondary treatment. Discharge from this outfall shall be considered an unauthorized bypass pursuant to 40 CFR 122.41(m) and shall be reported, pursuant to CFR 122.41(m).

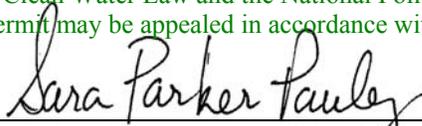
This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

December 22, 2011

Effective Date

December 21, 2016

Expiration Date

  
Sara Parker Pauley, Director, Department of Natural Resources

  
Cynthia S. Davies, Regional Director, Southwest Regional Office

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)					PAGE NUMBER 2 of 6	
					PERMIT NUMBER MO-0050610	
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/weekday**	24 hr. total
Biochemical Oxygen Demand <sub>5</sub>	mg/L		15	10	once/month**	24 hr. composite***
Total Suspended Solids	mg/L		20	15	once/month**	24 hr. composite***
pH – Units	SU	****		****	once/month**	grab
<i>E. coli</i> (Note 1)	#/100 ml	126		126	once/week*****	grab
Ammonia as N (April – September) (October – March)	mg/L	5.3 *		1.0 *	once/month**	grab
Oil and Grease	mg/L	15		10	once/month**	grab
Nitrate as N	mg/L	*		*	once/month**	grab
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	DAILY MINIMUM	WEEKLY AVERAGE MINIMUM	MONTHLY AVERAGE MINIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #001</u>						
Dissolved Oxygen	mg/L	*		*	once/month**	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <b>February 28, 2012</b> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
Whole Effluent Toxicity (WET) Test	% Survival	See Special Conditions #10			once / permit cycle	24 hour composite
MONITORING REPORTS SHALL BE SUBMITTED <u>ONCE PER PERMIT CYCLE</u> . THE FIRST REPORT IS DUE <b>January 28, 2016</b>						
<b>B. STANDARD CONDITIONS</b>						
IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED <u>Parts I, II, &amp; III</u> STANDARD CONDITIONS DATED <u>October 1, 1980 and August 15, 1994</u> , AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.						

MO 780-0010 (8/91)

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

- \* Monitoring requirement only.
- \*\* Reports shall be submitted by the 28<sup>th</sup> day of the month following the reporting period, e.g. Reporting period is the month of March (samples collected each weekday, daily, weekly, etc. ), report due by April 28<sup>th</sup>.
- \*\*\* A 24-hour composite sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.
- \*\*\*\* pH is measured in pH units and is not to be averaged. The pH for all facilities except lagoons is limited to the range of 6.5-9.0 pH units.
- \*\*\*\*\* Samples shall be collected **weekly year round** (January through December) and submitted monthly.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

Note 1 – Final effluent limits of 126 cfu per 100 ml daily maximum and monthly average applicable year round due to losing stream designation.

C. INFLUENT MONITORING REQUIREMENTS			
The facility is required to meet a removal efficiency of <b>85%</b> 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 / month**	24 hr. composite***
Total Suspended Solids	mg/L	once / month**	24 hr. composite***
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <b>February 28, 2012</b> .			

C. INFLUENT MONITORING REQUIREMENTS (continued)

\*\* Reports shall be submitted by the 28<sup>th</sup> day of the month following the reporting period, e.g. Reporting period is the month of March (samples collected each weekday, daily, weekly, etc. ), report due by April 28<sup>th</sup>.

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

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 a facility with an area-wide management plan per 10 CSR 20-6.010(3)(B) within 90 days of notice of its availability.

4. Changes in Discharges of Toxic Substances

D. SPECIAL CONDITIONS (continued)

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);

(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. The permittee shall develop and implement a program for maintenance and repair of the collection system. The permittee shall submit a report on **January 28** each year to the Southwest Regional Office which address measures taken to locate and eliminate sources of infiltration and inflow into the collection system serving the facility.

D. SPECIAL CONDITIONS (continued)

8. The permittee shall comply with any applicable requirements listed in 10 CSR 20-8 and 10 CSR 20-9. 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. If a modification of the monitoring frequencies listed in 10 CSR 20-9 is needed, the permittee shall submit a written request to the department for review and, if deemed necessary, approval.
9. Bypasses are not authorized at this facility and are subject to 40 CFR 122.41(m). If a bypass occurs, the permittee shall report in accordance to 40 CFR 122.41(m)(3)(i), and with Standard Condition Part I, Section B, subsection 2.b.
10. Whole Effluent Toxicity (WET) tests shall be conducted as follows:

SUMMARY OF ACUTE WET TESTING FOR THIS PERMIT				
OUTFALL	AEC	FREQUENCY	SAMPLE TYPE	MONTH
001	100 %	Once per permit cycle	24 hr. composite*	Any month during 2015

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

Dilution Series							
AEC%	100% effluent	50% effluent	25% effluent	12.5% effluent	6.25% effluent	(Control) 100% upstream, if available	(Control) 100% Lab Water, also called synthetic water

(a) Test Schedule and Follow-Up Requirements

- (1) Perform a MULTIPLE-dilution acute WET 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.
  - (i) 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.
  - (ii) 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 analysis performed upon any other effluent concentration.
  - (iii) 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.
- (2) The WET test will be considered a failure if mortality observed in effluent concentrations equal to or less than the AEC is 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, synthetic laboratory control water may be used.
- (3) 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.
- (4) If the effluent fails the test for BOTH test species, a multiple dilution test shall be performed for BOTH test species within 30 calendar days and biweekly thereafter (for storm water, tests shall be performed on the next and subsequent storm water discharges as they occur, but not less than 7 days apart) until one of the following conditions are met: Note: Written request regarding single species multiple dilution accelerated testing will be address by THE WATER PROTECTION PROGRAM on a case by case basis.
  - (i) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.
  - (ii) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.
- (5) Follow-up tests do not negate an initial failed test.

D. SPECIAL CONDITIONS (continued)

- (6) The permittee shall submit a summary of all test results for the test series along with complete copies of the test reports as received from the laboratory to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the third failed test.
- (7) Additionally, the following shall apply upon failure of the third follow up MULTIPLE DILUTION test. The permittee should 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. If the permittee does not contact THE WATER PROTECTION PROGRAM upon the third follow up test failure, a toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE) is automatically triggered. 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 the automatic trigger or 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.
- (8) 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.
- (9) 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.
- (10) 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.
- (11) Submit a concise summary in tabular format of all WET test results with the annual report.

(b) Test Conditions

- (1) Test Type: Acute Static non-renewal
- (2) All tests, including repeat tests for previous failures, shall include both test species listed below unless approved by the department on a case by case basis.
- (3) 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.
- (4) Test period: 48 hours at the "Allowable Effluent Concentration" (AEC) specified above.
- (5) 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.
- (6) Tests will be run with 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent, and 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.
- (9) Whole-effluent-toxicity test 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

**Missouri Department of Natural Resources  
Statement of Basis  
Mansfield WWTF  
MSOP #: MO-0050610  
Wright 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 Wasteload 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**

Outfall #001 – POTW - SIC #4952

Oxidation ditch / filtration / ultraviolet disinfection / sludge is land applied.  
Design organic population equivalent is 4,565  
Design flow is 0.310000 MGD  
Design sludge production is 96 dry tons/year.

Outfall #002 – Peak flow clarifier / settling basin

Diversion from secondary treatment. Discharge from this outfall shall be considered an unauthorized bypass pursuant to 40 CFR 122.41(m) and shall be reported, pursuant to CFR 122.41(m).

**OUTFALL(S) TABLE:**

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE	DISTANCE TO CLASSIFIED SEGMENT (MI)
001	0.479674	Secondary	Domestic	1.4
002	N/A	Primary/Settling	Discharge not authorized	1.4

**Receiving Water Body’s Water Quality & Facility Performance History:**

A review of Discharge Monitoring Reports shows violation of BOD in March 2009 at outfall #002.

This is for a renewal.

Comments: The facility was last inspected on April 1, 2010. The conditions of the facility at the time of inspection were found to be satisfactory.

**Part II – Operator Certification Requirements**

As per [10 CSR 20-6.010(8) Terms and Conditions of a Permit], permittees 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;

- Population Equivalent greater than two hundred (200):
- Fifty (50) or more service connections:

- 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:
  
- Department required: 
  - The Department requires this facility to retain the services of a certified operator due to:

This facility currently requires an operator with a B 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: Delbert L. Scrivner  
 Certification Number: 492  
 Certification Level: B

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 – 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 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.

- Missouri or Mississippi River [10 CSR 20-7.015(2)]:
- Lake or Reservoir [10 CSR 20-7.015(3)]:
- Lossing [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**
Unnamed Tributary to Fry Creek	U	--	General Criteria, LWW, AQL, etc.	10290201	Ozark / Gasconade
Wolf Creek	C	1500	AQL, LWW, SCR, WBC-B,		

\* - 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).

\*\* - Ecological Drainage Unit

\*\*\* - UAA conducted on October 11, 2007.

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

RECEIVING STREAM (U, C, P)	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Unnamed Tributary to Fry Creek (U)	0.0	0.0	0.0
Wolf Creek (C)	0.0	0.0	0.1

**MIXING CONSIDERATIONS**

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 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.

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

As per [10 CSR 20-6.010(8)(A)10.], when a Continuing Authority under paragraph 10 CSR 20-6.010(3)(B)1. or 2. is expected to be available for connection within the next five (5) years, any operating permit issued to a permittee under this paragraph, located within the service area of the paragraph (3)(B)1. or 2. facility, shall contain the following special condition... This language is contained in Special Condition #3 of this operating permit.

**ANTIDEGRADATION:**

Policies which ensure protection of water quality for a particular water body where the water quality exceeds levels necessary to protect fish and wildlife propagation and recreation on and in the water. This also includes special protection of waters designated as outstanding natural resource waters. Antidegradation requirements are consistent with 40 CFR 131.12 that outlines methods used to assess activities that may impact the integrity of a water and protect existing uses. This policy may compel the state to maintain a level of water quality above those mandated by criteria.

Not Applicable ;

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, and from appropriate sections of the renewal application.

**Bio-solids, Sludge, & Sewage Sludge:**

Bio-solids are solid materials resulting from wastewater treatment that meet federal and state criteria for beneficial uses (i.e. fertilizer). Sludge is any solid, semi-solid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility or any other such waste having similar characteristics and effect. Sewage sludge is solids, semi-solids, or liquid residue generated during the treatment of domestic sewage in a treatment works; including but not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment process; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in a treatment works. Additional information regarding biosolids and sludge is located at the following web address: <http://dnr.mo.gov/env/wpp/pub/index.html>, items WQ422 through WQ449.

- Permittee land applies biosolids in accordance with Standard Conditions III and a Department approved biosolids management plan.

**COMPLIANCE AND ENFORCEMENT:**

Action taken by the Department to resolve violations of the Missouri Clean Water Law, its implementing regulations, and/or any terms and condition of an operating permit.

Not Applicable ;

The permittee/facility is not under enforcement action and is considered to be in compliance with the Missouri Clean Water Law, its implementing regulations, and/or any terms and condition of an operating permit.

**PRETREATMENT PROGRAM:**

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

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

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

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

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):**

Limitations must control all pollutants or pollutant parameters that are or may be discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above the Missouri Water Quality Standards.

Applicable ;

A RPA was conducted for this facility for Ammonia and determined that this facility has the potential to cause or contribute to violations of Water Quality during summer months. Please see **APPENDIX C – 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). 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), BYPASSES, INFLOW & INFILTRATION (I&I) – PREVENTION/REDUCTION:**

Sanitary Sewer Overflows (SSOs) are defined as an untreated or partially treated sewage release are considered bypassing under state regulation [10 CSR 20-2.010(11)] and should not be confused with the federal definition of bypass. SSO's have a variety of causes including blockages, line breaks, and sewer defects that allow excess storm water and ground water to (1) enter and overload the collection system, and (2) overload the treatment facility. Additionally, SSO's can be also be caused by lapses in sewer system operation and maintenance, inadequate sewer design and construction, power failures, and vandalism. SSOs also include overflows out of manholes and onto city streets, sidewalks, and other terrestrial locations.

Additionally, Missouri RSMo §644.026.1 mandates that the Department require proper maintenance and operation of treatment facilities and sewer systems and proper disposal of residual waste from all such facilities.

- In accordance with Missouri RSMo §644.026.1.(15) and 40 CFR Part 122.41(e), the permittee is required to develop and/or implement a program for maintenance and repair of the collection system and shall be required in this operating permit by either means of a Special Condition or Schedule of Compliance. In addition, the Department considers the development of this program as an implementation of this condition. Additionally, 40 CFR Part 403.3(o) defines a POTW to include any device and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of liquid nature. It also includes sewers, pipes, and other conveyances only if they convey wastewater to a POTW Treatment Plant.

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). The CMOM identifies some of the criteria used by the EPA 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):**

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.

**FINDING OF AFFORDABILITY:**

Pursuant to Section 644.145, RSMo., the Department is required to determine whether a permit or decision is affordable and make a finding of affordability for certain permitting and enforcement decisions. This requirement applies to discharges from combined or separate sanitary sewer systems or publicly-owned treatment works.

Applicable;

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

**Finding of affordability.** 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 and financial information that the community provided as contemplated by Section 644.145.3.

The department is hereby making a finding based from the following facts:

- The department is not aware of any significant economic impacts this permit would cause on distressed populations;
- No comments indicating such impact were received during the public comment period on the draft permit;
- The department is not aware of any other more cost effective wastewater treatment options that would achieve the required effluent quality;
- The existing facility is capable of attaining compliance with new effluent limitations.

**STORM WATER 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 storm water 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 *Storm Water Management for Industrial Activities: Developing Pollution Prevention Plans and Best Management Practices* [EPA 832-R-92-006] (Storm Water Management), 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 Storm Water 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 storm water discharges.

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.

Applicable .

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

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

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

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

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

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:**

Not Applicable ;

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

**WATER QUALITY STANDARDS:**

Per [10 CSR 20-7.031(3)], General Criteria shall be applicable to all waters of the state at all times including mixing zones. Additionally, [40 CFR 122.44(d)(1)] directs the Department to establish in each NPDES permit to include conditions to achieve water quality established under Section 303 of the Clean Water Act, including State narrative criteria for water quality.

**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 ;

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 are also required by 40 CFR 122.44(d)(1). WET testing ensures that the provisions in the 10 CSR 20-6.010(8)(A)7. and the Water Quality Standards 10 CSR 20-7.031(3)(D),(F),(G),(I)2.A & B are being met. Under [10 CSR 20-6.010(8)(A)4], 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 RSMo 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 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.

#### **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, which includes blending, 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 20-2.010(11) defines a bypass as the diversion of wastewater from any portion of wastewater treatment facility or sewer system 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.

- Outfall #002 is no longer authorized to discharge as it is a Bypass. The Department has developed a Voluntary Compliance Agreement (VCA) for communities that believe they need time to eliminate this discharge. The VCA requires communities to develop and submit bypass elimination plans, to make progress, and to report on this progress. The terms of the VCA is for five (5) years, and is renewable for another five (5) years assuming that adequate progress is being made. In return, the State of Missouri will not initiate enforcement actions for the terms contained in the VCA.

- The permittee has entered a VCA with the Department.

#### **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.

#### **Adjusted Design Flow:**

10 CSR 20-6.011(1)(B)1. provides for an Adjusted Design Flow when calculating permit fees on human sewage treatment facilities. If the average flow is sixty percent (60%) or less than the system's design flow, the average flow may be substituted for the design flow when calculating the permit fee on human sewage treatment facilities. If the facility's actual average flow is consistently 60% or less than the permitted design flow, the facility may qualify for a reduction in your fee when:

- The facility has a valid permit, or has applied for re-issuance, is in compliance with the terms, conditions and effluent limitations of the permit, and the facility has a good compliance history; and
- Flow is not expected to exceed 60% of design flow for the remaining term of the existing operating permit.

Not Applicable ;

Municipalities, POTWs, and Industrials do not qualify for Adjusted Design flows.

**Outfall #001 – Main Facility Outfall**

**EFFLUENT LIMITATIONS TABLE:**

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	MGD	1	*		*	YES	ONCE/WEEK
BOD <sub>5</sub>	MG/L	1		15	10	NO	S
TSS	MG/L	1		20	15	NO	S
PH (S.U.)	SU	1	6.5-9.0		6.5-9.0	YES	6.0-9.0
AMMONIA AS N (OCTOBER - MARCH)	MG/L	5	*		*	YES	*
AMMONIA AS N (APRIL - SEPTEMBER)	MG/L	5	5.3		1.0	YES	*
ESCHERICHIA COLI	***	1,2,3	126		126	YES	NONE
DISSOLVED OXYGEN	MG/L	11	*		*	YES	NONE
NITRATE AS NITROGEN	MG/L	3	*		*	YES	NONE
OIL & GREASE	MG/L	3, 8	15		10	NO	S
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 E. coli 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       | 6. Antidegradation Policy         |
| 2. Water Quality Standard (includes RPA) | 7. Water Quality Model            |
| 3. Water Quality Based Effluent Limits   | 8. Best Professional Judgment     |
| 4. Lagoon Policy                         | 9. TMDL or Permit in lieu of TMDL |
| 5. Ammonia Policy                        | 10. WET test Policy               |
|  | 11. 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.**

– pH is limited to the range of 6.5 – 9.0 pH units, as per [10 CSR 20-7.031(4)(E)]. pH is measured in pH units and is not to be averaged.

**Temperature.** Temperature has been removed because it is no longer pertinent in determining ammonia limitations.

**Ammonia as N.** Early Life Stages Present Total Ammonia Nitrogen criteria apply [10 CSR 20-7.031(4)(B)7.C. & Table B3]. Background total ammonia nitrogen = 0.01 mg/L.

Season	Temp (°C)	pH (SU)	Total Ammonia Nitrogen CCC (mg N/L)	Total Ammonia Nitrogen CMC (mg N/L)
Oct. 1 – March 31	6	7.8	3.1	12.1
April 1 – Sept. 30	27	7.8	1.4	12.1

Winter: Oct 1 – March 31, Summer: April 1 – Sept. 30

**Summer** – Chronic WLA = 1.4 mg N/L, Acute WLA = 12.1 mg N/L. No mixing zone is allowed. Discharges to Unclassified and Losing Stream.

$LTA_c = 1.4 \text{ mg/L} (0.354) = 0.4956 \text{ mg N/L}$  [CV = 2.9, 99<sup>th</sup> Percentile, 30 day average]  
 $LTA_a = 12.1 \text{ mg/L} (0.094) = 1.1374 \text{ mg N/L}$  [CV = 2.9, 99<sup>th</sup> Percentile]

$MDL = 0.4956 \text{ mg/L} * 10.65 = 5.278 \text{ mg N/L}$  [CV = 2.9, 99<sup>th</sup> Percentile]  
 $AML = 0.4956 \text{ mg/L} * 2.01 = 0.9962 \text{ mg N/L}$  [CV = 2.9, 95<sup>th</sup> Percentile, n = 30]

**Winter** – Chronic WLA = 3.1 mg N/L, Acute WLA = 12.1 mg N/L. No mixing zone is allowed. Discharges to Unclassified and Losing Stream.

$LTA_c = 3.1 \text{ mg/L} (0.693) = 2.148 \text{ mg N/L}$  [CV = 0.9, 99<sup>th</sup> Percentile, 30 day average]  
 $LTA_a = 12.1 \text{ mg/L} (0.224) = 2.710 \text{ mg N/L}$  [CV = 0.9, 99<sup>th</sup> Percentile]

$MDL = 2.148 \text{ mg/L} * 4.47 = 9.60 \text{ mg N/L}$  [CV = 0.9, 99<sup>th</sup> Percentile]  
 $AML = 2.148 \text{ mg/L} * 1.29 = 2.77 \text{ mg N/L}$  [CV = 0.9, 95<sup>th</sup> Percentile, n = 30]

Two RPAs were conducted for ammonia for winter and summer months (see Appendix B). The results of the RPA for ammonia during summer months indicated reasonable potential exist. The results of the RPA for ammonia during winter months indicated reasonable potential does not exist. Therefore, Limits for Ammonia

as Nitrogen in the summer months will be placed in the permit. For winter months Ammonia as Nitrogen is monitoring requirement only.

Season	Maximum Daily Limit (mg N/L)	Average Monthly Limit (mg N/L)
Oct 1 – March 31	*	*
April 1 – Sept 30	5.3	1.0

**Fecal Coliform.** *E. coli* has replaced fecal coliform at the applicable bacteria criteria in Missouri’s water quality standards.

**Escherichia coli (E. coli).** Monthly average of 126 per 100 mL and a daily maximum of 126 per 100 mL. Per 10 CSR 20-7.031 (4)(C) the *E. coli* count shall not exceed 126 per 100 mL at any time in a losing stream.

**Nitrate.** Monitoring requirement only. The Department is evaluating proposed effluent limitations for Nitrate as Nitrogen for discharges that have the potential of impacting groundwater (losing streams). At this time we are unsure what the limitation will be. The Department will be placing a monitoring requirement in the MSOP for Nitrate as Nitrogen. Please note that limitation could be established at the drinking water standard of 10 mg/l.

**Dissolved Oxygen.** Monitoring requirement only. Monitoring for dissolved oxygen are included to determine whether “reasonable potential” to exceed water quality standards exists after the discharge begins.

**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.

Acute

**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.

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	WEEKDAY	MONTHLY
BOD <sub>5</sub>	MONTHLY	MONTHLY
TSS	MONTHLY	MONTHLY
PH	MONTHLY	MONTHLY
AMMONIA AS N	MONTHLY	MONTHLY
<i>E. COLI</i>	WEEKLY	MONTHLY
DISSOLVED OXYGEN	MONTHLY	MONTHLY
OIL & GREASE	MONTHLY	MONTHLY
NITRATE AS NITROGEN	MONTHLY	MONTHLY

**Sampling Frequency Justification:**

This facility has a design flow of 0.310000 MGD. Per 10 CSR 20-7.015, sample frequency is determined by taking the design flow and dividing it by 25,000 (for losing streams). This equates to 12.4 sampling per year. Therefore, monthly sampling is appropriated. Except *E. Coli*, weekly sampling is required per 10 CSR 20-7.015. For flow, weekday sampling is required as per 10 CSR 20-9.010.

**Sampling Type Justification**

As per 10 CSR 20-7.015 samples collected for mechanical plants shall be 24 hour composites.

**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:** October 12, 2011

Sieu Dang  
WP Permitting and Assistance Unit  
(417) 891-4300  
Sieu.dang@dnr.mo.gov

**Appendix A**

**10 CSR 20-9.020**

All wastewater treatment systems serving a population equivalent greater than two hundred (200) or with fifty (50) or more service connections, owned or operated by or for municipalities, public sewer districts, counties, public water supply districts, private sewer companies regulated by the Public Service Commission and the state or federal agencies.

<b>Column A</b>			<b>Column B</b>		
<b>Item</b>	<b>Points</b>	<b>Points Assigned</b>	<b>Item</b>	<b>Points</b>	<b>Points Assigned</b>
Maximum population equivalent (P.E.) served, peak day	1 pt. Per 10,000 PE or major fraction thereof		<b>EFFLUENT DISCHARGE RECEIVING WATER SENSITIVITY</b>		
Design flow (avg. day) or peak month's flow, (avg. day) whichever is larger	Maximum: 10 Points 1 pt. Per MGD or major fraction thereof		Missouri or Mississippi River	0	
<b>REQUIRED LABORATORY CONTROL Performed by plant personnel (highest level only)</b>			All other stream discharges except to losing streams and stream reaches supporting whole body contact reaction	1	
Lab work done outside the plant	0		Discharge to lake or reservoir outside of designated whole body contact recreational area	2	
Push – button or visual methods for simple tests such as pH, settleable solids	3		Discharge to losing stream, or stream, lake or reservoir area supporting whole body contact recreation	3	3
			<b>HEADWORKS - PRELIMINARY TREATMENT</b>		
Additional procedures such as DO, COD, BOD, titrations, solids, volatile content	5		Raw wastes subject to toxic waste discharges	6	
More advanced determinations such as BOD seeding procedure, fecal coliform, nutrients, total oils, phenols, etc.	7	7	Screening and/or comminution	3	3
Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph	10		Grit removal	3	
			Plant pumping of main flow (If 51% or greater flow comes into plant)	3	
			<b>PRIMARY TREATMENT</b>		
			Primary clarifiers (Flow EQ basins)	5	
			Combined sedimentation/digestion (includes big septic tank or if cities clean out STEP system)	5	
			Chemical addition (except chlorine, enzymes)	4	
<b>TOTAL Page 1 Column A</b>		<b>7</b>	<b>TOTAL Page 1 Column B</b>		<b>6</b>

<b>Column A</b>				<b>Column B</b>			
<b>Item</b>		<b>Points</b>	<b>Points Assigned</b>	<b>Item</b>		<b>Points</b>	<b>Points Assigned</b>
Direct reuse or recycle of effluent		6		<b>SECONDARY TREATMENT</b>			
Land Disposal – Low rate (Irrigation) < 24” year		3		Trickling filter and other fixed film media with secondary clarifiers (recirculating sand filters)		10	
Land Disposal – High rate (Irrigation) > 24” year		5		Activated sludge with secondary clarifiers (including extended aeration and oxidation ditches)		15	15
Overland flow		4		Stabilization ponds without aeration		5	
<b>Variation in Raw Wastes (highest level only) (DMR exceedances &amp; Design Flow exceedances)</b>				Aerated lagoon (Lemna)		8	
Variations do not exceed those normally or typically expected		0		Advanced Waste Treatment Polishing pond (Lemna)		2	
Recurring deviations or excessive variations of 100 to 200 % in strength and/or flow (use design flow for determination)		2	2	Chemical/physical – without secondary (carbon filters such as at Wilson’s Creek WWTF)		15	
Recurring deviations or excessive variations of more than 200 percent in strength and/or flow (use design flow for determination)		4		Chemical/physical – following secondary (adding alum if not at headworks, tertiary filters)		10	10
<b>SOLIDS HANDLING - SLUDGE</b>				Biological or chemical biological (multi stage biological treatment, SBR and 3-phase biological treatment)		12	
Thickening (Lagoon sludge holding basin)		5	5	Carbon Regeneration		4	
Anaerobic digestion		10		<b>DISINFECTION</b>			
Aerobic digestion		6		Chlorination or comparable		5	
Evaporative sludge drying		2		Dechlorination		2	
Mechanical dewatering (belt thickeners)		8		On-site generation of disinfectant (ozone)		5	
Solids reduction (incineration, wet oxidation, composting)		12		Ultraviolet light		4	4
Land application		6	6	<b>TOTAL Page 2 Column B</b>			<b>29</b>
<b>TOTAL Page 2 Column A</b>			<b>13</b>	<b>PREPARED BY:</b>			
<b>Grand Total</b>			<b>55</b>	<b>Sieu T. Dang</b>			
<b>Level of Certification Required</b>				<b>April 6, 2011</b>			
<b>D</b>	<b>C</b>	<b>B</b>	<b>A</b>	(Name)			
≤ 25	26 – 50	51 – 70	≥ 71	(Date)			

**APPENDIX B – RPA RESULTS:**

Parameter	CMC*	RWC Acute*	CCC*	RWC Chronic*	n**	Range max/min	CV***	MF	RP Yes/No
Total Ammonia as Nitrogen (Summer) mg/L	12.1	34.0	1.4	34.0	29	4.9/0.09	2.9	6.9	Yes
Total Ammonia as Nitrogen (Winter) mg/L	12.1	2.16	3.1	2.16	29	0.8/0.09	0.9	2.7	No

N/A – Not Applicable

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

\*\* - If the number of samples is greater than 10, then the 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.