

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-GD00000

Owner:  
Address:

Continuing Authority:  
Address:

Facility Name:  
Facility Address:

Legal Description:  
UTM Coordinates:

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

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

**FACILITY DESCRIPTION**

All Outfalls

- Private domestic wastewater treatment facility discharging less than 50,000 gallons per day. See Applicability section for further details.
- The use or operation of this facility shall be in accordance with Operator certification requirements found at 10 CSR 9.020.

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.

\_\_\_\_\_  
Effective Date

\_\_\_\_\_  
Sara Parker Pauley, Director, Department of Natural Resources

\_\_\_\_\_  
Expiration Date

\_\_\_\_\_  
John Madras, Director, Water Protection Program

## APPLICABILITY

1. This permit authorizes the operation of, and discharges from non-Publicly Owned Treatment Works (POTW) wastewater treatment plants, with no industrial contributions. The following facilities are **excluded** from this permit:
  - (a) POTW (state, municipal, federal, etc.) as defined at [10 CSR 20-2.010(59)];
  - (b) Facilities discharging industrial and domestic wastewater;
  - (c) Facilities which land apply wastewater;
  - (d) Facilities that have undergone an Antidegradation review and received preferred alternative limits that are lower in concentration than the limits provided in this permit;
  - (e) Facilities employing direct reuse of treated wastewater.
2. This permit authorizes sludge handling via any of the methods contained in the attached Standard Conditions Part III, for which the facility has received written approval from the Missouri Department of Natural Resources (department). The method for sludge handling shall be initially approved as part of the construction permit for a facility. If a facility would like approval for another method of sludge disposal not previously approved, the facility shall submit a plan to the Regional Office for approval that demonstrates compliance with the requirements of Standard Conditions Part III.
3. This permit **does not authorize** discharges:
  - (a) To a metropolitan no-discharge stream;
  - (b) Directly to a subsurface water by irrigation, MOG821 authorizes land application of domestic wastewater;
  - (c) Within the watershed of an Outstanding National Resource Water, Wild and Scenic River, or Ozark National Scenic Riverways\*;
  - (d) To a designated cold water fishery\*;
  - (e) Within 2 miles upstream of biocriteria reference locations\*;
  - (f) Within 2 miles upstream of streams, lakes, or reservoirs identified as critical habitat for endangered species; or
  - (g) Within a watershed for which an approved Total Maximum Daily Load (TMDL) includes wasteload allocations for oxygen demand, nitrogen, phosphorus, ammonia or unknown impairment. Water bodies with approved TMDLs can be found at <http://www.dnr.mo.gov/env/wpp/tmdl/>

\* Identified or described in 10 CSR 20, Chapter 7. These regulations are available at many libraries and online at <http://www.sos.mo.gov/adrules/csr/current/10csr/10csr.asp>, or may be purchased from the department by calling the Water Protection Program.
4. This permit does not authorize construction of a new or expanded wastewater treatment facility. Prior to construction or modification of any wastewater treatment system, the facility must first obtain a construction permit in accordance with 10 CSR 20-6.010(4).
5. To determine which of the following tables apply, refer to Missouri's Water Quality Standards (WQS) 10 CSR 7.031 which can be found at <http://www.sos.mo.gov/adrules/csr/current/10csr/10csr.asp>.

FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. Table B-1 Applicability:
- Wastewater Treatment Plants (WWTPs) with secondary treatment technology and
  - WWTPs with design flow  $\leq$  1,500gpd or actual flow that does not exceed 1,500gpd, and
  - A flow totalizer installed, and
  - Discharge to a Class P stream, and
  - Discharge to a stream with a stream flow to design flow ratio of 10:1 or greater are subject to the limits found in Table B-1.

ALL OUTFALLS	TABLE B-1 FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					
	The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations 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:					
EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Flow	MGD	1500			daily	24 hr. total
Biochemical Oxygen Demand <sub>5</sub>	mg/L		45	30	once/quarter***	grab
Total Suspended Solids	mg/L		45	30	once/quarter***	grab
pH – Units	SU	**		**	once/quarter***	grab
Ammonia as N	mg/L	*		*	once/quarter***	grab
<i>E. coli</i> (Note 1, Page 8)	#/100 mL	630		126	once/quarter***	grab
Total Residual Chlorine (Note 3, Page 8)	µg/L	17 (130ML)		8 (130ML)	once/quarter***	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						

- \* 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.
- \*\*\* Quarterly sampling is required and samples shall be collected and tested for the parameters listed in Table B-1 if a discharge occurs during the reporting period. If the facility serves a part-time or seasonal establishment/residence(s), then sampling shall occur while the treatment facility is operating and after a discharge begins. Report as no-discharge when a discharge does not occur during the report period. See table on Page 7 for quarterly sampling schedule.

FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

2. Table B-2 Applicability:

- a. Wastewater Treatment Plants (WWTPs) with secondary treatment technology and
- b. WWTPs with design flow  $\leq$  1,500gpd or actual flow that does not exceed 1,500gpd, and
- c. A flow totalizer installed, and
- d. Discharge to a Class L2 or L3 lake or reservoir, or
- e. Discharge to a receiving stream within one-half mile of a Class L2 or L3 lake or reservoir.

ALL OUTFALLS	TABLE B-2 FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					
	The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations 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:					
EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Flow	MGD	*		*	daily	24 hr. total
Biochemical Oxygen Demand <sub>5</sub>	mg/L		30	20	once/quarter***	grab
Total Suspended Solids	mg/L		30	20	once/quarter***	grab
pH – Units	SU	**		**	once/quarter***	grab
Ammonia as N	mg/L	*		*	once/quarter***	grab
<i>E. coli</i> (Note 1, Page 8)	#/100 mL	630		126	once/quarter***	grab
Total Residual Chlorine (Note 3, Page 8)	µg/L	17 (130ML)		8 (130ML)	once/quarter***	grab
Total Phosphorus as P****	mg/L	*		0.5	once/quarter***	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						

\* 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.

\*\*\* Quarterly sampling is required and samples shall be collected and tested for the parameters listed in Table B-2 if a discharge occurs during the reporting period. If the facility serves a part-time or seasonal establishment/residence(s), then sampling shall occur while the treatment facility is operating and after a discharge begins. Report as no-discharge when a discharge does not occur during the report period. See table on Page 7 for quarterly sampling schedule.

\*\*\*\* Total Phosphorus as P daily maximum monitoring and monthly average limit applies only to Table Rock Lake watershed, defined as hydrologic units 11010001 and 11010002, and discharges to Lake Taneycomo and its tributaries between Table Rock Dam and Power Site Dam (hydrologic units 110100030101 – 110100030110). Total Phosphorus as P daily maximum and monthly average monitoring only applies to discharges in the White River basin.

FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

3. Table B-3 Applicability:

- a. Facilities with design flow 1,501gpd – 50,000gpd, or
- b. Facilities with actual flow ≤ 1,500gpd that do not qualify for Table B-1, and
- c. Discharges to a stream.

ALL OUTFALLS	TABLE B-3 FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					
	The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations 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:					
EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Flow	MGD	*		*	once/quarter***	24 hr. estimate
Biochemical Oxygen Demand <sub>5</sub>	mg/L		45	30	once/quarter***	grab
Total Suspended Solids	mg/L		45	30	once/quarter***	grab
pH – Units	SU	**		**	once/quarter***	grab
Ammonia as N (April 1 – Sept 30) (Oct 1 – March 31)	mg/L	3.6 7.5		1.4 2.9	once/quarter***	grab
<i>E. coli</i> (Note 1, Page 8)	#/100 mL	630		126	once/quarter***	grab
Total Residual Chlorine (Note 3, Page 8)	µg/L	17 (130ML)		8 (130ML)	once/quarter***	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
EFFLUENT PARAMETER(S)	UNITS	DAILY MINIMUM	WEEKLY AVERAGE MINIMUM	MONTHLY AVERAGE MINIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
Dissolved Oxygen	mg/L	*		*	once/quarter***	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>MONTH 28, 20XX</u> .						

\* 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.

\*\*\* Quarterly sampling is required and samples shall be collected and tested for the parameters listed in Table B-3 if a discharge occurs during the reporting period. If the facility serves a part-time or seasonal establishment/residence(s), then sampling shall occur while the treatment facility is operating and after a discharge begins. Report as no-discharge when a discharge does not occur during the report period. See table on Page 7 for quarterly sampling schedule.

FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

4. Table B-4 Applicability:

- a. Facilities with design flow 1,501gpd – 50,000gpd, or
- b. Facilities with actual flow ≤ 1,500gpd that do not qualify for Table B-2, and
- c. Discharges to a Class L2 or L3 lake or reservoir, or
- d. Discharges to a receiving stream within one-half mile of a Class L2 or L3 lake or reservoir.

ALL OUTFALLS	TABLE B-4 FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					
	The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations 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:					
EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Flow	MGD	*		*	once/quarter***	24 hr. estimate
Biochemical Oxygen Demand <sub>5</sub>	mg/L		30	20	once/quarter***	grab
Total Suspended Solids	mg/L		30	20	once/quarter***	grab
pH – Units	SU	**		**	once/quarter***	grab
Ammonia as N	mg/L	12.1		4.6	once/quarter***	grab
<i>E. coli</i> (Note 1, Page 8)	#/100 mL	630		126	once/quarter***	grab
Total Residual Chlorine (Note 3, Page 8)	µg/L	17 (130ML)		8 (130ML)	once/quarter***	grab
Total Phosphorus as P****	mg/L	*		0.5	once/quarter***	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
EFFLUENT PARAMETER(S)	UNITS	DAILY MINIMUM	WEEKLY AVERAGE MINIMUM	MONTHLY AVERAGE MINIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
Dissolved Oxygen	mg/L	*		*	once/quarter***	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>MONTH 28, 20XX</u> .						

\* 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.

\*\*\* Quarterly sampling is required and samples shall be collected and tested for the parameters listed in Table B-4 if a discharge occurs during the reporting period. If the facility serves a part-time or seasonal establishment/residence(s), then sampling shall occur while the treatment facility is operating and after a discharge begins. Report as no-discharge when a discharge does not occur during the report period. See table on Page 7 for quarterly sampling schedule.

\*\*\*\* Total Phosphorus as P daily maximum monitoring and monthly average limit applies only to Table Rock Lake watershed, defined as hydrologic units 11010001 and 11010002, and discharges to Lake Taneycomo and its tributaries between Table Rock Dam and Power Site Dam (hydrologic units 110100030101 – 110100030110). Total Phosphorus as P daily maximum and monthly average monitoring only applies to discharges in the White River basin.

FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

5. Table B-5 Applicability:  
a. Facilities with design flow  $\leq$  50,000gpd that discharge to a losing stream.

ALL OUTFALLS	TABLE B-5 FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					
	The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations 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:					
EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Flow	MGD	*		*	once/quarter***	24 hr. estimate
Biochemical Oxygen Demand <sub>5</sub>	mg/L		15	10	once/quarter***	grab
Total Suspended Solids	mg/L		20	15	once/quarter***	grab
pH – Units	SU	**		**	once/quarter***	grab
Ammonia as N (April 1 – Sept 30) (Oct 1 – March 31)	mg/L	3.6 7.5		1.4 2.9	once/quarter***	grab
<i>E. coli</i> (Note 2, Page 8)	#/100 mL	126		126	once/quarter***	grab
Total Residual Chlorine (Note 3, Page 8)	µg/L	17 (130ML)		8 (130ML)	once/quarter***	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
EFFLUENT PARAMETER(S)	UNITS	DAILY MINIMUM	WEEKLY AVERAGE MINIMUM	MONTHLY AVERAGE MINIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
Dissolved Oxygen	mg/L	*		*	once/quarter***	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>MONTH 28, 20XX</u> .						

- \* 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.
- \*\*\* Quarterly sampling is required and samples shall be collected and tested for the parameters listed in Table B-5 if a discharge occurs during the reporting period. If the facility serves a part-time or seasonal establishment/residence(s), then sampling shall occur while the treatment facility is operating and after a discharge begins. Report as no-discharge when a discharge does not occur during the report period. See table below for quarterly sampling schedule.

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

FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

Note 1 - Effluent limitations and monitoring requirements for *E. coli* are applicable only during the recreational season from April 1 through October 31. During the fourth quarter sample once during October; no sample required in either November or December. No sample is required for *E. coli* or TRC during the first quarter. The Monthly Average Limit for *E. coli* is expressed as a geometric mean.

Note 2 - Effluent limits of 126cfu per 100mL daily maximum and monthly average for *E. coli* are applicable year round when discharging to a losing stream.

Note 3 - This permit contains a year round Total Residual Chlorine (TRC) limit. Facilities using ultraviolet disinfection are not required to sample for TRC if no chlorine was used.

- (a) This effluent limit is below the Minimum Quantification Level (ML) of the most common and practical Environmental Protection Agency (EPA) approved CLTRC methods. The department has determined the current acceptable ML for TRC to be 130 µg/L when using the DPD Colorimetric Method #4500 – CL G. from Standard Methods for the Examination of Waters and Wastewater. The permittee will conduct analyses in accordance with this method, or equivalent, and report actual analytical values. Measured values greater than or equal to the minimum quantification level of 130 µg/L will be considered violations of the permit and values less than the minimum quantification level of 130 µg/L will be considered to be in compliance with the permit limitation. The minimum quantification level does not authorize the discharge of chlorine in excess of the effluent limits stated in the permit.
- (b) Do not chlorinate or chemically de-chlorinate if it is not needed to meet the limits in your permit.
- (c) If no chlorine was used in a given sampling period, an actual analysis is not necessary. Simply report as 0 µg/L TRC.

STANDARD CONDITIONS

In addition to specified conditions stated herein, this permit is subject to the attached Parts I & III standard conditions dated November 1, 2013 and August 15, 1994, and hereby incorporated as though fully set forth herein.

SPECIAL CONDITIONS

1. This permit establishes final ammonia limitations based on Missouri's current WQS. On August 22, 2013, the EPA published a notice in the Federal Register announcing the final national recommended ambient water quality criteria for protection of aquatic life from the effects of ammonia in freshwater. The EPA's guidance, Final Aquatic Life Ambient Water Quality Criteria for Ammonia – Fresh Water 2013, is not a rule, nor automatically part of a state's WQS. States must adopt new ammonia criteria, consistent with EPA's published ammonia criteria, into their standards that protect the designated uses of the water bodies. The Department of Natural Resources intends to adopt the new ammonia criteria during the next WQS triennial review. Please refer to Section VI of this permit's factsheet for further information. It is also recommended the permittee view the department's 2013 EPA Criteria Factsheet located at <http://dnr.mo.gov/pubs/pub2481.pdf>.
2. 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 (CWA), if the effluent standard or limitation 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 WQS.
  - (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a 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 WQS, also called the 303(d) list).The permit as modified or reissued under this paragraph shall also contain any other requirements of the CWA then applicable.
3. All outfalls must be clearly marked in the field.
4. Permittee will cease discharge by connection to a facility with an area-wide management plan per 10 CSR 20-6.010(3)(B) within 90 days of notice of its availability.

SPECIAL CONDITIONS (continued)

5. Water Quality Standards

- (a) To the extent required by law, discharges to waters of the state shall not cause a violation of WQS 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.

5. 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 (100µg/L);
  - (2) Two hundred micrograms per liter (200µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1mg/L) for antimony;
  - (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
  - (4) The level established by the Director in accordance with 40 CFR 122.44(f).
- (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.

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

7. It is a violation of the Missouri Clean Water Law to fail to pay fees associated with this permit (644.055 RSMo).

8. WWTPs owned or operated by a private sewer company regulated by the Public Service Commission shall comply with any applicable requirements listed in 10 CSR 20-9, unless the facility has received written notification that the department has approved a modification to the requirements. The monitoring frequencies contained in this permit shall not be construed by the permittee as a modification of the monitoring frequencies listed in 10 CSR 20-9. 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.

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. Bypasses are to be reported to the appropriate Regional Office.

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

11. At least one gate must be provided to access the wastewater treatment facility and provide for maintenance and mowing. The gate shall remain locked except when opened by the permittee to perform operational monitoring, sampling, maintenance, mowing, or for inspections by the department.

SPECIAL CONDITIONS (continued)

12. At least one (1) warning sign shall be placed on each side of the facility enclosure in such positions as to be clearly visible from all directions of approach. There shall also be one (1) sign placed for every five hundred feet (500') (150 m) of the perimeter fence. A sign shall also be placed on each gate. Minimum wording shall be SEWAGE TREATMENT FACILITY—KEEP OUT. Signs shall be made of durable materials with characters at least two inches (2") high and shall be securely fastened to the fence, equipment or other suitable locations.
13. An Operation and Maintenance (O & M) manual shall be maintained by the permittee and made available to the operator. The O & M manual shall include key operating procedures and a brief summary of the operation of the facility.
14. An all-weather access road shall be provided to the treatment facility.
15. The discharge from the wastewater treatment facility shall be conveyed to the receiving stream via a closed pipe or a paved or rip-rapped open channel. Sheet or meandering drainage is not acceptable. The outfall sewer shall be protected against the effects of floodwater, ice or other hazards as to reasonably insure its structural stability and freedom from stoppage. The outfall shall be maintained so that a sample of the effluent can be obtained at a point after the final treatment process and before the discharge mixes with the receiving waters.
16. Land application of biosolids shall be conducted in accordance with Standard Conditions III and a department approved biosolids management plan. Land application of biosolids during frozen, snow covered, or saturated soil conditions in accordance with the additional requirements specified in WQ426 shall occur only with prior notification to the appropriate Regional Office.
17. A minimum of two (2) feet freeboard must be maintained in lagoon cell(s).
18. The berms of lagoon(s)/storage basin(s) shall be mowed and kept free of any deep-rooted vegetation, animal dens, or other potential sources of damage to the berms.
19. The facility shall ensure that adequate provisions are provided to prevent surface water intrusion into lagoon(s)/storage basin(s) and to divert stormwater runoff around the lagoon and protect embankments from erosion.

PERMIT TRANSFER

This permit may be transferred to a new owner by submitting an "Application for Transfer of Operating Permit" signed by the seller and buyer of the facility, along with the appropriate modification fee.

TERMINATION

In order to terminate this permit, the permittee shall notify the department by submitting Form H, included with the Missouri State Operating Permit (MSOP). The permittee shall complete Form H and mail it to the department at the address noted in the cover letter of this permit. Proper closure of any storage structure is required prior to permit termination. A closure plan shall be submitted to the department and approved prior to initiating closure activities.

PERMIT RENEWAL REQUIREMENTS

Unless this permit is terminated, the permittee shall submit an application for the renewal of this permit no later than thirty (30) days prior to the permit's expiration date. Failure to apply for renewal may result in termination of this permit and enforcement action to compel compliance with this condition and the Missouri Clean Water Law.

DUTY OF COMPLIANCE

The permittee shall comply with all conditions of this general permit. Any noncompliance with this general permit constitutes a violation of Chapter 644, Missouri Clean Water Law, and 10 CSR 20-6. Noncompliance may result in enforcement action, termination of this authorization, or denial of the permittee's request for renewal.

This permit authorizes only the activities described in this permit. Compliance with this permit may not be considered a shield from compliance with any local ordinance, State Regulation, or State Law.

**MISSOURI DEPARTMENT OF NATURAL RESOURCES**  
**FACT SHEET**  
**SMALL DOMESTIC MASTER GENERAL PERMIT**

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

Per 40 CFR Part 124.8(a) and 10 CSR 20-6.020(1)2, a Fact Sheet shall be prepared to give pertinent information regarding the applicable regulations, rationale for the development of effluent limitations and conditions, and the public participation process for the MSOP listed below.

A Fact Sheet is not an enforceable part of a MSOP.

This Fact Sheet is for a Minor Operating Permit covering privately owned Domestic Wastewater Treatment Plants (WWTPs).

**Part I – Facility Information**

Facility Type: Non-POTW (domestic wastewater only)

Facility Description: Domestic WWTPs with design flow of 50,000 gallons per day (gpd) or less that is capable of complying with the effluent limits contained herein.

**Part II – Operator Certification Requirements**

Per 10 CSR 9.020, requirements for operation by certified personnel shall apply to all wastewater treatment systems serving population equivalents greater than two hundred or with fifty or more service connections and owned or operated by private sewer companies regulated by the Public Service Commission. Minimum certification requirements can be found at 10 CSR 9.020.

Per 10 CSR 20-6.010(8), 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.

**Part III – Operational Monitoring**

Per 10 CSR 9.010, operational monitoring requirements shall apply to all wastewater treatment systems owned or operated by private sewer companies regulated by the Public Service Commission, servicing population equivalents greater than two hundred or with twenty-five or more service connections. Minimum monitoring requirement can be found at 10 CSR 9.010.

**Part IV – Receiving Stream Information**

Per 10 CSR 20-7.031 Missouri Water Quality Standards (WQS), 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". Limits set by this permit are intended to be protective of General Criteria (AQL, DWS, GRW, HHF, IND, IRR, LWW, SCR, WBC).

#### **APPLICABLE DESIGNATIONS OF WATERS OF THE STATE:**

Per Missouri's Effluent Regulations [10 CSR 20-7.015], the waters of the state are divided into 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. This permit only applies to facilities discharging to the following water body categories:

- 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)]
- All Other Waters [10 CSR 20-7.015(8)]

This permit does not apply to facilities discharging to the following water body categories:

- 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)];
- Cold Water Fisheries;
- Outstanding National Resource Water, Wild and Scenic River, or Ozark National Scenic Riverways;
- Within two (2) miles upstream of biocriteria reference locations or Outstanding State Resource Waters;
- Within two (2) miles upstream of streams, lakes, or reservoirs identified as critical habitat for endangered species;
- Watersheds for which an approved Total Maximum Daily Load (TMDL) includes wasteload allocations for oxygen demand, nitrogen, phosphorus, or ammonia.

These categories are identified or described in 10 CSR 20, Chapter 7. These regulations are available at many libraries, online at [www.sos.mo.gov](http://www.sos.mo.gov), or may be purchased from MDNR by calling the Water Protection Program.

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

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

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; Alternative evaluations will occur during the construction permit process. All new or expanding facilities shall receive a construction permit prior to receiving the operating permit.

#### **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 permit are at least as protective as those previously established; therefore, backsliding does not apply.

#### **ANTIDegradation:**

In accordance with Missouri's WQS [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. Facilities that were constructed or expanded prior to August 30, 2008 are not subject to the requirements of Missouri's Antidegradation Implementation Procedure because these procedures were not promulgated and effective prior to that date.

- Antidegradation reviews are performed at the time of construction. No degradation proposed and no further review necessary. Facility did not apply for authorization to increase pollutant loading or to add additional pollutants to their discharge.

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

Per 10 CSR 20-6.010(3)(B), an applicant may utilize a lower preference continuing authority by submitting, as part of the application, a statement waiving preferential status from each existing higher preference authority, providing the waiver does not conflict with any area-wide management plan approved under section 208 of the Federal CWA or any other regional sewage service and treatment plan approved for higher preference authority by the department.

**BIOSOLIDS & SEWAGE SLUDGE:**

Biosolids are solid materials resulting from domestic wastewater treatment that meet federal and state criteria for beneficial uses (i.e. fertilizer). Sewage sludge are 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.

With prior approval from the department, permittees are authorized to land apply biosolids, or utilize other methods of sludge disposal contained in Standard Conditions Part III.

**CONSERVATIVE ASSUMPTIONS:**

In order to facilitate efficient processing of permit applications domestic wastewater treatment facilities under 50,000 can receive a general permit. If the permittee would prefer to have additional reviews conducted, such as reasonable potential analysis or mixing considerations, a site specific permit application must be submitted. The following conservative assumptions have been made regarding the facility:

- Ammonia is a constituent of domestic wastewater. Facilities with low flows (<1,500 gpd) that are entitled to a mixing zone have no reasonable potential to exceed WQS for ammonia. However, all larger flows can be assumed to have reasonable potential. Facilities that would like site-specific calculation of ammonia limits must apply for a site-specific permit.
- A Reasonable Potential Analysis [statistical analysis] using facility data was not conducted. Where reasonable potential is assumed, default multipliers from Environmental Protection Agency (EPA) guidance are utilized to calculate effluent limits.
- No degradation of ammonia has been calculated.
- Whole Body Contact (WBC) Recreation must be protected for in all receiving water bodies.
- Only domestic wastewater is included in the influent to this facility. This facility was determined not to have other sources of wastewater which would introduce other pollutants.

**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 POTW [40 CFR Part 403.3(q)].

- Not Applicable; This permit does not apply to facilities that require a Pretreatment Program.

**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 POTW/municipals.

- Not Applicable; Influent monitoring is not required to determine percent removal.

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

SSOs are defined as an untreated or partially treated sewage release and are considered bypassing under state regulation [10 CSR 20-2.010(11)] and should not be confused with the federal definition of bypass. SSOs 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, SSOs can 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.

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.

- 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.

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

In accordance with 40 CFR 122.44(3)(k) *Best Management Practices (BMPs)*, BMPs are implemented to control or abate the discharge of pollutants when: (1) Authorized under section 304(e) of the 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.

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

**VARIANCE:**

Per the Missouri Clean Water Law § 644.061.4, variances shall be granted for such period of time and under such terms and conditions as shall be specified by the commission in its order. The variance may be extended by affirmative action of the commission. In no event shall the variance be granted for a period of time greater than is reasonably necessary for complying with the Missouri Clean Water Law §§644.006 to 644.141 or any standard, rule, or regulation promulgated pursuant to Missouri Clean Water Law §§644.006 to 644.141.

Not Applicable; This permit is not drafted under premises of a petition for variance.

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

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 total amount of pollutant that may be discharged into that stream without endangering its water quality.

Applicable; WLA were calculated, where applicable, using water quality criteria and the dilution equation below:

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

Where C = downstream concentration  
Cs = upstream concentration  
Qs = upstream flow  
Ce = effluent concentration  
Qe = effluent flow

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

Water quality based maximum daily and average monthly effluent limitations were calculated using methods and procedures outlined in USEPA's Technical Support Document For Water Quality-based Toxics Control (TSD) (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, targeted to comply with the values dictated by the WLA. Therefore, it is recommended that the actual planned frequency of monitoring be used to determine the value of "n" for calculating the Average Monthly Limit (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 must use at a minimum, an assumed number of samples of "n=4". For Total Ammonia as Nitrogen, "n = 30" is used.

**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 include in each NPDES permit conditions to achieve water quality established under Section 303 of the CWA, including State narrative criteria for water quality.

**WLA MODELING:**

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

Not Applicable; A WLA study was either not submitted or determined not applicable by the department.

**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.

Not Applicable; At this time, the permittee is not required to conduct WET test for this facility.

**40 CFR 122.41(M) - BYPASSES:**

The Federal CWA, Section 402 prohibits wastewater dischargers from “bypassing” untreated or partially treated sewage (wastewater) beyond the headworks. A bypass is defined as an intentional diversion of waste streams from any portion of a treatment facility [40 CFR 122.41(m)(1)(i)]. Additionally, Missouri regulation 10 CSR 20-2.010(11) defines a bypass as the diversion of wastewater from any portion of a 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 devices designed for peak wet weather flows.

Not Applicable; This facility does not anticipate bypassing. It is a violation of Missouri State Environmental Laws and Regulations to allow untreated wastewater to discharge to waters of the state

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

Section 303(d) of the Federal CWA requires that each state identify waters that are not meeting WQS and for which adequate water pollution controls have not been required. WQS protect such beneficial uses of water as whole body contact, 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 permit does not apply within a watershed for which an approved TMDL includes wasteload allocations for oxygen demand, nitrogen, phosphorus, ammonia or unknown impairment. These pollutants are discharged by domestic wastewater treatment facilities and therefore it may be necessary to apply a lower wasteload allocation than appears in this permit to any new or existing discharge in order to protect water quality. Facilities located within a watershed for which an approved TMDL includes a wasteload allocation for pollutants other than those listed above will be considered for this permit on a case-by-case basis.

**Part VI –2013 Water Quality Criteria for Ammonia**

Upcoming changes to the WQS for ammonia may require significant upgrades to wastewater treatment facilities.

On August 22, 2013, the EPA finalized new water quality criteria for ammonia, based on toxicity studies of mussels and gill breathing snails. Missouri’s current ammonia criteria are based on toxicity testing of several species, but did not include data from mussels or gill breathing snails. Missouri is home to 69 of North America’s mussel species, which are spread across the state. According to the Missouri Department of Conservation, nearly two-thirds of the mussel species in Missouri are considered to be “of conservation concern”. Nine species are listed as federally endangered, with an additional species currently proposed as endangered and another species proposed as threatened.

The adult forms of mussels that are seen in rivers, lakes, and streams are sensitive to pollutants because they are sedentary filter feeders. They vacuum up many pollutants with the food they bring in and cannot escape to new habitats, so they can accumulate toxins in their bodies and die. But very young mussels, called glochidia, are exceptionally sensitive to ammonia in water. As a result of a citizen suit, the EPA was compelled to conduct toxicity testing and develop ammonia water quality criteria that would be protective of young mussels present in a waterbody. These new criteria will apply to any discharge with ammonia levels that may pose a reasonable potential to violate the WQS. Nearly all discharging domestic wastewater treatment facilities (cities, subdivisions, mobile home parks, etc.) as well as certain industrial and stormwater dischargers with ammonia in their effluent, will be affected by this change in the regulations.

When new water quality criteria are established by the EPA, states must adopt them into their regulations in order to keep their authorization to issue permits under the NPDES. States are required to review their WQS every three years, and if new criteria have been developed, they must be adopted. States may be more protective than the Federal requirements, but not less protective. Missouri does not have the resources to conduct the studies necessary for developing new WQS, and therefore our WQS mirror those developed by the EPA. However, we will utilize any available flexibility based on species of mussels native to Missouri and their sensitivity to ammonia.

Many treatment facilities in Missouri are currently scheduled to be upgraded to comply with the current WQS. But these new ammonia standards may require a different treatment technology than the one being considered by the permittee. It is important that permittees discuss any new and upcoming requirements with their consulting engineers to ensure that their treatment systems are capable of complying with the new requirements. The department encourages permittees to construct treatment technologies that can attain effluent quality that supports the EPA's new ammonia criteria.

Under the new EPA criteria, where mussels of the family Unionidae are present or expected to be present, the anticipated effluent limitations upon renewal of this general permit are as follows:

- For facilities >1,500gpd discharging to a stream:
  - Summer – 1.7mg/L daily maximum, 0.6mg/L monthly average;
  - Winter – 5.6mg/L daily maximum, 2.1mg/L monthly average;
- For facilities >1,500gpd discharging to a classified lake:
  - Year Round – 8.1mg/L daily maximum, 3.1mg/L monthly average;

Operating permits for facilities in Missouri must be written based on current statutes and regulations. It is expected that the new WQS will be adopted in the next review of our WQS. Therefore this permit is written using existing effluent limitations. This advisory is added to the Fact Sheet to aid permittees in decision making. For more information on this topic feel free to contact the Missouri Department of Natural Resources, Water Protection Program, Water Pollution Control Branch, Operating Permits Section at (573) 751-1300.

**Part VII – Effluent Limits Determination (All Outfalls)**

Facilities covered under this permit are only required to meet the limits that apply to the appropriate type of receiving water body.

**EFFLUENT LIMITATIONS TABLE FOR RIVERS AND STREAMS:**

PARAMETER	Unit	Basis for Limits	Daily Maximum	Weekly Average	Monthly Average
Flow	MGD	1	*		*
BOD <sub>5</sub>	mg/L	1, 2		45	30
TSS	mg/L	1, 2		45	30
pH	SU	1, 2	6.5-9.0		
Ammonia as N April 1 – Sept 30 Oct 1 - Mar 31	mg/L	2, 3, 4	3.6/* 7.5/*		1.4/* 2.9/*
Dissolved Oxygen (DO)**	mg/L	1	*		*
Escherichia coli	***	1, 2, 3	630		126
Chlorine, Total Residual	µg/L	1, 3	17		8
Total Phosphorus as P	mg/L	1	*		0.5

**EFFLUENT LIMITATIONS TABLE FOR LAKES AND RESERVOIRS:**

PARAMETER	Unit	Basis for Limits	Daily Maximum	Weekly Average	Monthly Average
Flow	MGD	1	*		*
BOD <sub>5</sub>	mg/L	1, 2		30	20
TSS	mg/L	1, 2		30	20
pH	SU	1, 2	6.5-9.0		
Ammonia as N April 1 – Sept 30 Oct 1 - Mar 31	mg/L	2, 3, 4	3.6/* 7.5/*		1.4/* 2.9/*
Dissolved Oxygen (DO)**	mg/L	1	*		*
Escherichia coli	***	1, 2, 3	630		126
Chlorine, Total Residual	µg/L	1, 3	17		8
Total Phosphorus as P	mg/L	1	*		0.5

**EFFLUENT LIMITATIONS TABLE FOR LOSING STREAMS:**

PARAMETER	Unit	Basis for Limits	Daily Maximum	Weekly Average	Monthly Average
Flow	MGD	1	*		*
BOD <sub>5</sub>	mg/L	1, 2		15	10
TSS	mg/L	1, 2		20	15
pH	SU	1, 2	6.5-9.0		
Ammonia as N April 1 – Sept 30 Oct 1 - Mar 31	mg/L	2, 3, 4	3.6 7.5		1.4 2.9
Dissolved Oxygen (DO)**	mg/L	1	*		*
Escherichia coli	****	1, 2, 3	126		126
Chlorine, Total Residual	µg/L	1, 3	17		8
Total Phosphorus as P	mg/L	1	*		0.5

\* - Monitoring requirement only.

\*\* - For DO the Daily Maximum is a Daily Minimum and the Monthly Average is a Monthly Average Minimum.

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

\*\*\*\* - # of colonies/100 mL; *E. coli* shall not exceed 126 colonies per 100 mL at any time.

**Basis for Limitations Codes:**

1. State or Federal Regulation/Law
2. Water Quality Standards
3. Water Quality Based Effluent Limits
4. Ammonia 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 a permit modification.
- **Biochemical Oxygen Demand (BOD<sub>5</sub>):** Effluent limits for each type of receiving water body were set according to 10 CSR 20-70.015(2)-(8).

- **Total Suspended Solids (TSS):** Effluent limits for each type of receiving water body were set according to 10 CSR 20-70.015(2)-(8).
- **pH:** pH is not to be averaged. Effluent limitation range is 6.5 – 9.0 Standard pH Units (SU) per 10 CSR 20-7.031(4)(E) and is established to protect water quality standards in all receiving streams.
- **Total Ammonia Nitrogen for Rivers and Streams:** Early Life Stages Present Total Ammonia Nitrogen criteria applies a default of pH 7.8 SU [10 CSR 20-7.031(4)(B)(7)(C) & Table B3]. No mixing considerations allowed; therefore, WLA = appropriate criterion. The WLA calculation below assumes a maximum flow of 50,000 gpd or 0.08 cubic feet second (cfs).

Season	Temp (°C)	pH (SU)	Total Ammonia Nitrogen CCC (mg/L)	Total Ammonia Nitrogen CMC (mg/L)
Summer	26	7.8	1.5	12.1
Winter	6	7.8	3.1	12.1

Summer: April 1 – September 30

Chronic WLA:  $C_e = ((0.08 + 0.0)1.5 - (0.0 * 0.01))/0.08$   
 $C_e = 1.5 \text{ mg/L}$

Acute WLA:  $C_e = ((0.08 + 0.0)12.1 - (0.0 * 0.01))/0.08$   
 $C_e = 12.1 \text{ mg/L}$

Chronic LTA ( $LTA_c = 1.5 \text{ mg/L} (0.780) = 1.17 \text{ mg/L}$ )  
 Acute LTA ( $LTA_a = 12.1 \text{ mg/L} (0.321) = 3.89 \text{ mg/L}$ )

[CV =0.6, 99<sup>th</sup> Percentile, 30 day avg.]  
 [CV =0.6, 99<sup>th</sup> Percentile]

Use most protective number of  $LTA_c$  or  $LTA_a$ .

Maximum Daily Limit (MDL) =  $1.17 \text{ mg/L} (3.11) = 3.6 \text{ mg/L}$   
 Average Monthly Limit (AML) =  $1.17 \text{ mg/L} (1.19) = 1.4 \text{ mg/L}$

[CV =0.6, 99<sup>th</sup> Percentile]  
 [CV =0.6, 95<sup>th</sup> Percentile, n =30]

Winter: October 1 – March 31

Chronic WLA:  $C_e = ((0.08 + 0.0)3.1 - (0.0 * 0.01))/0.08$   
 $C_e = 3.1 \text{ mg/L}$

Acute WLA:  $C_e = ((0.08 + 0.0)12.1 - (0.0 * 0.01))/0.08$   
 $C_e = 12.1 \text{ mg/L}$

$LTA_c = 3.1 \text{ mg/L} (0.780) = 2.42 \text{ mg/L}$   
 $LTA_a = 12.1 \text{ mg/L} (0.321) = 3.89 \text{ mg/L}$

[CV =0.6, 99<sup>th</sup> Percentile, 30 day avg.]  
 [CV =0.6, 99<sup>th</sup> Percentile]

Use most protective number of  $LTA_c$  or  $LTA_a$ .

MDL =  $2.42 \text{ mg/L} (3.11) = 7.5 \text{ mg/L}$   
 AML =  $2.42 \text{ mg/L} (1.19) = 2.9 \text{ mg/L}$

[CV =0.6, 99<sup>th</sup> Percentile]  
 [CV =0.6, 95<sup>th</sup> Percentile, n =30]

- **Total Ammonia Nitrogen for Lakes:** Early Life Stages Present Total Ammonia Nitrogen criteria applies a default of pH 7.8 SU [10 CSR 20-7.031(4)(B)(7)(C) & Table B3]. Because of mixing allowable in lakes, the acute ammonia criteria drives the WLA for ammonia. The WLA calculation below assumes a maximum flow of 50,000 gpd or 0.08 cfs.

Season	Temp (°C)	pH (SU)	Total Ammonia Nitrogen CCC (mg/L)	Total Ammonia Nitrogen CMC (mg/L)
Summer	26	7.8	1.5	12.1
Winter	6	7.8	3.1	12.1

Acute WLA:  $C_e = ((0.08 + 0.0)12.1 - (0.0 * 0.01))/0.08$   
 $C_e = 12.1 \text{ mg/L}$

$LTA_a = 12.1 \text{ mg/L} (0.321) = 3.89 \text{ mg/L}$

[CV =0.6, 99<sup>th</sup> Percentile]

MDL =  $3.89 \text{ mg/L} (3.11) = 12.1 \text{ mg/L}$   
 AML =  $3.89 \text{ mg/L} (1.19) = 4.6 \text{ mg/L}$

[CV =0.6, 99<sup>th</sup> Percentile]  
 [CV =0.6, 95<sup>th</sup> Percentile, n =30]

- **Total Ammonia Nitrogen, Monitoring Only:** It is the permit writer's best professional judgment that facilities qualifying for the limits in Tables B-1 and B-2 do not have reasonable potential to exceed WQS for ammonia. These facilities cannot discharge in excess of 1,500 gpd and the receiving water body must provide mixing that allows for a 10:1 dilution of the discharge. Under these condition there is no reasonable potential to exceed acute or chronic ammonia criteria in-stream. Ammonia monitoring is required to verify that the facility is not contributing to water quality exceedances.
- **Dissolved Oxygen:** Monitoring is required to determine if a facility has the potential to deplete oxygen to an extent that can be detrimental to aquatic life in the receiving water body.
- **Escherichia coli (E. coli):**
  - Discharges to rivers/streams or lakes/reservoirs shall not exceed a monthly average of 126 per 100 mL as a geometric mean and Daily Maximum of 630 during the recreational season (April 1 – October 31) to protect WBCR designated use of the receiving stream, as per 10 CSR 20-7.031(4)(C).
  - Discharges to losing streams shall not exceed 126 per 100 mL as a Daily Maximum and Monthly Average at any time, as per 10 CSR 20-7.031(4)(C).
- **Total Residual Chlorine (TRC):** Warm-water Protection of Aquatic Life CCC = 10 µg/L, CMC = 19 µg/L [10 CSR 20-7.031 Table A]. Background TRC = 0.0 µg/L.

Chronic WLA:  $C_e = ((0.08 + 0.0)10 - (0.0 * 0.0))/0.08$   
 $C_e = 10 \mu\text{g/L}$

Acute WLA:  $C_e = ((0.08 + 0.0)19 - (0.0 * 0.0))/0.08$   
 $C_e = 19 \mu\text{g/L}$

$LTA_c = 10 (0.527) = 5.3 \mu\text{g/L}$   
 $LTA_a = 19 (0.321) = 6.1 \mu\text{g/L}$

[CV = 0.6, 99<sup>th</sup> Percentile]  
[CV = 0.6, 99<sup>th</sup> Percentile]

Use most protective number of  $LTA_c$  or  $LTA_a$ .

MDL = 5.3 (3.11) = 17 µg/L  
AML = 5.3 (1.55) = 8 µg/L

[CV = 0.6, 99<sup>th</sup> Percentile]  
[CV = 0.6, 95<sup>th</sup> Percentile, n = 4]

## **Part VII – 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 POTW.

- Not Applicable; The department is not required to determine findings of affordability because the facility is not a combined or separate sanitary sewer system or a POTW.

## **Part VIII – Administrative Requirements**

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

### **PUBLIC NOTICE:**

The department shall give public notice that a draft permit has been prepared and its issuance is pending. Additionally, public notice will be issued if a public hearing is to be held because of a significant degree of interest or because of water quality concerns related to a draft permit. No public notice is required when a request for a permit modification or termination is denied; however, the requester and permittee must be notified of the denial in writing.

The department must give public notice of a pending permit or of a new or reissued Missouri State Operating Permit. The public comment period is a length of time not less than 30 days following the date of the public notice, during which interested persons may submit written comments about the proposed permit.

For persons wanting to submit comments regarding this proposed permit, please refer to the Public Notice page located at the front of this draft permit. The Public Notice page gives direction on how and where to submit appropriate comments.

The Public Notice period for this permit is tentatively scheduled to begin on (DATE) or is in process.

**DATE OF FACT SHEET:** (DATE HERE)

**COMPLETED BY:**  
**AMANDA SAPPINGTON**  
**MISSOURI DEPARTMENT OF NATURAL RESOURCES**  
**WATER PROTECTION PROGRAM**  
**OPERATING PERMITS SECTION**  
**(573) 751-8728**  
**amanda.sappington@dnr.mo.gov**