

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-0097845

Owner: MDNR, Division of State Parks  
Address: P.O. Box 176, Jefferson City, MO 65102

Continuing Authority: Same as above  
Address: Same as above

Facility Name: MDNR Lake of the Ozarks Public Beach No. 1  
Facility Address: Highway 134, Kaiser, MO 65047

Legal Description: SE¼, NE¼, Sec. 33, T39N, R15W, Camden County  
UTM Coordinates: X= 537333, Y= 4214428

Receiving Stream: Lake of the Ozarks (L2) (07205)  
First Classified Stream and ID: Lake of the Ozarks (L2) (07205) 303(d) List  
USGS Basin & Sub-watershed No.: (10290109-0312)

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 – State Park / POTW – SIC #9512 / 4952

The use or operation of this facility shall be by or under the supervision of a Certified “C” Operator.  
Flow equalization / extended aeration / chlorination / dechlorination / sludge disposal by contract hauler  
Design population equivalent is 300.  
Design flow is 20,000 gallons per day.  
Actual flow is 3,050 gallons per day.  
Design sludge production is 5.4 dry tons/year.

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

November 1, 2017  
Effective Date

Sara Parker Pauley, Director, Department of Natural Resources

March 31, 2017  
Expiration Date

John Madras, Director, Water Protection Program

<b>OUTFALL #001</b>	<b>TABLE A. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS</b>	PAGE NUMBER 2of 5
		PERMIT NUMBER MO-0097845

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****	composite**
Total Suspended Solids	mg/L		30	20	once/quarter****	composite**
<i>E. coli</i> (Note 1, Page 4)	#/100 ml	630		126	once/quarter****	grab
pH – Units	SU	***		***	once/quarter****	grab
Ammonia as N	mg/L	12.1		4.6	once/quarter****	grab
Oil & Grease	mg/L	15		10	once/quarter****	grab
Total Residual Chlorine (Note 2, Page 4)	µg/L	17 (130ML)		8 (130ML)	once/quarter****	grab
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 QUARTERLY; THE FIRST REPORT IS DUE JANUARY 28, 2013. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

- \* Monitoring requirement only.
- \*\* A composite sample made up from a minimum of four grab samples collected within a 24 hour period with a minimum of two hours between each grab sample.
- \*\*\* 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.
- \*\*\*\* See table below for quarterly sampling:

Minimum Sampling Requirements				
Quarter	Months	<i>E. coli</i> and Total Residual Chlorine (TRC)	All Other Parameters	Report is Due
First	January, February, March	Not required to sample.	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	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	Sample at least once during any month of the quarter	October 28 <sup>th</sup>
Fourth	October, November, December	Sample once during October; no sample required in either November or December	Sample at least once during any month of the quarter	January 28 <sup>th</sup>

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

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

Note 2 - This permit contains a Total Residual Chlorine (TRC) limit.

- (a) This effluent limit is below the minimum quantification level (ML) of the most common and practical EPA approved CLTRC methods. The department has determined the current acceptable ML for total residual chlorine 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) Disinfection is required year-round unless the permit specifically states that “Final limitations and monitoring requirements for *E. coli* are applicable only during the recreational season from April 1 through October 31.” If your permit does not require disinfection during the non-recreational months, do not chlorinate in those months.
- (c) Do not chemically de-chlorinate **if it is not needed to meet the limits in your permit**.
- (d) If no chlorine was used in a given sampling period, an actual analysis is not necessary. Simply report as “0 µg/L” TRC.

B. STANDARD CONDITIONS

In addition to specified conditions stated herein, this permit is subject to the attached Parts I & III standard conditions dated October 1, 1980 and August 15, 1994, and hereby incorporated as though fully set forth herein.

C. 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. 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;

C. SPECIAL CONDITIONS

- (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 (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.

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. The permittee has been granted a waiver from operational control testing outlined in 10 CSR 20-9 for this permit cycle. Provisions in 10 CSR 20-9 for retention of a certified operator must be complied with. 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.

9. The permittee shall submit a report annually in **January** to the Southwest Regional Office with the Discharge and Monitoring reports which address measures taken to locate and eliminate sources of infiltration and inflow into the collection system serving the facility for the previous year.

10. 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 Southwest Regional Office.

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

12. A 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.

13. 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.

14. 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.

15. An all-weather access road shall be provided to the treatment facility.

C. SPECIAL CONDITIONS (continued)

16. 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.

**MISSOURI DEPARTMENT OF NATURAL RESOURCES**  
**FACT SHEET**  
**FOR THE PURPOSE OF RENEWAL OF**  
**MO-0097845**  
**MDNR Lake of the Ozarks Public Beach No. 1**

The Federal Water Pollution Control Act ("Clean Water Act" 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 "Clean Water Act"). After a permit is obtained, a discharge not in compliance with all permit terms and conditions is unlawful. Missouri State Operating Permits (MSOPs) are issued by the Director of the Missouri Department of Natural Resources (Department) under an approved program, operating in accordance with federal and state laws (Federal "Clean Water Act" and "Missouri Clean Water Law" Section 644 as amended). MSOPs are issued for a period of five (5) years unless otherwise specified.

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

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

This Factsheet is for a Minor

**Part I – Facility Information**

Facility Type: POTW - SIC #4952

Facility Description:

Flow equalization / extended aeration / chlorination / dechlorination / sludge disposal by contract hauler

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

Yes; Lake of the Ozarks- Osage Arm is listed on the 303(d) List for nitrogen. Additional monitoring requirements are not being adding at this time, but may be in the future.

Application Date: 08/25/2011

Expiration Date: 02/25/2012

**OUTFALL(S) TABLE:**

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE	DISTANCE TO CLASSIFIED SEGMENT (MI)
#001	0.03	Secondary	Domestic Wastewater	Direct Discharge

Receiving Water Body's Water Quality & Facility Performance History:

During a review of the Discharge Monitoring Reports (DMRs) submitted to this office between February 2007 and June 2012, it showed that the facility had the following exceedances: 9/30/2010 (Fecal Coliform).

This facility was last inspected on April 5, 2010. The inspection showed the following unsatisfactory features: the outfall was not marked, the facility did not have a flow measurement device, the facility lacked warning signs, and the flow equalization basin did not have fencing.

Comments:

None.

**Part II – Operator Certification Requirements**

Applicable; This facility is required to have a certified operator.

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 20-9.020(2)(A)], requirements for operation by certified personnel shall apply to all wastewater treatment systems, if applicable, as listed below:

Check boxes below that are applicable to the facility;

Owned or operated by or for:

- State or Federal agencies:

Each of the above entities are only applicable if they have a Population Equivalent greater than two hundred (200) and/or fifty (50) or more service connections.

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

Operator’s Name: Dwayne Thompson  
 Certification Number: 5387  
 Certification Level: A

The listing of the operator above only signifies that staff drafting this operating permit have reviewed appropriate Department records and determined that the name listed on the operating permit application has the correct and applicable Certification Level.

**Part III– Operational Monitoring**

As per the Special Condition #8 from above, this permittee has been granted a waiver from operational control testing outlined in 10 CSR 20-9 for this permit cycle. Provisions in 10 CSR 20-9 for retention of a certified operator must be complied with.

**Part IV – Receiving Stream Information**

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):**

WATERBODY NAME	CLASS	WBID	DESIGNATED USES*	8-DIGIT HUC	EDU**
Lake of the Ozarks, 303(d)	L2	07205	LWW, AQL, SCR, WBC-A	10290109	Ozark / Osage

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

\*\* - Ecological Drainage Unit

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

RECEIVING STREAM (U, C, P)	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Lake of the Ozarks (L2), 303(d)	See Mixing Considerations		

## MIXING CONSIDERATIONS

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

### Mixing Zone:

Mixing Zone (MZ) Parameters: According to the USGS 1:24,000K Toronto Quadrangle, the lake mainstem width near the *assumed* facility outfall location is approximately 1,620 feet (ft.), using the “normal” water level. One-quarter of this width equals 400 ft., therefore, because 100 feet is less than 400 ft., the MZ = 100 feet [10 CSR 20-7.031(4)(A)5.B.(IV)(a)].

Mixing Zone Volume: The flow volume approximates a triangular prism because of the slope of the lake bottom, where the formula is  $Volume = L * W * (D * 0.5)$ . Assuming that the width will be either side of the discharge (MZ) length (100 feet) to form the plume effect, the box dimensions are length (L) = 100 ft., width (W) = 100 ft., and depth (D) = 26 ft. Depth was obtained using mixing zone length projected 100 ft. from shoreline to the intersecting contour on the 7.5' USGS topographic map (shoreline contour=204 meters and lake depth contour at 100 ft. from shore = 196 meters).

$$Volume = L * W * (D * 0.5) = (100') * (100') * (0.5 * 26) = 130,000 \text{ ft}^3$$

The flow volume of 130,000 ft<sup>3</sup> is assumed as the daily mixing zone. Therefore;  
 $30Q_{10} = (130,000 \text{ ft}^3/\text{day}) * (1 \text{ day}/86,400 \text{ sec}) = 1.5 \text{ ft}^3/\text{sec}$ .

### RECEIVING STREAM MONITORING REQUIREMENTS:

No receiving water monitoring requirements recommended at this time.

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

### ALTERNATIVE EVALUATIONS FOR NEW FACILITIES:

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

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

### ANTI-BACKSLIDING:

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

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

### ANTIDegradation:

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

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:

As 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 Clean Water Act or any other regional sewage service and treatment plan approved for higher preference authority by the Department.

**BIOSOLIDS & SEWAGE SLUDGE:**

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

**COMPLIANCE AND ENFORCEMENT:**

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

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

**PRETREATMENT PROGRAM:**

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

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

**REASONABLE POTENTIAL ANALYSIS (RPA):**

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

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

Applicable; A RPA was conducted on appropriate parameters. Please see **APPENDIX B – RPA RESULTS**.

**REMOVAL EFFICIENCY:**

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

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

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

Sanitary Sewer Overflows (SSOs) are defined as 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.

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

**SCHEDULE OF COMPLIANCE (SOC):**

A schedule of remedial measures included in a permit, including an enforceable sequence of interim requirements (actions, operations, or milestone events) leading to compliance with the Missouri Clean Water Law, its implementing regulations, and/or the terms and conditions of an operating permit.

Not Applicable; This permit does not contain a SOC. The facility's DMR data shows that the final effluent limitations are attainable with property operation and maintenance therefore a SOC is not allowed.

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

Additionally in accordance with the 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.

**VARIANCE:**

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

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

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

As per [10 CSR 20-2.010(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; Wasteload allocations were calculated where applicable using water quality criteria or water quality model results and the dilution equation below:

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

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” (EPA/505/2-90-001).

Number of Samples “n”:

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

**WLA MODELING:**

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

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.

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 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 devices designed for peak wet weather flows.

Not Applicable; This facility does not anticipate bypassing.

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

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

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

Applicable; Lake of the Ozarks – Osage Arm is listed on the 2010 Missouri 303(d) List for nitrogen.

It is unknown if this facility is a source of or contributes to the above listed pollutants. When the nutrient implementation procedure is approved, the permit may be reopened and modified to include nutrient monitoring. Once a TMDL is developed, the permit will be modified to include WLAs from the TMDL.

**Part VI – Effluent Limits Determination**

**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.

Lake or Reservoir [10 CSR 20-7.015(3)]:

**OUTFALL #001 – MAIN FACILITY OUTFALL**

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

**EFFLUENT LIMITATIONS TABLE:**

PARAMETER	Unit	Basis for Limits	Daily Maximum	Weekly Average	Monthly Average	Modified	Previous Permit Limitations
Flow	MGD	1	*		*	No	*/*
BOD <sub>5</sub>	mg/L	1		30	20	No	30/20
TSS	mg/L	1		30	20	No	30/20
pH	SU	1	6.5-9.0			Yes	6.0-9.0
Ammonia as N	mg/L	2, 3, 5	12.1		4.6	Yes	*/*
Dissolved Oxygen (DO)**	mg/L	3, 9	*		*	No	*/*
Escherichia coli	***	1, 3	630		126	Yes	Fecal 1000/400
Chlorine, Total Residual	µg/L	1, 3	17		8	No	17/8
Oil & Grease (mg/L)	mg/L	1, 3	15		10	No	15/10

\* - Monitoring requirement only.

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

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

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

**Basis for Limitations Codes:**

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

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

- **Flow.** In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the Department, which may require the submittal of an operating permit modification.
- **Biochemical Oxygen Demand (BOD<sub>5</sub>).** Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information.**
- **Total Suspended Solids (TSS).** Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information.**
- **pH.** Effluent limitation range is 6.5 – 9.0 Standard pH Units (SU), as per the applicable section of 10 CSR 20-7.015. pH is not to be averaged.

- **Total Ammonia Nitrogen.** Early Life Stages Present Total Ammonia Nitrogen criteria apply [10 CSR 20-7.031(4)(B)7.C. & Table B3] default pH 7.8 SU Background total ammonia nitrogen = 0.01 mg/L. The default CV value was also used because not enough data was available to calculate a site specific CV value.

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:  $C_e = ((0.03 + 1.5)1.5 - (1.5 * 0.01))/0.03$   
 $C_e = 76.0 \text{ mg/L}$

Acute WLA:  $C_e = ((0.03 + 0.0)12.1 - (0.0 * 0.01))/0.03$   
 $C_e = 12.1 \text{ mg/L}$

$LTA_c = 76.0 \text{ mg/L} (0.780) = 59.3 \text{ mg/L}$   
 $LTA_a = 12.1 \text{ mg/L} (0.321) = 3.9 \text{ mg/L}$

[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 = 3.9 mg/L (3.11) = 12.1 mg/L  
 AML = 3.9 mg/L (1.19) = 4.6 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:  $C_e = ((0.03 + 1.5)3.1 - (1.5 * 0.01))/0.03$   
 $C_e = 76.0 \text{ mg/L}$

Acute WLA:  $C_e = ((0.03 + 0.0)12.1 - (0.0 * 0.01))/0.03$   
 $C_e = 12.1 \text{ mg/L}$

$LTA_c = 76.0 \text{ mg/L} (0.780) = 59.3 \text{ mg/L}$   
 $LTA_a = 12.1 \text{ mg/L} (0.321) = 3.9 \text{ mg/L}$

[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 = 3.9 mg/L (3.11) = 12.1 mg/L  
 AML = 3.9 mg/L (1.19) = 4.6 mg/L

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

Maximum Daily Limit (mg N/L)	Average Monthly Limit (mg N/L)
12.1	4.6

- **Dissolved Oxygen.** Monitoring requirement only. Monitoring for dissolved oxygen is included because this facility uses dechlorination chemicals that may cause oxygen demand. Upon renewal, data will be evaluated to determine if reasonable potential exists to exceed water quality standards. For reference, the Minimum Daily Limit = 5.0 mg/L (Water Quality Standards in 10 CSR 20-7.031- Table A).
- **Escherichia coli (E. coli).** 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 Whole Body Contact Recreation (A) designated use of the receiving stream, as per 10 CSR 20-7.031(4)(C). Weekly Average effluent variability will be evaluated in development of a future effluent limit.

- **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. As per the antidegradation waiver: “The chlorination or dechlorination disinfection treatment system design must be for total removal of Total Residual Chlorine. Therefore, the facility will be required to meet the water quality-bases effluent limits determined by the permit writer or the following water quality-bases effluent limits:

Beneficial Use of Classified Water	Maximum Daily Limit (mg N/L)	Average Monthly Limit (mg N/L)
Warm	17	8
Cold	3.3	1.6

Note: These compliance limits for Total Residual Chlorine are much less than minimum quantification level, or ML, of 0.13. The facility will be required to meet regulatory effluent limits for bacteria.

- **Oil & Grease.** Conventional pollutant, effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.

**Minimum Sampling and Reporting Frequency Requirements.**

PARAMETER	SAMPLING FREQUENCY	REPORTING FREQUENCY
Flow	once/quarter	once/quarter
BOD <sub>5</sub>	once/quarter	once/quarter
TSS	once/quarter	once/quarter
pH	once/quarter	once/quarter
Ammonia as N	once/quarter	once/quarter
<i>E. coli</i>	once/quarter	once/quarter
Total Residual Chlorine	once/quarter	once/quarter
Dissolved Oxygen	once/quarter	once/quarter
Oil & Grease	once/quarter	once/quarter

**Sampling Frequency Justification:**

Sampling and Reporting Frequency was retained from previous permit.

**For flows less than or equal to 100,000 gpd use:**

The Clean Water Commission has directed the Department to proceed with amending 10 CSR 20-7.015 to reduce the sampling frequency required for E.coli to a lesser frequency, still protective of water quality standards, for smaller facilities, including those with discharges of 100,000 gallons per day or less.

**Sampling Type Justification**

As per 10 CSR 20-7.015, samples collected for mechanical plants shall be 24 hour composite samples, however, due to the small amount of flow, sample type shall be modified composite samples.

**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 makes a finding of affordability for certain permitting and enforcement decisions. This requirement applies to discharges from combined or separate sanitary sewer systems or publically-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 publically-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 financial information that the community provided as contemplated by Section 644. 145.3. See **Appendix C – Affordability Analysis.**

## **Part VIII – Administrative Requirements**

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

### **PUBLIC NOTICE:**

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

The Department must issue public notice of a pending operating permit or of a new or reissued statewide general permit. The public comment period is the length of time not less than 30 days following the date of the public notice which interested persons may submit written comments about the proposed permit.

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

The Public Notice period for this operating permit was from January 13, 2012 to February 12, 2012. Responses to the Public Notice of this operating permit warrant the modification of effluent limits and/or the terms and conditions of this permit. The Schedule of Compliance has been removed per current Department policy, as the facility should be able to meet ammonia limits with proper operation and maintenance. A comment was also received requesting that a waiver be granted for Chapter 9 operational monitoring of the facility. Based on the compliance history of the facility, this waiver has been granted, and the Special Condition revised in the permit. Also, an Affordability Review is now required for new permitting requirements for State Agencies; this review has also been added to the permit, as Appendix C. Therefore, due to these major modifications, this operating permit was placed on again Public Notice.

The Public Notice period for this operating permit was from September 7, 2012 to October 8, 2012. No responses received or responses to the Public Notice of this operating permit do not warrant the modification of effluent limits and/or the terms and conditions of this permit.

**DATE OF FACT SHEET:** JULY 31, 2012

### **COMPLETED BY:**

**GWENDA J. BASSETT, ENVIRONMENTAL SPECIALIST  
MISSOURI DEPARTMENT OF NATURAL RESOURCES  
WATER PROTECTION PROGRAM  
OPERATING PERMITS SECTION - DOMESTIC WASTEWATER UNIT  
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**FINAL REVIEW:** OCTOBER 18, 2012

**JOHNNY O'DELL, ENVIRONMENTAL SPECIALIST  
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**Appendices**

**APPENDIX A- CLASSIFICATION WORKSHEET:**

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
Maximum Population Equivalent (P.E.) served (Max 10 pts.)	1 pt./10,000 PE or major fraction thereof.	
Maximum: 10 pt Design Flow (avg. day) or peak month; use greater (Max 10 pts.)	1 pt. / MGD or major fraction thereof.	
<b>EFFLUENT DISCHARGE RECEIVING WATER SENSITIVITY:</b>		
Missouri or Mississippi River	0	
All other stream discharges except to losing streams and stream reaches supporting whole body contact	1	
Discharge to lake or reservoir outside of designated whole body contact recreational area	2	
Discharge to losing stream, or stream, lake or reservoir area supporting whole body contact recreation	3	3
<b>PRELIMINARY TREATMENT - Headworks</b>		
Screening and/or comminution	3	
Grit removal	3	
Plant pumping of main flow (lift station at the headworks)	3	3
<b>PRIMARY TREATMENT</b>		
Primary clarifiers	5	
Combined sedimentation/digestion	5	
Chemical addition (except chlorine, enzymes)	4	
<b>REQUIRED LABORATORY CONTROL – performed by plant personnel (highest level only)</b>		
Push – button or visual methods for simple test such as pH, Settleable solids	3	5
Additional procedures such as DO, COD, BOD, titrations, solids, volatile content	5	5
More advanced determinations such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc.	7	
Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph	10	
<b>ALTERNATIVE FATE OF EFFLUENT</b>		
Direct reuse or recycle of effluent	6	
Land Disposal – low rate	3	
High rate	5	
Overland flow	4	
<b>Total from page ONE (1)</b>	----	16

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

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
<b>VARIATION IN RAW WASTE (highest level only) (DMR exceedances and Design Flow exceedances)</b>		
Variation do not exceed those normally or typically expected	0	
Recurring deviations or excessive variations of 100 to 200 % in strength and/or flow	2	
Recurring deviations or excessive variations of more than 200 % in strength and/or flow	4	
Raw wastes subject to toxic waste discharge	6	
<b>SECONDARY TREATMENT</b>		
Trickling filter and other fixed film media with secondary clarifiers	10	
Activated sludge with secondary clarifiers (including extended aeration and oxidation ditches)	15	15
Stabilization ponds without aeration	5	
Aerated lagoon	8	
Advanced Waste Treatment Polishing Pond	2	
Chemical/physical – without secondary	15	
Chemical/physical – following secondary	10	
Biological or chemical/biological	12	
Carbon regeneration	4	
<b>DISINFECTION</b>		
Chlorination or comparable	5	5
Dechlorination	2	2
On-site generation of disinfectant (except UV light)	5	
UV light	4	
<b>SOLIDS HANDLING - SLUDGE</b>		
Solids Handling Thickening	5	
Anaerobic digestion	10	
Aerobic digestion	6	
Evaporative sludge drying	2	
Mechanical dewatering	8	
Solids reduction (incineration, wet oxidation)	12	
Land application	6	
Total from page <b>TWO (2)</b>	----	22
Total from page <b>ONE (1)</b>	---	16
<b>Grand Total</b>	---	38

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

**APPENDIX B – RPA RESULTS:**

Parameter	CMC*	RWC Acute*	CCC*	RWC Chronic*	n**	Range max/min	CV***	MF	RP Yes/No
Total Ammonia as Nitrogen (mg/L) - Summer	12.1	9.40	1.5	9.40	4	2/0.073	0.6	4.70	Yes
Total Ammonia as Nitrogen (mg/L) - Winter	12.1	369.26	3.1	369.26	2	49.9/0.044	0.6	7.40	Yes

N/A – Not Applicable

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

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

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

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

n – Is the number of samples.

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

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

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

**APPENDIX C – AFFORDABILITY ANALYSIS**

Missouri Department of Natural Resources  
Water Protection Program  
Affordability Determination and Finding  
(In accordance with RSMo 644.145)

**MDNR Lake of the Ozarks Public Beach No. 1 Wastewater Treatment Facility (WWTF)  
Missouri State Operating Permit (MSOP) Renewal**

*Section 644.145 RSMo requires DNR to make a “finding of affordability” when “issuing permits under” or “enforcing provisions of” state or federal clean water laws “pertaining to any portion of a combined or separate sanitary sewer system or publicly-owned treatment works.”*

**Description:**

The wastewater treatment facility (WWTF) serving Public Beach #1 at Lake of the Ozarks State Park is located off Highway 134 in Kaiser, Missouri. The facility is an extended aeration plant with flow equalization, chlorination, and dechlorination. The average wastewater flow reported to the Department over the last 12 months is 3,000 gallons per day (gpd). The design flow is 20,000 gpd.

Total Approximate Connections: 11

**New Permit Requirements or Requirements Now Being Enforced:**

This is a renewal of an operating permit with no new or expanded conditions that are anticipated to increase operational costs of the WWTF. This permit will implement ammonia limitations, however, the facility has demonstrated the ability to meet the existing permit conditions and final effluent limitations. Discharge Monitoring Reports (DMRs) provided by the permittee show data that support the Department’s finding that this facility is capable of meeting the final effluent limitations for ammonia with no new cost.

**Range of Anticipated Costs Associated with Complying with Requirements:**

This is a renewal of an operating permit with no new or expanded conditions that are anticipated to increase operational costs of the WWTF.

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

This is a renewal of an operating permit with no new or expanded conditions that are anticipated to increase operational costs of the WWTF. Further, professional services for State Agencies are required to be obtained by a procurement process through the Office of Administration per the State of Missouri statutes. This budgetary process does not depend on a community’s financial capability to secure funding, rather existing Capital Improvement project funds delegated to the Agency are reallocated. Therefore, as a State Agency, the procurement process does not require changes to rate structures, and no communities incur additional financial burden.

**(2) Affordability of pollution control options for the individuals or households of the community;**

This is a renewal of an operating permit with no new or expanded conditions that are anticipated to increase operational costs of the WWTF. Further, State Agencies accomplish capital improvements through a procurement process that does not affect individuals or their communities.

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

This is a renewal of an operating permit with no new or expanded conditions anticipated to increase costs to the permittee; therefore, the permittee will only be required to maintain existing overall costs and environmental benefits of compliance with permit conditions. There will be no new costs or environmental benefits of control technologies unless the facility initiates technology upgrades.

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

**(a) *Allowing adequate time in implementation schedules to mitigate potential adverse impacts on distressed populations resulting from the costs of the improvements and taking into consideration local community economic considerations; and***

**(b) *Allowing for reasonable accommodations for regulated entities when inflexible standards and fines would impose a disproportionate financial hardship in light of the environmental benefits to be gained;***

This is a renewal of an operating permit with no new or expanded conditions anticipated to increase costs to the permittee. Further, State Agencies accomplish capital improvements through a procurement process that does not affect individuals or their communities.

**(5) *An assessment of other community investments relating to environmental improvements;***

This operating permit renewal does not require any new or expanded conditions anticipated to increase costs to the permittee; therefore no new financial burdens are anticipated. Further, State Agencies accomplish capital improvements through a procurement process that does not affect individuals or their communities.

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

This operating permit renewal does not require any new or expanded conditions anticipated to increase costs to the permittee; therefore no new financial burdens are anticipated. Further, State Agencies accomplish capital improvements through a procurement process that does not affect individuals or their communities.

**(7) *An assessment of any other relevant local community economic condition.***

This operating permit renewal does not require any new or expanded conditions anticipated to increase costs to the permittee; therefore no new financial burdens are anticipated. Further, State Agencies accomplish capital improvements through a procurement process that does not affect individuals or their communities.

**Conclusion and Finding**

As a result of reviewing the above affordability criteria, the Department hereby finds that the action described above will result in no new financial burden with regard to local Communities or the State Agency's overall financial capability. This operating permit renewal does not have new permit requirements anticipated to increase costs to the permittee; therefore, no new anticipated costs are expected to be incurred to comply with the permit.