

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, 92nd Congress) as amended,

Permit No. MO-0052043

Owner: Mr. and Mrs. Robert Wyche
Address: 4640 State Highway H, Lampe, MO 65681

Continuing Authority: Same as Above
Address: Same as Above

Facility Name: Cedar Haven Resort WWTF
Facility Address: 4640 State Highway H, Lampe, MO 65681

Legal Description: NE¹/₄, SE¹/₄, Sec. 35, T22N, R24W, Stone County
Lat/Long: +3634062 / -09329454

Receiving Stream: Table Rock Lake (L2) 303 (d)
First Classified Stream and ID: Table Rock Lake (L2) (07313) 303 (d)
USGS Basin & Sub-watershed No.: (11010001-170002)

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 - Resort / Sewerage Works - SIC #7999 / 4952

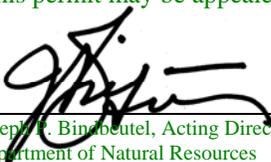
Septic tank / recirculating sand filter / chlorination / dechlorination / sludge disposal by contract hauler.

Design organic population equivalent is 16.
Design average daily flow is 1,550 gallons per day.
Design sludge production is 0.1 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.

May 16, 2008
Effective Date

January 30, 2009
Revised



Joseph C. Bindebeutel, Acting Director
Department of Natural Resources

May 15, 2013
Expiration Date
MO 780-0041 (10-93)

Cynthia S. Davies, Regional Director, Southwest Regional Office

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

PAGE NUMBER 2 of 6

PERMIT NUMBER MO-0052043

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The interim effluent limitations shall become effective **upon issuance** and remain in effect until **May 31, 2011**. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #001</u>						
Flow	GPD	*		*	once/quarter**	24 hr. estimate
Biochemical Oxygen Demand ₅	mg/L		30	20	once/quarter**	grab
Total Suspended Solids	mg/L		30	20	once/quarter**	grab
pH – Units	SU	***		***	once/quarter**	grab
Fecal Coliform (Note 1)	#/100 ml	1000		400 (Note 2)	once/quarter**	grab
Total Residual Chlorine as Cl ₂	mg/L	0.019 (Note 3) (0.13 ML)		0.0095 (Note 3) (0.13 ML)	once/quarter**	grab
Total Phosphorus as P	mg/L	*		*	once/quarter**	grab
Ammonia as N	mg/L	*		*	once/quarter**	grab
Temperature	°C	*		*	once/quarter**	grab
Dissolved Oxygen	mg/L	*		*	once/quarter**	grab

MONITORING REPORTS SHALL BE SUBMITTED **QUARTERLY**; THE FIRST REPORT IS DUE **April 28, 2009**. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)				PAGE NUMBER 3 of 6		
				PERMIT NUMBER MO-0052043		
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 June 1, 2011 and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #001</u>						
Flow	GPD	*		*	once/quarter**	24 hr. estimate
Biochemical Oxygen Demand ₅	mg/L		30	20	once/quarter**	grab
Total Suspended Solids	mg/L		30	20	once/quarter**	grab
pH – Units	SU	***		***	once/quarter**	grab
Fecal Coliform (Note 1)	#/100 ml	1000		400 (Note 2)	once/quarter**	grab
Total Residual Chlorine as Cl ₂	mg/L	0.019 (Note 3) (0.13 ML)		0.0095 (Note 3) (0.13 ML)	once/quarter**	grab
Total Phosphorus as P	mg/L	*		*	once/quarter**	grab
Ammonia as N	mg/L	12.1		4.6	once/quarter**	grab
Temperature	°C	*		*	once/quarter**	grab
Dissolved Oxygen	mg/L	*		*	once/quarter**	grab
MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY ; THE FIRST REPORT IS DUE July 28, 2011 . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
B. STANDARD CONDITIONS						
IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED <u>Parts I & III</u> STANDARD CONDITIONS DATED <u>October 1, 1980 and August 15, 1994</u> , AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.						

MO 780-0010 (8/91)

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* Monitoring requirement only.

** Sample once per quarter in the months of **March, June, September, and December**. Reports shall be submitted by the 28th day of the month following the reporting period, e.g. Reporting period is the 1st quarter (sample collected in March), report due by April 28th.

*** pH is measured in pH units and is not to be averaged. The pH for all facilities except lagoons is limited to the range of 6.0-9.0 pH units.

Note 1 - Final limitations and monitoring requirements for Fecal Coliform are applicable only during the recreational season from April 1 through October 31.

Note 2 - Monthly average limit for Fecal Coliform is expressed as a geometric mean. Geometric mean for n samples = $[a_1 \times a_2 \times a_3 \dots \times a_n]^{1/n}$

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

Note 3 - 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 0.13 mg/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 0.13 mg/L will be considered violations of the permit and values less than the minimum quantification level of 0.13 mg/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 Fecal Coliform 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 dechlorinate **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 mg/L” TRC.

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 areawide wastewater treatment system within 90 days of notice of its availability.
- 4. Changes in Discharges of Toxic Substances

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

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

C. SPECIAL CONDITIONS (continued)

- (4) The level established in Part A of the permit by the Director.
 - (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.
5. Report as no-discharge when a discharge does not occur during the report period.
6. Water Quality Standards
- (a) Discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.
 - (b) General Criteria. The following general water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
 - (1) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
 - (2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
 - (3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
 - (4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
 - (5) There shall be no significant human health hazard from incidental contact with the water;
 - (6) There shall be no acute toxicity to livestock or wildlife watering;
 - (7) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
 - (8) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.
7. Sludge and Biosolids Use For Domestic Wastewater Treatment Facilities
- (a) Permittee shall comply with the pollutant limitations, monitoring, reporting, and other requirements in accordance with the attached permit Standard Conditions.
 - (b) If sludge is not removed by a contract hauler, permittee is authorized to land apply biosolids. Permit Standard Conditions, Part III shall apply to the land application of biosolids. The department may require submittal of a biosolids management plan for department review and approval as determined appropriate on a case-by-case basis.

D. SCHEDULE OF COMPLIANCE

For Ammonia

1. If a construction permit is needed, by **November 11, 2008** submit a completed application for construction permit, application fee, and one copy each of an engineering report, plans and specifications prepared by a professional engineer registered in the State of Missouri to the Missouri Department of Natural Resources, 2040 West Woodland, Springfield, Missouri, 65807, for providing wastewater treatment facility improvements to comply with the final effluent limitations as list in Part A of this permit, designed in accordance with Missouri Clean Water Law Regulation 10 CSR 20 Chapter 8.
2. Within fifteen (15) calendar days of receipt of any request for additional information or changes in the engineering report, plans or specifications, respond and if necessary submit engineering modifications to the department.

D. SCHEDULE OF COMPLIANCE (continued)

3. Within 365 calendar days of issuance of the construction permit, construct the permitted wastewater treatment facility improvements.
4. Within fifteen (15) calendar days of completion of construction of wastewater treatment facility improvements, submit a Statement of Work Completed form, signed, sealed, and dated by a professional engineer registered in the State of Missouri certifying that the project has been completed substantially in accordance with the approved plans and specifications. In addition to the Statement of Work Completed, submit an application for a Missouri State Operating Permit modification complete with the appropriate modification fee to the Missouri Department of Natural Resources, 2040 West Woodland, Springfield, Missouri, 65807.
5. Annual progress reports shall be submitted on January 28th of each year until the construction completed. The report shall include what step of the process the facility is at, how much construction has been completed, approximately time of completion, etc. The first report is due **January 28, 2009**.
6. If a construction permit is not needed please inform the department by **November 11, 2008** how you are planning to meet the new effluent limits.

If you have questions you may contact the Missouri Department of Natural Resources, Southwest Regional Office by calling 417-891-4300 or by mail at 2040 West Woodland, Springfield, Missouri, 65807.

**Missouri Department of Natural Resources
Statement of Basis
Cedar Haven Resort
NPDES #: MO-0052043
Stone County**

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

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

Part I – Facility Information

Facility Type: Sewerage Works
Facility SIC Code(s): 4952

Facility Description: Septic tank / recirculating sand filter / chlorination / dechlorination / sludge disposal by contract hauler.

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE	DISTANCE TO CLASSIFIED SEGMENT (MI)
001	0.0024	Equivalent to Secondary	domestic	0

Water Quality History: Missing DMRS from January 2002 to October 2007.

Comments: The facility was referred to enforcement and the attorney general's office for not meeting water quality standards as per the Clean Water Law and 10 CSR 20-7. A Settlement Agreement was signed and the owners of the facility agreed to install a chlorinator and dechlorinator. Adding disinfection is not considered a major upgrade, therefore the full term to meet nitrogen limits as imposed in the renewal permit dated May 16, 2008 will be allowed.

Part II – Operator Certification Requirements

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

Not Applicable ; This facility is not required to have a certified operator.

Part III – Receiving Stream Information

APPLICABLE DESIGNATIONS OF WATERS OF THE STATE:

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

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

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

RECEIVING STREAM(S) TABLE:

WATERBODY NAME	CLASS	WBID	DESIGNATED USES*	8-DIGIT HUC	EDU**
Table Rock Lake	L2	07313	LWW, AQL, WBC-A, SCR	11010001	Ozark/White

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

** - Ecological Drainage Unit

RECEIVING STREAM(S) LOW-FLOW VALUES TABLE:

RECEIVING STREAM (U, C, P)	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Table Rock Lake	14.1	35.5	129

MIXING CONSIDERATIONS TABLE:

MIXING ZONE (CFS) [10 CSR 20-7.031(4)(A)4.B.(II)(a)]		
1Q10	7Q10	30Q10
3.525	8.875	32.25

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

Part IV – Rationale and Derivation of Effluent Limitations & Permit Conditions

ALTERNATIVE EVALUATIONS FOR NEW FACILITIES:

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

Not Applicable ;

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

ANTI-BACKSLIDING:

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

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

ANTIDEGRADATION:

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

Not Applicable ;
Renewal of permit for existing facility.

APPLICABLE PERMIT PARAMETERS:

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

COMPLIANCE AND ENFORCEMENT:

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

Applicable ;
The permittee/facility is currently under enforcement action due to not meeting the effluent limits for fecal coliform. The owners have signed a Settlement Agreement.

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 ;
At this time, the permittee is not required to implement and enforce a Pretreatment Program.

REASONABLE POTENTIAL ANALYSIS (RPA):

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

Not Applicable ;
A RPA was not conducted for this facility.

REMOVAL EFFICIENCY:

Removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to Biochemical Oxygen Demand 5-day (BOD₅) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs). Please see the United States Environmental Protection Agency's (EPA) website for interpretation of percent removal requirements for National Pollutant Discharge

Elimination System Permit Application Requirements for Publicly Owned Treatment Works and Other Treatment Works Treating Domestic Sewage @ www.epa.gov/fedrgstr/EPA-WATER/1999/August/Day-04/w18866.htm

Not Applicable ;

This wastewater treatment facility is not a POTW. Influent monitoring is not being required to determine percent removal.

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

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

Not Applicable ;

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

SCHEDULE OF COMPLIANCE (SOC):

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

Applicable ;

The time given for effluent limitations of this permit listed under Interim Effluent Limitation and Final Effluent Limitations were established in accordance with [10 CSR 20-7.031(10)].

STORM WATER POLLUTION PREVENTION PLAN (SWPPP):

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

Not Applicable ;

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

WASTELOAD ALLOCATIONS (WLA) FOR LIMITS:

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

Applicable ;

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

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

Where C = downstream concentration
 C_s = upstream concentration
 Q_s = upstream flow
 C_e = effluent concentration
 Q_e = 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).

WLA MODELING:

Not Applicable ;

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

WHOLE EFFLUENT TOXICITY (WET) TEST:

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

Not Applicable ;

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

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 ;

Table Rock Lake is listed on the 2002 Missouri 303(d) List for nutrients.

– This facility is considered to be a source of or has the potential to contribute to the above listed pollutant(s). However according to 10 CSR 20-7.015 existing facilities with flows less than 22,500 gpd do not have to add phosphorus removal.

Adjusted Design Flow:

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

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

Not Applicable ;

At this time, the permittee has not requested an Adjusted Design Flow modification.

Outfall #001 – Main Facility Outfall

EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	GPD	1	*		*	NO	N/A
BOD ₅ **	MG/L	1		30	20	NO	N/A
TSS **	MG/L	1		30	20	NO	N/A
PH (S.U.)	SU	1	6.0-9.0		6.0-9.0	NO	N/A
AMMONIA AS N	MG/L	5,3	12.1		4.6	NO	N/A
FECAL COLIFORM	***	1	1,000		400	NO	N/A
CHLORINE, TOTAL RESIDUAL	MG/L	1	0.019		0.0095	YES	NONE
TEMPERATURE	°C	5,8	*		*	NO	N/A
DISSOLVED OXYGEN	MG/L	11	*		*	NO	N/A
TOTAL PHOSPHORUS	MG/L	1	*		*	NO	N/A
MONITORING FREQUENCY	Please see Minimum Sampling and Reporting Frequency Requirements in the Derivation and Discussion Section below.						

*** - Monitoring requirement only**

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

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

N/A – Not applicable

S – Same as previous operating permit

Basis for Limitations Codes:

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

OUTFALL #001 – DERIVATION AND DISCUSSION OF LIMITS:

Biochemical Oxygen Demand (BOD₅).

- Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information.**

Total Suspended Solids (TSS).

- Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information.**

pH.

– Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information**.

Temperature. Monitoring requirement due to the toxicity of Ammonia varies by temperature.

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

Season	Temp (°C)	pH (SU)	Total Ammonia Nitrogen CCC (mg N/L)	Total Ammonia Nitrogen CMC (mg N/L)
Mar 1 – May 31	16	7.8	2.8	12.1
Jun 1 – Aug 31	28	7.8	1.3	12.1
Sept 1 – Nov 30	16	7.8	2.8	12.1
Dec 1 – Feb 29	6	7.8	3.1	12.1

Spring: Mar 1 – May 31, Summer: Jun 1 – Aug 31, Fall: Sep 1 – Nov 30, Winter: Dec 1 – Feb 29

Summer – Zone of Initial Dilution is not allowed. Mixing Zone is allowed = 8.875 cfs

Acute

$$((Q_e + Q_s) * C - (Q_s * C_s)) / Q_e$$

$$((0.0024 + 0) * 12.1 - (0 * 0.01)) / 0.0024 = 12.1$$

$$LTA_a = 12.1 \text{ mg/L } (0.321) = 3.9 \text{ mg N/L}$$

[CV = 0.6, 99th Percentile]

Chronic

$$((0.0024 + 8.875) * 1.3 - (8.875 * 0.01)) / 0.0024 = 4671.8$$

$$LTA_c = 4671.8 \text{ mg/L } (0.780) = 3644 \text{ mg N/L}$$

[CV = 0.6, 99th Percentile, 30 day average]

Acute is more protective

$$MDL = 3.9 \text{ mg/L } * 3.11 = 12.1 \text{ mg N/L}$$

[CV = 0.6, 99th Percentile]

$$AML = 3.9 \text{ mg/L } * 1.19 = 4.6 \text{ mg N/L}$$

[CV = 0.6, 95th Percentile, n = 30]

Because the chronic summer number is the smallest compared to fall, spring, and winter and the summer chronic was higher than the acute, the other seasons for chronic were not calculated because it would have shown that the acute value would be more protective.

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

Fecal Coliform. Discharge shall not contain more than a monthly geometric mean of 400 colonies/100 mL and a daily maximum of 1000 colonies/100 mL, [10 CSR 20-7.015.]. Future renewals of the facility operating permit will contain effluent limitations for E. coli, which will replace fecal coliform as the applicable bacteria criteria in Missouri’s water quality standards

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. Due the fact the flows through the lakes are large, Acute criteria will be used only.

$$((Q_e + Q_s) * C - (Q_s * C_s)) / Q_e$$

Acute: $C_e = ((0.0024+0)*0.019-(0*0)) / 0.0024 = 0.019$
 $WLA_a = 0.019 \text{ mg/L}$

$LTA_a = 0.019 (0.321) = 0.0061 \text{ mg/L}$ [CV = 0.6, 99th Percentile]

MDL = 0.0061(3.114) = 0.019 mg/L [CV = 0.6, 99th Percentile]

AML = 0.0061(1.55) = 0.0095 mg/L [CV = 0.6, 95th Percentile, n = 4]

Total Phosphorus

Monitoring only as per 10 CSR 20 - 7.015 (3).

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

Minimum Sampling and Reporting Frequency Requirements.

PARAMETER	SAMPLING FREQUENCY	REPORTING FREQUENCY
FLOW	QUARTERLY	QUARTERLY
BOD ₅	QUARTERLY	QUARTERLY
TSS	QUARTERLY	QUARTERLY
pH	QUARTERLY	QUARTERLY
TEMPERATURE	QUARTERLY	QUARTERLY
AMMONIA AS N	QUARTERLY	QUARTERLY
FECAL COLIFORM	QUARTERLY	QUARTERLY
TOTAL RESIDUAL CHLORINE	QUARTERLY	QUARTERLY
DISSOLVED OXYGEN	QUARTERLY	QUARTERLY
TOTAL PHOSPHORUS	QUARTERLY	QUARTERLY

Administrative Requirements

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

Date of Factsheet: May 23, 2008

Mr. Joshua L. Grosvenor
 WP Engineering Unit
 (417) 891-4300
 josh.grosvenor@dnr.mo.gov