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-0137031
Owner:	Shores of TRL Property Owners Association Inc.
Address:	16308 Cherry Orchard Drive, Wildwood, MO 63040
Continuing Authority:	Same as Above
Address:	Same as Above
Facility Name:	The Shores of TRL
Facility Address:	Valley View Blvd., Branson West, MO 65737
Legal Description:	NE¼, NW¼, NW ¼, Sec. 7, T22N, R22W, Stone County
UTM (X/Y):	467693 / 4053875
Receiving Stream:	Unnamed Tributary to Table Rock Lake (U)
First Classified Stream and ID:	Table Rock Lake (L2) (07313) 303 (d)
USGS Basin & Sub-watershed No.:	(11010001-1404)

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 - SIC #7011
The use or operation of this facility does not require a CERTIFIED OPERATOR.

Septic tank / Advantex recirculating textile filter / chemical feed to facilitate phosphorus removal / flash mix / phosphorus settling / breakpoint chlorination / dechlorination / ultraviolet disinfection / post aeration / sludge disposal by contract hauler.

Design organic population equivalent is 37
Design flow is 0.002775 MGD.
Design sludge production is 0.37 dry tons/year.

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

December 21, 2012 — Effective Date
September 30, 2016 — Modification Date

Sara Parker Pauley, Director, Department of Natural Resources

December 20, 2017 — Expiration Date

Cynthia S. Davies, Regional Director, Southwest Regional Office

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

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

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001						
Flow	MGD	*		*	once/month**	24 hr. estimate
Biochemical Oxygen Demand$_5$	mg/L		15	10	once/month**	grab
Total Suspended Solids	mg/L		15	10	once/month**	grab
E. coli **(Note 1)**	#/100 ml	630		126	once/month**	grab
pH – Units	SU	***		***	once/month**	grab
Total Residual Chlorine as CL_2 **(Note 2)**	µg/L	19 (130 ML)		9.5 (130 ML)	once/month**	grab
Ammonia as N (April 1 – Sept 30) (Oct 1 – March 31)	mg/L	3.4 7.5		1.3 2.9	once/month**	grab
Total Phosphorous as P	mg/L	*		0.5	once/month**	grab
Aluminum, Total Recoverable **(Note 3)**	µg/L	750		370	once/month**	grab
Iron, Total Recoverable **(Note 3)**	µg/L	*		*	once/month**	grab

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	DAILY MINIMUM	WEEKLY AVERAGE MINIMUM	MONTHLY AVERAGE MINIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001						
Dissolved Oxygen	mg/L	5.0		5.0	once/month**	grab

MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**; THE FIRST REPORT IS DUE **February 28, 2013**. 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 Parts I & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* Monitoring requirement only.

** Reports shall be submitted by the 28th day of the month following the reporting period, e.g. Reporting period is the month of March (samples collected monthly), 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 6.5-9.0 pH units.

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

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) Chlorination is required for Ammonia removal.

Note 3 - If no Aluminum or Iron was used in a given sampling period, an actual analysis is not necessary. Simply report as "0 mg/L".

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;
      (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;

C. SPECIAL CONDITIONS (continued)

(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 shall comply with any applicable requirements listed in 10 CSR 20-9, unless the facility has received written notification that the Department has approved a modification to the requirements. The monitoring frequencies contained in this permit shall not be construed by the permittee as a modification of the monitoring frequencies listed in 10 CSR 20-9. If a modification of the monitoring frequencies listed in 10 CSR 20-9 is needed, the permittee shall submit a written request to the department for review and, if deemed necessary, approval.

9. Bypasses are not authorized at this facility and are subject to 40 CFR 122.41(m). If a bypass occurs, the permittee shall report in accordance to 40 CFR 122.41(m)(3)(i), and with Standard Condition Part I, Section B, subsection 2.b. Bypasses are to be reported to the Southwest Regional Office Regional Office.

10. At least one sign shall appear on the fence on each side of each facility. Minimum wording shall be “SEWAGE TREATMENT FACILITY – KEEP OUT”, in letters at least 2 inches high.

11. 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.

12. An all-weather access road shall be provided from a public right-of-way to the treatment facility.

MISSOURI DEPARTMENT OF NATURAL RESOURCES
STATEMENT OF BASIS
MO-0137031
THE SHORES OF TRL

This Statement of Basis (Statement) gives pertinent information regarding minor modification(s) to the above listed operating permit without the need for a public comment process.

A Statement is not an enforceable part of a Missouri State Operating Permit.

Part I – Facility Information

Facility Type: Resort
Facility SIC Code(s): #7011

Facility Description:
Septic tank / Advantex recirculating textile filter / chemical feed to facilitate phosphorus removal / flash mix / phosphorus settling / breakpoint chlorination / dechlorination / ultraviolet disinfection / post aeration / sludge disposal by contract hauler.

Design organic population equivalent is 37
Design flow is 0.002775 MGD.
Design sludge production is 0.37 dry tons/year.

Part II – Modification Rationale

This operating permit is hereby modified to reflect a change in ownership.

No other changes were made at this time.

Part III – 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.

DATE OF STATEMENT OF BASIS: SEPTEMBER 20, 2016

COMPLETED BY:

FORREST LINDSEY, ENVIRONMENTAL SPECIALIST
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
OPERATING PERMITS SECTION - DOMESTIC WASTEWATER UNIT
(573) 526-1289
Forrest.Lindsey@dnr.mo.gov

Missouri Department of Natural Resources
Statement of Basis
The Shores of TRL WWTF
MSOP #: MO-0137031
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.

Plans and specifications for this facility have been reviewed under construction permit number CP0001122 by the Department of Natural Resources. The design engineer, a registered Missouri professional engineer, has certified that the plans and specifications meet all requirements of 10 CSR 20-Chapter 8 Waste Treatment Design.

Part I – Facility Information

Outfall #001 - Resort - SIC #7011
The use or operation of this facility does not require a CERTIFIED OPERATOR.

Septic tank / Advantex recirculating textile filter / chemical feed to facilitate phosphorus removal / flash mix / phosphorus settling / breakpoint chlorination / dechlorination / ultraviolet disinfection / post aeration / sludge disposal by contract hauler.

Design organic population equivalent is 37
Design flow is 0.002775 MGD.
Design sludge production is 0.37 dry tons/year.

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE	DISTANCE TO CLASSIFIED SEGMENT (MI)
001	0.004294	Secondary	Domestic	0.02

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

This is for a new operating permit.

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**
Unnamed Tributary to Table Rock Lake	U	N/A	General Criteria	11010001	Ozark/ White
Table Rock Lake	L2	07313	LWW, AQL, WBC-A, SCR		

* - 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
Unnamed Tributary to Table Rock Lake	0	0	0

MIXING CONSIDERATIONS

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

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

ALTERNATIVE EVALUATIONS FOR NEW FACILITIES:

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

Not Applicable ☒;
The facility 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.

☒ - New facility, backsliding does not apply.

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

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

Applicable ☒;
Please see **APPENDIX A – ANTIDEGRADATION ANALYSIS.**

APPLICABLE PERMIT PARAMETERS:
Effluent parameters for conventional, non-conventional, and toxic pollutants have been obtained from the technology based effluent limits, water quality based limits, and from appropriate sections of the application.

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

☒ - Not applicable;
This condition is not applicable to the permittee for this facility.

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.

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.

☒ Not Applicable;
The Department is not required to determine findings of affordability because the facility is not a **combined or separate sanitary sewer system for a publically-owned treatment works.**

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

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

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

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

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

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

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

REMOVAL EFFICIENCY:
Removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to Biochemical Oxygen Demand 5-day (BOD_5) 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), BYPASSES, INFLOW & INFILTRATION (I&I) – PREVENTION/REDUCTION:
Sanitary Sewer Overflows (SSOs) are defined as an untreated or partially treated sewage release are considered bypassing under state regulation [10 CSR 20-2.010(11)] and should not be confused with the federal definition of bypass. SSO's have a variety of causes including blockages, line breaks, and sewer defects that allow excess storm water and ground water to (1) enter and overload the collection system, and (2) overload the treatment facility. Additionally, SSO's can be also be caused by lapses in sewer system operation and maintenance, inadequate sewer design and construction, power failures, and vandalism. SSOs also include overflows out of manholes and onto city streets, sidewalks, and other terrestrial locations.

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

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

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

Not Applicable ☒;
This permit does not contain a SOC.

STORM WATER POLLUTION PREVENTION PLAN (SWPPP):
In accordance with 40 CFR 122.44(k) *Best Management Practices (BMPs)* to control or abate the discharge of pollutants when: (1) Authorized under section 304(e) of the Clean Water Act (CWA) for the control of toxic pollutants and hazardous substances from ancillary industrial activities; (2) Authorized under section 402(p) of the CWA for the control of storm water discharges; (3) Numeric effluent limitations are infeasible; or (4) the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA.

In accordance with the EPA's *Storm Water Management for Industrial Activities: Developing Pollution Prevention Plans and Best Management Practices* [EPA 832-R-92-006] (Storm Water Management), BMPs are measures or practices used to reduce the amount of pollution entering (regarding this operating permit) waters of the state. BMPs may take the form of a process, activity, or physical structure.

Additionally in accordance with the Storm Water Management, a SWPPP is a series of steps and activities to (1) identify sources of pollution or contamination, and (2) select and carry out actions which prevent or control the pollution of storm water discharges.

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

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

Applicable ☒;

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

$$C = \frac{(C_s \times Q_s) + (C_e \times Q_e)}{(Q_e + Q_s)}$$ (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).

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

WLA MODELING:
Not Applicable ☒;
A WLA study was either not submitted or determined not applicable by Department staff.

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

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

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.

☒ - Not Applicable, this facility does not bypass.

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 2010 Missouri 303(d) List for Nutrients, Chlorophyll and nitrogen.

☒ – This facility is considered to be a source of or has the potential to contribute to the above listed pollutant(s). 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.

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	MGD	1	*		*	N/A	N/A
BOD_5	MG/L	1,6		15	10	N/A	N/A
TSS	MG/L	1,6		15	10	N/A	N/A
pH (S.U.)	SU	1,6	6.5-9.0		6.5-9.0	N/A	N/A
AMMONIA AS N APRIL TO SEPTEMBER	MG/L	1,6	3.7		1.3	N/A	N/A
AMMONIA AS N OCTOBER TO MARCH	MG/L	1,6	7.5		2.9	N/A	N/A
ESCHERICHIA COLI	***	1,2,3	630		126	N/A	N/A
CHLORINE, TOTAL RESIDUAL	µG/L	1	19		9.5	N/A	N/A
DISSOLVED OXYGEN	MG/L	6, 8	5.0		5.0	N/A	N/A
TOTAL PHOSPHORUS	MG/L	1,6,8	*		0.5	N/A	N/A
IRON, TOTAL RECOVERABLE	µG/L	6, 8	*		*	N/A	N/A
ALUMINUM, TOTAL RECOVERABLE	µG/L	3,6	750		370	N/A	N/A
MONITORING FREQUENCY	Please see Minimum Sampling and Reporting Frequency Requirements in the Derivation and Discussion Section below.						

<u>* - Monitoring requirement only</u>
*** - # of colonies/100mL; the Monthly Average for E. coli is a geometric mean.
**** - Parameter not previously established in previous state operating permit.
N/A – Not applicable
S – Same as previous operating permit

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

OUTFALL #001 – DERIVATION AND DISCUSSION OF LIMITS:

See **APPENDIX A – ANTIDEGRADATION ANALYSIS.** Please note the changes regarding E. Coli requirements and Ammonia limits.

<u>E. Coli</u>

Note 1 of the draft operating permit indicated the facility is required to disinfect year round. This was an error. Disinfection for this facility is required during recreational season only per 10 CSR 20-7.015(8)(A)4. and 10 CSR 20-7.031(4)(C), Table A.

Ammonia as N

A response from the project engineer to the Department's comments during technical review of the construction permit application for this facility indicates this facility will discharge to unnamed tributary to the Table Rock Lake. Since this is not a direct discharge to the Lake, limits for Ammonia are recalculated as followed:

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

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

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

LTA_c = 1.4 mg/L (0.780) = 1.09 mg N/L [CV = 0.6, 99th Percentile, 30 day average]
LTA_a = 12.1 mg/L (0.321) = 3.88 mg N/L [CV = 0.6, 99th Percentile]

MDL = 1.09 mg/L * 3.114 = 3.4 mg N/L [CV = 0.6, 99th Percentile]
AML = 1.09 mg/L * 1.19 = 1.3 mg N/L [CV = 0.6, 95th Percentile, n = 30]

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

LTA_c = 3.1 mg/L (0.780) = 2.4 mg N/L [CV = 0.6, 99th Percentile, 30 day average]
LTA_a = 12.1 mg/L (0.321) = 3.9 mg N/L [CV = 0.6, 99th Percentile]

MDL = 2.4 mg/L * 3.114 = 7.5 mg N/L [CV = 0.6, 99th Percentile]
AML = 2.2 mg/L * 1.19 = 2.9 mg N/L [CV = 0.6, 95th Percentile, n = 30]

Season	**Maximum Daily Limit (mg N/L)**	**Average Monthly Limit (mg N/L)**
Oct 1 – March 31	7.5	2.9
April 1 – Sept 30	3.4	1.3

Minimum Sampling and Reporting Frequency Requirements.

PARAMETER	SAMPLING FREQUENCY	REPORTING FREQUENCY
FLOW	MONTHLY	MONTHLY
BOD_5	MONTHLY	MONTHLY
TSS	MONTHLY	MONTHLY
pH	MONTHLY	MONTHLY
AMMONIA AS N	MONTHLY	MONTHLY
E. COLI	MONTHLY	MONTHLY
TOTAL RESIDUAL CHLORINE	MONTHLY	MONTHLY
DISSOLVED OXYGEN	MONTHLY	MONTHLY
IRON, TOTAL RECOVERABLE	MONTHLY	MONTHLY
ALUMINUM, TOTAL RECOVERABLE	MONTHLY	MONTHLY
TOTAL PHOSPHORUS	MONTHLY	MONTHLY

Sampling Frequency Justification:
This facility is a new facility monthly sampling is required to determine if the facility will be in compliance with the operating permit in accordance with Appendix U of Missouri's Water Pollution Control Permit Manual. 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
Based on small flow, grab samples are appropriate.

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.

PERMIT SYNCHRONIZATION:
The Department of Natural Resources is currently undergoing a synchronization process for operating permits. Permits are normally issued on a five-year term, but to achieve synchronization many permits will need to be issued for less than the full five years allowed by regulation. The intent is that all permits within a watershed will move through the Watershed Based Management (WBM) cycle together will all expire in the same fiscal year. This will allow further streamlining by placing multiple permits within a smaller geographic area on public notice simultaneously, thereby reducing repeated administrative efforts. This will also allow the department to explore a watershed based permitting effort at some point in the future.

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 May 18, 2012 to June 17, 2012. One response regarding the legal description was received. The certificate page of this permit has been revised to reflect the comment.

Date of Factsheet: May 15, 2012; Revised December 18, 2012

Sieu T. Dang, P.E.
WP Engineering Unit
(417) 891-4300
Sieu.dang@dnr.mo.gov

APPENDIX A – ANTIDEGRADATION ANALYSIS:

Shores of TRL
Stone County

STATE OF MISSOURI

Jeremiah W. (Jay) Nixon, Governor • Sara Parker Pauley, Director

DEPARTMENT OF NATURAL RESOURCES

www.dnr.mo.gov

DEC 19 2011

Steed Communities
ATTN: Jay Steed
PO Box 1009
Branson West, MO 65737

RE: Water Quality and Antidegradation Review Preliminary Determination for Shores of TRL

Dear Mr. Steed:

In accordance with the Missouri Antidegradation Rule and Implementation Procedure, your proposed discharge is subject to an Antidegradation Review. Enclosed is the *Water Quality and Antidegradation Review* (WQAR) which summarizes this preliminary determination based upon the *Antidegradation Review for Shores of TRL Wastewater Treatment Facility* revised November 29, 2011, which proposed a new 3,000 gallon per day wastewater treatment plant.

The WQAR contains pertinent antidegradation review information based on the use of existing water quality, effluent limitations and monitoring requirements for the facility discharge. It was developed in accordance with 10 CSR 20-7.031, the Clean Water Commission approved *Missouri Antidegradation Rule and Implementation Procedure* (AIP) dated May 7, 2008, U.S. Environmental Protection Agency guidance, the applicant-supplied antidegradation review documentation and the State of Missouri's effluent regulations (10 CSR 20-7.015). Please refer to the *General Assumptions of the Water Quality and Antidegradation Review* section of the enclosed WQAR. The WQAR is preliminary and subject to change as new information becomes available during future permit application processing.

Based on the Missouri Department of Natural Resources' Water Protection Program (Department) initial review, preliminary determination is that the applicant-supplied antidegradation review documentation satisfies the requirements of the AIP. This WQAR/preliminary determination may be appealed within 30 days of this letter in accordance with the AIP Section II.F.4.

You may proceed with submittal of an application for an operating permit and antidegradation review public notice, an engineering report, or a complete application for a construction permit to the Southwest Regional Office. These submittals must reflect the design flow, facility description and general treatment components of this WQAR, or this preliminary determination may have to be revisited.

Recycled Paper

Following the Department's public notice of the draft Missouri State Operating Permit including the antidegradation review findings and preliminary determination, the Department will review any public notice comments received. If significant comments are made, the project may require another public notice and potentially another antidegradation review. If no comments are received or comments are resolved without another public notice, these findings and determinations will be considered final. Following issuance of the construction permit and completion of the actual facility construction, the Department will proceed with the issuance of the operating permit.

If you have any questions, please contact Mr. Keith Forck by phone at (573) 526-4232, by e-mail at keith.forck@dnr.mo.gov, or by mail at the Missouri Department of Natural Resources, Water Protection Program, NPDES Permits and Engineering Section, P.O. Box 176, Jefferson City, MO 65102-0176.

Sincerely,

WATER PROTECTION PROGRAM

Refaat Mefrakis, P.E., Chief
NPDES Permits and Engineering Section

RM:kfn

Enclosures

c: Total Environmental Services, Inc.
Southwest Regional Office
File Copy

Missouri Department of Natural Resources
Water Protection Program
Water Pollution Control Branch
NPDES Permits and Engineering Section

Water Quality and Antidegradation Review

For the Protection of Water Quality
and Determination of Effluent Limits for Discharge to the
Table Rock Lake

December 2011

Shores of TRL Wastewater Treatment Facility
Valley View Boulevard
Branson West, MO 65737

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1. FACILITY INFORMATION

FACILITY NAME: Shores of TRL WWTF (Boomerang Resort) NPDES #: NEW FACILITY

FACILITY TYPE/DESCRIPTION: Proposed new 3,000 gallon per day to wastewater treatment plant. The preferred alternative of the submitted alternatives analysis (AA) was construction of the Advantex recirculating packed bed media facility with ultraviolet disinfection, chemical addition for phosphorus treatment and breakpoint chlorination for ammonia treatment. The proposed facility will replace several onsite systems for an existing nine units. The facility will be designed for twelve units and discharge into the Table Rock Lake (Location – See Appendix A).

EDU:	Ozark/White	ECOREGION:	Ozark Highland
LEGAL DESCRIPTION:	SE¼, NW¼ , NW¼, Sec. 7, T22N, R22W	COUNTY:	Stone
UTM COORDINATES:	X: 467693 Y: 4053875	12-DIGIT HUC:	11010001-1404

2. WATER QUALITY INFORMATION

In accordance with Missouri's Water Quality Standard [10 CSR 20-7.031(2)] and federal antidegradation policy at Title 40 Code of Federal Regulation (CFR) Section 131.12 (a), the Missouri Department of Natural Resources (MDNR) developed a statewide antidegradation policy and corresponding procedures to implement the policy. A proposed discharge to a water body will be required to undergo a level of Antidegradation Review which documents that the use of a water body's available assimilative capacity is justified. Effective August 30, 2008, a facility is required to use *Missouri's Antidegradation Rule and Implementation Procedure (AIP)* for new and expanded wastewater discharges.

2.1 WATER QUALITY HISTORY:

New facility, no water quality history. Table Rock Lake is on the 303(d) list for nutrients.

3. OUTFALL CHARACTERISTICS

OUTFALL	DESIGN FLOW (CFS)	TREATMENT TYPE	RECEIVING WATERBODY	DISTANCE TO CLASSIFIED SEGMENT
001	0.0047	Secondary	Table Rock Lake	0.0

4. RECEIVING WATERBODY INFORMATION

WATERBODY	CLASS	WBID	1Q10 (CFS)	7Q10 (CFS)	30Q10 (CFS)	*DESIGNATED USES
Table Rock Lake	L2	7313	–	–	–	LWW, AQL, WBC(A), SCR

*Cool Water Fishery (CLF), Cold Water Fishery (CDF), Irrigation (IRR), Industrial (IND), Boating & Canoeing (BTG), Drinking Water Supply (DWS), Whole Body Contact Recreation (WBC), Protection of Warm water Aquatic Life and Human Health (AQL), Livestock & Wildlife Watering (LWW)

RECEIVING WATER BODY SEGMENT #1: Unnamed Cove of Little North Indian Creek Cove of Table Rock Lake
Upper end segment* UTM coordinates: X: 467693 Y: 4053875 (Outfall)
Lower end segment* UTM coordinates: X: 467940 Y: 4054240 (Confluence with L. North Indian Creek Cove)

*Segment is the portion of the stream where discharge occurs. Segment is used to track changes in assimilative capacity and is bound at a minimum by existing sources and confluences with other significant water bodies.

5. General Comments

Total Environmental Services, Inc. prepared, on behalf of Steed Properties, the *Antidegradation Review for Shores of TRL Wastewater Treatment Facility* (Report) revised November 29, 2011. The Geohydrological Evaluation submitted with the report stated this is a gaining stream setting. A Tier Analysis was submitted by the applicant. Applicant elected to assume that all pollutants of concern (POC) are significantly degrading the receiving stream in the absence of existing water quality. Dissolved oxygen modeling was not completed as the applicant proposed the protective limits of 10 mg/L as stated in the Dissolved Oxygen Modeling Guidance. An alternative analysis was conducted to fulfill the requirements of the AIP. A Missouri Department of Conservation Natural Heritage Review was obtained by the applicant; and no endangered species were found to be impacted by the discharge.

6. ANTIDEGRADATION REVIEW INFORMATION

In accordance with Missouri's Water Quality Standard [10 CSR 20-7.031(2)] and federal antidegradation policy at Title 40 Code of Federal Regulation (CFR) Section 131.12 (a), the department was to develop a statewide antidegradation policy and corresponding procedures to implement the policy. A proposed discharge to a water body will be required to undergo a level of Antidegradation Review which documents that the use of a water body's available assimilative capacity is justified. Effective August 30, 2008, a facility is required to use *Missouri's Antidegradation Rule and Implementation Procedure (AIP)*. This procedure is applicable to new and expanded wastewater facilities. The following is a review of the *Shores of TRL WWTF* Report.

6.1 TIER DETERMINATION

Below is a list of pollutants of concern reasonably expected to be in the discharge (see Appendix B: Tier Determination and Effluent Limit Summary). Pollutants of concern are defined as those pollutants "proposed for discharge that affect beneficial use(s) in waters of the state. POCs include pollutants that create conditions unfavorable to beneficial uses in the water body receiving the discharge or proposed to receive the discharge." (AIP, Page 7).

Table 1. Pollutants of Concern and Tier Determination

POLLUTANTS OF CONCERN	TIER	DEGRADATION	COMMENT
Ammonia as Nitrogen	2	Significant	
Biochemical Oxygen Demand	2	Significant	*
Dissolved Oxygen	2	Significant	
Bacteria (E. Coli)	2	Significant	
Total Residual Chlorine	2	Significant	
pH	2	Significant	**
Phosphorus, Total	2	Significant	
Total Suspended Solids***	2	Significant	*
Aluminum, Total Recoverable	2	Significant	
Iron, Total Recoverable	2	Significant	

* No in-stream standards for these parameters, therefore tier determination was not possible.
** Standards for these parameters are ranges and therefore tier determination was not possible.
*** Narrative criteria.

The following Antidegradation Review Summary attachments in Appendix B were used by the applicant:

☒ Tier Determination and Effluent Summary
For pollutants of concern, the attachments are:
☒ Attachment A, Tier 2 with significant degradation.
☐ Attachment B, Tier 2 with minimal degradation.
☐ Attachment D, Tier 1 Review. Additionally, a Tier 2 review must be conducted for each pollutant of concern on the appropriate water body segment

6.2 Existing Water Quality

No existing water quality data was submitted.

6.3 Assimilative Capacity Calculations

This antidegradation review assumed significant degradation for all Pollutants of Concern, so there is no need to calculate the assimilative capacity for this review.

6.4 Alternative Analysis

This antidegradation review assumed significant degradation for all Pollutants of Concern, so there is a demonstration of necessity (i.e., alternatives analysis) and a determination of social and economic importance included in the report. The report included an analysis of seven alternatives ranging from non-degrading to less degrading to the degrading alternative (base case alternative). The non-degrading alternatives of land application, subsurface irrigation, regional sewer collection / treatment, and onsite treatment were each determined to be not practicable due to land availability and/or cost. The less degrading alternatives of an Extended Aeration (Base Cost Alternative), AdvanTex textile filter, and Recirculating Sand Filter, were considered practicable with the economic efficiency analysis shown in Table 2. All meet Water Quality Standards. The preferred alternative is construction of an AdvanTex textile filter as it was an economically efficient alternative at 101%, and was the least degrading alternative. Additionally, the textile filter alternative is a popular treatment type as it provides reliable treatment with minimal maintenance. All discharging alternatives include reaeration.

Table 2. Technology-Based Effluent Limits and Economic Efficiency Analysis

Discharging Alternatives	BOD_5 (mg/L)	TSS (mg/L)	E. Coli (#/100 ml)	DO (mg/L)	NH_4 (mg/L)	Present Worth Cost*	% Base Cost
Extended Aeration	15	20	126	5	3.0	$217,251.40	100% (Base)
Recirc Sand Filter	15	10	126	5	6.0	$220,914.50	101.3%
AdvanTex	10	10	126	5	6.0	$220,914.50	101.3%

* Present Worth Cost: 20 year design life and 7% interest

6.5 Demonstration of Necessity and Social and Economic Importance

This antidegradation review assumed significant degradation for all Pollutants of Concern, so there is a demonstration of necessity (i.e., alternatives analysis) and a determination of social and economic importance that was included in the report.

The identified community is specifically the people residing at the resort, along with those in the area surrounding the resort. The community also includes all people that will be using Table Rock Lake and other entertainment in the area. By replacing several improperly functioning onsite systems with one centralized advanced wastewater system, this provides an environmental and health benefit to the public by providing disinfection and limiting the pollutants of concern entering Table Rock Lake.

Local workers will be used to construction the treatment facility and renovate the existing resort structures. The local economy will be stimulated by lodging facilities for more tourists by increased demand for food, fuel, entertainment, etc. This will increase the tax revenue for the local and state government.

6.6 Preliminary Determination

The proposed facility is assumed to result in significant degradation for all POCs in the noted waterbody segment. Total Environmental Services, Inc. assumed significant degradation for the segments mentioned above and provided an alternatives analysis which showed that an AdvanTex recirculating textile filtration plant would be the most economically efficient and practicable option for treatment. The Social and Economic Importance of the proposed facility will provide much needed lodging services for tourists to stimulate the economy of the local Table Rock Lake area. The effluent limits in this review were developed to be protective of beneficial uses and to retain the remaining assimilative capacity. MDNR has determined that the submitted report is sufficient and meets the requirement of the AIP. No further analysis is needed for this discharge.

7. General Assumptions of the Water Quality and Antidegradation Review

1. A Water Quality and Antidegradation Review (WQAR) assumes that [10 CSR 20-6.010(3) Continuing Authorities and 10 CSR 20-6.010(4) (D), consideration for no discharge] has been or will be addressed in a Missouri State Operating Permit or Construction Permit Application.
2. A WQAR does not indicate approval or disapproval of alternative analysis as per [10 CSR 20-7.015(4) Losing Streams], and/or any section of the effluent regulations.
3. Changes to Federal and State Regulations made after the drafting of this WQAR may alter Water Quality Based Effluent Limits (WQBEL).
4. Effluent limitations derived from Federal or Missouri State Regulations (FSR) may be WQBEL or Effluent Limit Guidelines (ELG).
5. WQBEL supersede ELG only when they are more stringent. Mass limits derived from technology based limits are still appropriate.
6. A WQAR does not allow discharges to waters of the state, and shall not be construed as a National Pollution Discharge Elimination System or Missouri State Operating Permit to discharge or a permit to construct, modify, or upgrade.
7. Limitations and other requirements in a WQAR may change as Water Quality Standards, Methodology, and Implementation procedures change.
8. Nothing in this WQAR removes any obligations to comply with county or other local ordinances or restrictions.

8. MIXING CONSIDERATIONS

Triangular Prism Method

Mixing Zone (MZ) Parameters: According to the USGS 1:24,000K Quadrangle, the cove width near the facility outfall location is approximately 550 feet (ft). One quarter of this width equals 125 ft. Therefore, MZ Width =100 feet [10 CSR 20-7.031 (4)(A) 4.B.(IV)(a)].

Mixing Zone (MZ): 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) = 125 ft, and depth (D) = 20 ft. Depth was obtained using mixing zone length projected 100 ft from shoreline to the intersecting contour on 7.5' USGS topographic map. Volume = L*W*(D*(0.5)) = **(100)*(100)*(20*0.5)**= 100,000 ft^3. The flow volume of 125,000 ft^3 is assumed as the daily mixing zone. Therefore (100,000 ft^3/day)*(1 day/86,400 sec) = 1.16 ft^3/sec.

Zone of Initial Dilution (ZID). Not allowed [10 CSR 20-7.031(4)(A)4.B.(IV)(b)].

$$A.E.C.\% = \left(\frac{DesignFlow \quad + ZIDFlow}{DesignFlow} \right)^{-1} \times 100$$

9. PERMIT LIMITS AND INFORMATION

TMDL WATERSHED: (Y OR N) [N] W.L.A. STUDY CONDUCTED: (Y OR N) [N] DISINFECTION REQUIRED: (Y OR N) [Y] USE ATTAINABILITY ANALYSIS: (Y OR N) [N]

9.1 OUTFALL #001– Main Facility Outfall

WET TEST (Y OR N): N FREQUENCY: N/A A.E.C. 100 % METHOD: N/A

PARAMETER	UNITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	WQBEL (NOTE 1)	MONITORING FREQUENCY
FLOW	MGD	*		*	FSR	Once/Month
BIOCHEMICAL OXYGEN DEMAND (BOD_5)	MG/L		15	10	PAL	Once/Month
TOTAL SUSPENDED SOLIDS	MG/L		15	10	PAL	Once/Month
DISSOLVED OXYGEN	MG/L	5.0 (MINIMUM)		5.0 (MINIMUM)	WQBEL	Once/Month
pH	SU	6.5 – 9.0		6.5 – 9.0	FSR	Once/Month
ESCHERICHIA COLI (*E. COLI*)	**	630		126***	FSR	Once/Month
CHLORINE, TOTAL RESIDUAL	MG/L	0.019 (0.13 ML)		0.0095 (0.13 ML)	FSR	Once/Month
AMMONIA AS N (APRIL 1- SEPT 30)	MG/L	12.1		4.6	WQBEL	Once/Month
AMMONIA AS N (OCT 1 – MARCH 30)	MG/L	12.1		4.6	WQBEL	Once/Month
PHOSPHORUS, TOTAL	MG/L	*		0.5	FSR	Once/Month
ALUMINUM, TOTAL RECOVERABLE	µG/L	750		370	WQBEL	Once/Month
IRON, TOTAL RECOVERABLE	µG/L	*		*	WQBEL	Once/Month

Note 1– Water Quality-based Effluent Limitation --WQBEL; or Minimally Degrading Effluent Limit--MDEL; or Technology-based Effluent Limit-TBEL; or No Degradation Limit--NDL; or PAL—Preferred Alternative Effluent Limit; or FSR -- Federal/State Regulation; or N/A--Not Applicable. Also, please see the **General Assumptions of the WQAR #4 & #5.**

* – Monitoring Requirement Only
** – colonies/100 mL
*** – The Monthly Average for E. coli shall be reported as a Geometric Mean.

10. Receiving Water Monitoring Requirements

No receiving water monitoring requirements recommended at this time.

11. Derivation and Discussion of Limits

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

$$C = \frac{(Cs \times Qs) + (Ce \times Qe)}{(Qe + Qs)}$$ (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).

11.1 OUTFALL #001 – Main Facility Outfall – Limit Derivation

- **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_5).** Preferred alternative effluent limits: 10 mg/L monthly average. Proposed limit of 10 mg/l was provided by applicant in the Antidegradation Report. To derive the Monthly Daily Maximum (MDL), the average monthly limit was multiplied by 1.5, thus the MDL =15 mg/l. Influent monitoring may be required for this facility in its Missouri State Operating Permit.

- **Total Suspended Solids (TSS).** Preferred alternative effluent limits: 10 mg/L monthly average. Proposed limit of 10 mg/l was provided by applicant in the Antidegradation Report. To derive the Monthly Daily Maximum (MDL), the average monthly limit was multiplied by 1.5, thus the MDL =15 mg/l. Influent monitoring may be required for this facility in its Missouri State Operating Permit.

- **Dissolved Oxygen.** Dissolved oxygen in the stream is dependent upon the wastewater treatment plant effluent concentration of dissolved oxygen. There are currently no appropriate models available for discharges in a losing stream; therefore a D.O. level of 5.0 mg/L will be required, per 10 CSR 20-7.031(4)(J), for the effluent. Water Quality Standards for dissolved oxygen is 5.0 mg/L [10 CSR 20-7.031, Table A].

- **pH**. pH shall be maintained in the range from 6.5 – 9.0 standard units [10 CSR 20-7.015(4)(B)3.].

- ***Escherichia coli (E. coli).*** Effluent limitations for WBC(A) are 126 colonies per 100 ml monthly average and 630 colonies per 100 ml daily maximum [10 CSR 20-7.015 (8)(A)4.] and [10 CSR 20-7.031(4)(C), Table A]. Per the Clean Water Commission Directive in January 2011, the *E. Coli* sampling/monitoring frequency shall be set to match the monitoring frequency of other parameters in the permit during the recreational season (April 1 – October 31), with compliance to be determined by calculating the geometric mean of all samples collected during the reporting period (samples collected during the calendar week for the weekly average, and samples collected during the calendar month for the monthly average). The weekly average requirement is consistent with EPA federal regulation 40 CFR 122.45(d). Further, the limit may change depending on the outcome of future state effluent regulation revision. Please see **GENERAL ASSUMPTIONS OF THE WQAR #7.** Facility is proposing using Ultraviolet Disinfection to meet *E. Coli* effluent limits.

- **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. Facility is proposing using breakpoint chlorination to help meet ammonia effluent limits. Standard compliance language for TRC, including the minimum level (ML), should be included in the permit.

  C_e =(((Qe+Qs)*C) - (Qs*Cs))/Qe

  Chronic WLA: C_e = ((0.00465+ 1.16)10 – (1.16 * 0.00))/0.00465
  C_e = 2504.3 mg/L

  Acute WLA: C_e = ((0.00465 + 0.0)19 – (0.0 * 0.00))/0.00465
  C_e = 19 µg/L

  LTA_c = 2504.3 µg/L (0.527) = 1319.8 µg/L [CV = 0.6, 99th Percentile]
  LTA_a = 19 µg/L (0.321) = **6.1 µg/L** [CV = 0.6, 99th Percentile]

  MDL = 6.1(3.114) = 19 µg/L [CV = 0.6, 99th Percentile]
  AML = 6.1(1.55) = 9.5 µg/L [CV = 0.6, 95th Percentile, n = 4]

  Total Residual Chlorine effluent limits of 0.017 mg/L daily maximum, 0.008 mg/L monthly average are recommended if chlorine is used as a disinfectant. Standard compliance language for TRC, including the minimum level (ML), should be included in the permit.

- **Total Ammonia Nitrogen.** 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. No ammonia decay due to the discharge being piped directly into Table Rock Lake. Water Quality Based Effluent Limits (WQBEL) was calculated using the Triangular Prism Method for determining the Regulatory Mixing Zone. Only the summer WQBEL limits were calculated as the acute criteria is the limiting criterion for both seasons. As the proposed effluent limit of less than 6.0 mg/L is not more stringent than the WQBEL, year round effluent limits will be applied of MDL=12.1 mg/L and AML= 4.6 mg/L.

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

Summer: April 1 – September 30, Winter: October 1 – March 31.

Summer

C_e =(((Qe+Qs)*C) - (Qs*Cs))/Qe

Chronic WLA: $C_e = ((0.00465 + 1.16)1.5 - (1.16 * 0.01))/ 0.00465$
$C_e = 373.2$ mg/L

Acute WLA: $C_e = ((0.00465 + 0.0)12.1 - (0.0 * 0.01))/ 0.00465$
$C_e = 12.1$ mg/L

LTA_c = 373.2 mg/L (0.780) = 291.1 mg/L [CV = 0.6, 99th Percentile, 30 day avg.]
LTA_a = 12.1 mg/L (0.321) = **3.88 mg/L** [CV = 0.6, 99th Percentile]

MDL = 3.88 mg/L (3.11) = 12.1 mg/L [CV = 0.6, 99th Percentile]
AML = 3.88 mg/L (1.19) = 4.6 mg/L [CV = 0.6, 95th Percentile, n = 30]

Winter

Limits will be acute based, so calculations not shown (similar to summer).

Season	Maximum Daily Limit (mg/l)	Average Monthly Limit (mg/l)
Summer	12.1	4.6
Winter	12.1	4.6

- **Phosphorus, Total.** Monthly average = 0.5 mg/L. Facility plans to use chemical treatment of alum or ferric chloride to meet phosphorus limits. 10 CSR 20-7.015(3)(F).

- **Aluminum, Total Recoverable**. The facility is proposing to use the addition of alum to meet the total phosphorus limit. Protection of aquatic criteria acute = 750 µg/l. MDL = 750 µg/l; AML = 370 µg/l.

Acute WLA: $C_e = ((0.00581 + 0.0)750 - (0.0 * 0.0))/ 0.00581$
$C_e = 750$ µg/L

LTA_a = 750(0.321) = 241µg/L [CV = 0.6, 99th Percentile]
MDL = 241(3.11) = **750 µg/L** [CV = 0.6, 99th Percentile]
AML = 241(1.55) = **370 µg/L** [CV = 0.6, 95th Percentile, n = 4]

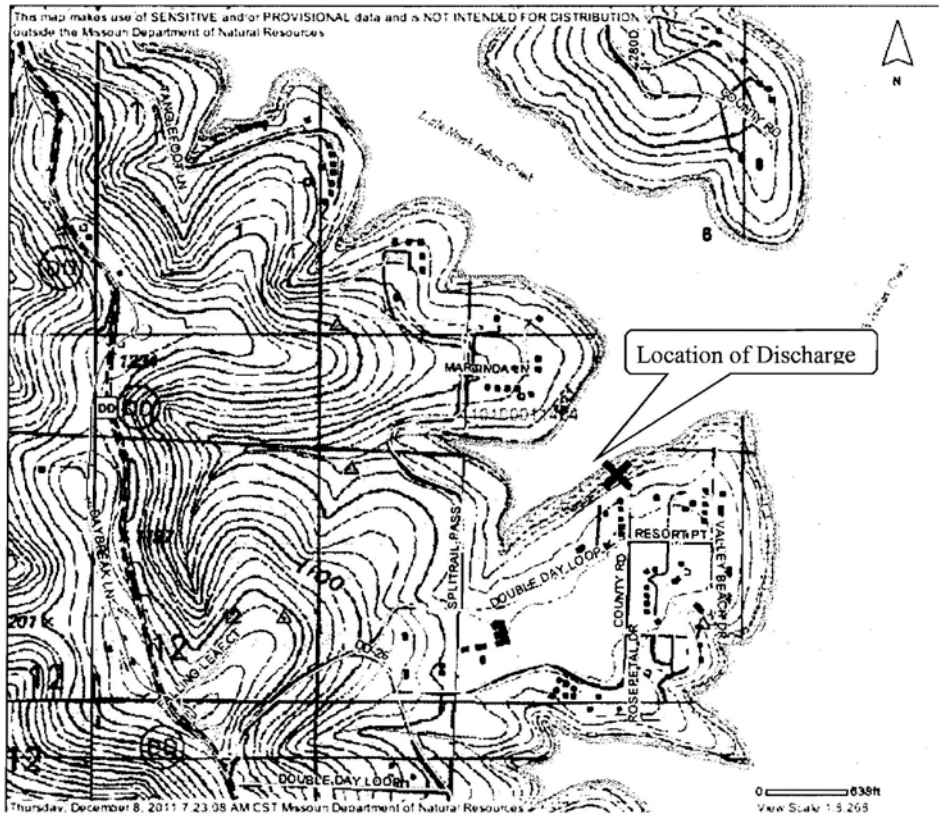
- **Iron, Total Recoverable**. The facility is proposing to use the addition of ferric chloride to meet the total phosphorus limit. Monitoring only for the protection of Aquatic Criteria chronic = 1,000 µg/L.

Reviewer: Keith Forck
Date: December 15, 2011
Unit Chief: John Rustige

Monitoring and effluent limits contained within this document have been developed in accordance with EPA guidelines using the best available data and are believed to be consistent with Missouri's Water Quality Standards and Effluent Regulations. If additional water quality data or anecdotal information are available that may affect the recommended monitoring and effluent limits, please forward these data and information to the author.

APPENDIX A: MAP OF DISCHARGE LOCATION

Shores of TRL



Appendix B: Antidegradation Review Summary Attachments

The attachments that follow contain summary information provided by the applicant

1) Tier Determination and Effluent Limit Summary Sheet
2) Attachment A: Summary of the alternatives analysis.

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
ANTIDEGRADATION REVIEW SUMMARY
TIER DETERMINATION AND EFFLUENT LIMIT SUMMARY

1. FACILITY

NAME		TELEPHONE NUMBER WITH AREA CODE	
Shores of TRL Wastewater Treatment Facility		417-779-3336	
ADDRESS (PHYSICAL)	CITY	STATE	ZIP CODE
Valley View Blvd.	Branson West	MO	65737

2. RECEIVING WATER BODY SEGMENT #1

NAME
Table Rock Lake (discharge will be piped to the USCOE take line)

2.1 UPPER END OF SEGMENT (Location of discharge)
UTM NAD 83, Zone 83, 467648E, 4053814N
2.2 LOWER END OF SEGMENT
UTM NAD 83, Zone 83, 472176E, 4050039N

Per the Missouri Antidegradation Rule and Implementation Procedure, or AIP, the definition of a segment, "a segment is a section of water that is bound, at a minimum, by significant existing sources and confluences with other significant water bodies."

3. WATER BODY SEGMENT #2 (IF APPLICABLE)

NAME

3.1 UPPER END OF SEGMENT
UTM ____ OR Lat ____, Long ____
3.2 LOWER END OF SEGMENT
UTM ____ OR Lat ____, Long ____

4. WATER BODY SEGMENT #3 (IF APPLICABLE)

NAME

4.1 UPPER END OF SEGMENT
UTM ____ OR Lat ____, Long ____
4.2 LOWER END OF SEGMENT
UTM ____ OR Lat ____, Long ____

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5. PROJECT INFORMATION

Is the receiving water body an Outstanding National Resource Water, an Outstanding State Resource Water, or drainage thereto?
☐ Yes ☒ No

In Tables D and E of 10 CSR 20-7.031, Outstanding National Resource Waters and Outstanding State Resource Water are listed. Per the Antidegradation Implementation Procedure Section 1.B.3., "any degradation of water quality is prohibited in these waters unless the discharge only results in temporary degradation." Therefore, if degradation is significant or minimal, the Antidegradation Review will be denied.

Will the proposed discharge of all pollutants of concern, or POCs, result in no net increase in the ambient water quality concentration of the receiving water after mixing?
☐ Yes ☑ No

If yes, submit a summary table showing the levels of each pollutant of concern before and after the proposed discharge in the receiving water and then complete Attachment B for the first downstream classified water body segment.

Will the discharge result in temporary degradation?
☐ Yes ☒ No

If yes, complete Attachment C.

Has the project been determined as non-degrading?
☐ Yes ☑ No

If yes, complete No Degradation Evaluation – Conclusion of Antidegradation Review form.
Submit with the appropriate Construction Permit Application as no antidegradation review is required.

If yes to one of the above questions, skip to Section 8 - Wet Weather.

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6. EXISTING WATER QUALITY DATA OR MODEL SUMMARY

Obtaining Existing Water Quality is possible by three methods according to the Antidegradation Implementation Procedure Section II.A.1.: (1) using previously collected data with an appropriate Quality Assurance Project Plan, or QAPP (2) collecting water quality data by approved the Missouri Department of Natural Resources methodology or (3) using an appropriate water quality model. QAPPs must be submitted to the department for approval well in advance (six months) of the proposed activity. Provide all the appropriate corresponding data and reports which were approved by the department Water Quality Monitoring and Assessment Section.

Date existing water quality data was provided by the Water Quality Monitoring and Assessment Section:

Approval date of the QAPP by the Water Quality Monitoring and Assessment Section:

Approval date of the project sampling plan by the Water Quality Monitoring and Assessment Section:

Approval date of the data collected for all appropriate pollutants of concern by the Water Quality Monitoring and Assessment Section:

Comments/Discussion:

7. POLLUTANTS OF CONCERN AND TIER DETERMINATION(S)

Pollutants of Concern to be considered include those pollutants reasonably expected to be present in the discharge per the Antidegradation Implementation Procedure Section II.S. The tier protection levels are specified and defined in rule at 10 CSR 20-7.031 (2).

Water Body Segment One
Pollutants of Concern and Tier Determination(s)

Tier 1	Tier 2 with Minimal Degradation	Tier 2 with Significant Degradation
		BOD5* & TSS*
		DO*
		AMMONIA AS N*
		E. COLI*
		PHOS.* (P) & AL*

Note: Add an asterisk to items that you only assume are Tier 2 with significant degradation.

Water Body Segment Two
Pollutants of Concern and Tier Determination(s)

Tier 1	Tier 2 with Minimal Degradation	Tier 2 with Significant Degradation

- For pollutants of concern that are Tier 2 with significant degradation, complete Attachment A.
- For pollutants of concern that are Tier 2 with minimal degradation, complete Attachment B.
- For pollutants of concern that are Tier 1, complete Attachment D. Additionally, a Tier 2 review must be conducted for each pollutant of concern on the appropriate water body segment.

8. WET WEATHER ANTICIPATIONS

If an applicant anticipates excessive inflow or infiltration and pursues approval from the department to bypass secondary treatment, a feasibility analysis is required. The feasibility analysis must comply with the criteria of all applicable state and federal regulations including 40 CFR 122.41(m)(4). Attach the feasibility analysis to this report.

What is the Wet Weather Flow Peaking Factor in relation to design flow?
One (1)

Wet Weather Design Summary:
This is a new system and thus will have little to no inflow & infiltration.

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9. SUMMARY OF THE PROPOSED ANTIDEGRADATION REVIEW EFFLUENT LIMITS

What are the proposed pollutants of concern and their respective effluent limits that the selected treatment option will comply with:

Pollutant of Concern	Units	Wasteload Allocation	Average Monthly Limit	Daily Maximum Limit
BOD5	mg/l		10	15
TSS	mg/l		15	20
Dissolved Oxygen	mg/l		monitoring only	monitoring only
Ammonia	mg/l		4.6	12.1
Bacteria (E. Coli)	colonies / 100ml		126	
Phosphorus	mg/l		0.5	1.0
Aluminum	ug/l		monitoring only	monitoring only
Total Residual Cl	mg/l		0.13ML	0.13ML
Iron	mg/l		monitoring only	monitoring only

These proposed limits must not violate water quality standards, be protective of beneficial uses and achieve the highest statutory and regulatory requirements.

Attach the Antidegradation Review report and all supporting documentation.

CONSULTANT: I have prepared or reviewed this form and all attached reports and documentation. The conclusion proposed is consistent with the Antidegradation Implementation Procedure and current state and federal regulation.

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SIGNATURE		DATE
		08/31/2011

NAME AND OFFICIAL TITLES			
Seth A. Coggin, P.E.			
COMPANY NAME			
Total Environmental Services, Inc.			
ADDRESS	CITY	STATE	ZIP CODE
515 Old South 5	Camdenton	MO	65020
TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS		
573-346-3810	sethcoggin@totalenvironmental.com		

OWNER: I have read and reviewed the prepared documents and agree with this submittal.

SIGNATURE		DATE
		8/31/11

NAME AND OFFICIAL TITLES			
Jay Steed			
ADDRESS	CITY	STATE	ZIP CODE
PO Box 1009	Branson West	MO	65737
TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS		
417-779-3336	fsteed@centurytel.net		

CONTINUING AUTHORITY: Continuing Authority is the permanent organization that will be responsible for the operation, maintenance and modernization of the facility. The regulatory requirement regarding continuing authority is found in 10 CSR 20-6.010(3) available at www.sos.mo.gov/adrules/csr/current/10csr/10c20-6a.pdf.

I have read and reviewed the prepared documents and agree with this submittal.

SIGNATURE		DATE
		8/31/11

NAME AND OFFICIAL TITLES			
Jay Steed			
ADDRESS	CITY	STATE	ZIP CODE
PO Box 1009	Branson West	MO	65737
TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS		
417-779-3336	fsteed@centurytel.net		

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MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM, WATER POLLUTION CONTROL BRANCH

ANTIDEGRADATION REVIEW SUMMARY
ATTACHMENT A: TIER 2 – SIGNIFICANT DEGRADATION

1. FACILITY

NAME			TELEPHONE NUMBER WITH AREA CODE
Shores of TRL Wastewater Treatment Facility			417-779-3336
ADDRESS (PHYSICAL)	CITY	STATE	ZIP CODE
Valley View Blvd.	Branson West	MO	65737

2. RECEIVING WATER BODY SEGMENT #1

NAME
Table Rock Lake

3. WATER BODY SEGMENT #2 (IF APPLICABLE)

NAME
N/a

4. IDENTIFYING ALTERNATIVES

Supply a summary of the alternatives considered and the level of treatment attainable with regards to the alternative. "For Discharges likely to cause significant degradation, an analysis of non-degrading and less-degrading alternatives must be provided," as stated in the Antidegradation Implementation Procedure Section II.B.1. Per 10 CSR 20-6.010(4)(D)1., the feasibility of a no-discharge system must be considered. Attach all supportive documentation in the Antidegradation Review report.

Non-degrading alternatives: Land Application, Subsurface Irrigation, Regional Sewer

Alternatives ranging from less-degrading to degrading including Preferred Alternative (All must meet water quality standards):

Alternatives	Level of Treatment Attainable for each Pollutant of Concern					
	BOD	TSS	Ammonia as N	Bacteria (E. Coli)	Phos. (P)	
	(mg/L)	(mg/L)	(mg/L)	(#/100mL)		
AdvanTex Textile Filter	10	10	6	126	0.5	
Recirculating Sand Filter	15	10	6	126	0.5	
Extended Aeration	15	20	3	126		

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Identifying Alternatives Summary: ____

Non-degrading and less-degrading alternatives have been evaluated to determine the feasibility of each alternative. The non-dregrading aleternatives have been determined to be not practical and / or economically feasible.

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5. DETERMINATION OF THE REASONABLE ALTERNATIVE

Per the Antidegradation Implementation Procedure Section II.B.2, "a reasonable alternative is one that is practicable, economically efficient and affordable." Provide basis and supporting documentation in the Antidegradation Review report.

Practicability Summary:

"The practicability of an alternative is considered by evaluating the effectiveness, reliability, and potential environmental impacts," according to the Antidegradation Implementation Procedure Section II.B.2.a. Examples of factors to consider, including secondary environmental impacts, are given in the Antidegradation Implementation Procedure Section II.B.2.a.

The non-degrading alternatives have been determined not practicable based on existing soil conditions, land availability, etc.

Economic Efficiency Summary:

Alternatives that are deemed practicable must undergo a direct cost comparison in order to determine economic efficiency. Means to determine economic efficiency are provided in the Antidegradation Implementation Procedure Section II.B.2.b.

Since the least degrading option has been chosen an economic analysis was not performed.

Affordability Summary:

Alternatives identified as most practicable and economically efficient are considered affordable if the applicant does not supply an affordability analysis. An affordability analysis per the Antidegradation Implementation Procedure Section II.B.2.c, "may be used to determine if the alternative is too expensive to reasonably implement."

A brief affordability analysis (attached) and shows the present worth costs of each option is very similar.

Preferred Chosen Alternative:

An AdvanTex Recirculating Textile Filter is the preferred alternative since it has been determined to be the least degrading and is still affordable.

Reasons for Rejecting the other Evaluated Alternatives:

All other alternatives were rejected because they were not less degrading nor significantly more affordable.

Comments/Discussion:

Eight (8) existing onsite systems (several close to complete failure) will be removed from service with the construction of the proposed treatment facility. The effluent will be piped to the USCOE take line. All alternatives require disinfection systems as well as phosphorus removal systems in order to comply with permit limitations. Chlorination / dechlorination will be used to further facilitate ammonia removal. Flow calculations were based on a total of twelve (12) units, each with 2.5 persons (per census data) contributing 100 gpdpc for a total of 3,000 gpd.

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6. SOCIAL AND ECONOMIC IMPORTANCE OF THE PREFERRED ALTERNATIVE

If the preferred alternative will result in significant degradation, then it must be demonstrated that it will allow important economic and social development in accordance to the Antidegradation Implementation Procedure Section II.E. Social and Economic Importance is defined as the social and economic benefits to the community that will occur from any activity involving a new or expanding discharge.

Identify the affected community:

The affected community is defined in 10 CSR 20-7.031(2)(B) as the community "in the geographical area in which the waters are located.: Per the Antidegradation Implementation Procedure Section II.E.1, "the affected community should include those living near the site of the proposed project as well as those in the community that are expected to directly or indirectly benefit from the project."

Adjacent landowners and downstream and immediate recreational users.

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Identify relevant factors that characterize the social and economic conditions of the affected community:

Examples of social and economic factors are provided in the Antidegradation Implementation Procedure Section II.E.1. Not specific community examples are encouraged.

Removes stigma of unregulated, Department of Health and Social Services on-site sewers and gives the peace of mind of a new wastewater treatment facility that is subject to regulatory permitting, oversight, and effluent regulations.

Describe the important social and economic development associated with the project:

Determining benefits for the community and the environment should be site specific and in accordance with the Antidegradation Implementation Procedure Section II.E.1.

The wastewater treatment facility will allow current owners to demonstrate compliant waste treatment for future customers and real estate transactions.

PROPOSED PROJECT SUMMARY:

Shores of TRL desires to remove existing on-site septic tanks and lateral fields and convert the method of wastewater treatment to a regulated facility that will be operated and tested under State mandated rules and regulations. The facility consists of septic tank effluent pumping tanks, phosphorus removal, packed bed media filter (AdvanTex), chlorination / dechlorination for ammonia reduction, UV disinfection, and re-aeration.

Attach the Antidegradation Review report and all supporting documentation. This is a technical document which must be signed, sealed and dated by a registered professional engineer of Missouri.

CONSULTANT: I have prepared or reviewed this form and all attached reports and documentation. The conclusion proposed is consistent with the Antidegradation Implementation Procedure and current state and federal guidelines.

SIGNATURE	DATE
	08/31/11

PRINT NAME	LICENSE # :
Seth A. Coggin, P.E.	Professional Engineer #2003014949

TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS:
417-581-6646	sethcoggin@totalenvironmental.com

OWNER: I have read and reviewed the prepared documents and agree with this submittal.

SIGNATURE	DATE
	8/31/11

CONTINUING AUTHORITY: I have read and reviewed the prepared documents and agree with this submittal.

SIGNATURE	DATE
	8/31/11

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Shores of TRL
Stone County

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& Shores of TRL 12-11

Steed Communities
ATTN: Jay Steed
PO Box 1009
Branson West, MO 65737

RE: Water Quality and Antidegradation Review Preliminary Determination for Shores of TRL

Dear Mr. Steed:

In accordance with the Missouri Antidegradation Rule and Implementation Procedure, your proposed discharge is subject to an Antidegradation Review. Enclosed is the *Water Quality and Antidegradation Review* (WQAR) which summarizes this preliminary determination based upon the *Antidegradation Review for Shores of TRL Wastewater Treatment Facility* revised November 29, 2011, which proposed a new 3,000 gallon per day wastewater treatment plant.

The WQAR contains pertinent antidegradation review information based on the use of existing water quality, effluent limitations and monitoring requirements for the facility discharge. It was developed in accordance with 10 CSR 20-7.031, the Clean Water Commission approved *Missouri Antidegradation Rule and Implementation Procedure* (AIP) dated May 7, 2008, U.S. Environmental Protection Agency guidance, the applicant-supplied antidegradation review documentation and the State of Missouri's effluent regulations (10 CSR 20-7.015). Please refer to the *General Assumptions of the Water Quality and Antidegradation Review* section of the enclosed WQAR. The WQAR is preliminary and subject to change as new information becomes available during future permit application processing.

Based on the Missouri Department of Natural Resources' Water Protection Program (Department) initial review, preliminary determination is that the applicant-supplied antidegradation review documentation satisfies the requirements of the AIP. This WQAR/preliminary determination may be appealed within 30 days of this letter in accordance with the AIP Section II.F.4.

You may proceed with submittal of an application for an operating permit and antidegradation review public notice, an engineering report, or a complete application for a construction permit to the Southwest Regional Office. These submittals must reflect the design flow, facility description and general treatment components of this WQAR, or this preliminary determination may have to be revisited.

Following the Department's public notice of the draft Missouri State Operating Permit including the antidegradation review findings and preliminary determination, the Department will review any public notice comments received. If significant comments are made, the project may require another public notice and potentially another antidegradation review. If no comments are received or comments are resolved without another public notice, these findings and determinations will be considered final. Following issuance of the construction permit and completion of the actual facility construction, the Department will proceed with the issuance of the operating permit.

If you have any questions, please contact Mr. Keith Forck by phone at (573) 526-4232, by e-mail at keith.forck@dnr.mo.gov, or by mail at the Missouri Department of Natural Resources, Water Protection Program, NPDES Permits and Engineering Section, P.O. Box 176, Jefferson City, MO 65102-0176.

Sincerely,

WATER PROTECTION PROGRAM

Refaat Mefrakis, P.E., Chief
NPDES Permits and Engineering Section

RM:kfp

Enclosures

c: Total Environmental Services, Inc., ATTN: Seth Coggin, P.E., PO Box 510, Osage Beach, MO 65065
Southwest Regional Office
File Copy

STANDARD CONDITIONS FOR NPDES PERMITS
ISSUED BY
THE MISSOURI DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION
Revised
October 1, 1980

PART I - GENERAL CONDITIONS
SECTION A - MONITORING AND REPORTING

1. **Representative Sampling**
   a. Samples and measurements taken as required herein shal be representative of the nature and volume, respectively, of the monitored discharge. All samples shall be taken at the outfall(s), and unless specified, before the effluent joins or is diluted by any other body of water or substance.
   b. Monitoring results shall be recorded and reported on forms provided by the Department, postmarked no later than the 28th dayof the month following the completed reporting period. Signed copies of these, and all other reports required herein, shal be submitted to the respective Department Regional Office, the Regional Office address is indicated in the cover letter transmitting the permit.

2. **Schedule of Compliance**
   No later than fourteen (14) calendar days following each date identified in the "Schedule of Compliance", the permittee shall submit to the respective Department Regional Office as required therein, either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or noncompliance. In the latter case, the notice shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirements, or if there are no more scheduled requirements, when such noncompliance will be corrected. The Regional Office address is indicated in the cover letter transmitting he permit.

3. **Definitions**
   Definitions as set forth in the Missouri Clean Water Law and Missouri Clean Water Commission Definition Regulation 10 CSR 20-2.010 shall apply to terms used herein.

4. **Test Procedures**
   Test procedures for the analysis of pollutant shall be in accordance with the Missouri Clean Water Commission Effluent Regulation 10 CSR 20-7015.

5. **Recording of Results**
   a. For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:
      (i) the date, exact place, and time of sampling or measurements;
      (ii) the individual(s) who performed the sampling or measurements;
      (iii) the date(s) analyses were performed;
      (iv) the individual(s) who performed the analyses;
      (v) the analytical techniques or methods used; and
      (vi) the results of such analyses.
   b. The Federal Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate anymonitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than six (6) months per violation, or both.
   c. Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Director in the permit.

6. **Additional Monitoring by Permittee**
   If the permittee monitors any pollutant at the location(s) designated herein more frequently than required bythis permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Monitoring Report Form. Such increased frequencyshall also be indicated.

7. **Records Retention**
   The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recording for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Department at any time.

SECTION B - MANAGEMENT REQUIREMENTS

1. **Change in Discharge**
   a. All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant not authorized by this permit or any pollutant identified in this permit more frequently than or at a level in excess of that authorized shall constitute a violation of the permit.
   b. Any facility expansions, production increases, or process modifications which will result in new, different, or increased discharges of pollutants shall be reported by submission of a new NPDES application at least sixty (60) days before each such changes, or, if they will not violate the effluent limitations specified in the permit, by notice to the Department at least thirty (30) days before such changes.

2. **Noncompliance Notification**
   a. If, for any reason, the permittee does not comply with or will be unable to comply with any daily maximum effluent limitation specified in this permit, the permittee shall provide the Department with the following information, in writing within five (5) days of becoming aware of such conditions:
      (i) a description of the discharge and cause of noncompliance, and
      (ii) the period of noncompliance, including exact dates and times or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps beingtaken to reduce, eliminate and prevent `recurrence of the noncomplying discharge.
   b. Twenty-four hour reporting. The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally with 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided with five (5) days of the time the permittee becomes aware of the circumstances. The Department may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

3. **Facilities Operation**
   Permittees shall operate and maintain facilities to comply with the Missouri Clean Water Law and applicable permit conditions. Operators or supervisors of operations at publicly owned or publicly regulated wastewater treatment facilities shall be certified in accordance with 10 CSR 209.020(2) and any other applicable law or regulation. Operators of other wastewater treatment facilities, water contaminant source or point sources, shall, upon request by the Department, demonstrate that wastewater treatment equipment and facilities are effectively operated and maintained by competent personnel.

4. **Adverse Impact**
   The permittee shall take all necessary steps to minimize any adverse impact to waters of the state resulting from noncompliance with any effluent limitations specified in this permit or set forth in the Missouri Clean Water Law and Regulations (hereinafter the Law and Regulations), including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

a. Any bypass or shut down of a wastewater treatment facility and tributary sewer system or any part of such a facility and sewer system that results in a violation of permit limits or conditions is prohibited except:
   (i) where unavoidable to prevent loss of life, personal injury, or severe property damages; and
   (ii) where unavoidable excessive storm drainage or runoff would catastrophically damage any facilities or processes necessary for compliance with the effluent limitations and conditions of this permit;
   (iii) where maintenance is necessaryto ensure efficient operation and alternative measures have been taken to maintain effluent quality during the period of maintenance.
b. The permittee shall notify the Department in writing of all bypasses or shut down that result in a violation of permit limits or conditions. This section does not excuse any person from liability, unless such relief is otherwise provided by the statute.

6. **Removed Substances**
Solids, sludges, filter backwash, or any other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in a manner such as to prevent any pollutants from entering waters of the state unless permitted by the Law, and a permanent record of the date and time, volume and methods of removal and disposal of such substances shal be maintained by the permittee.

7. **Power Failures**
In order to maintain compliance with the effluent limitations and other provisions of this permit, the permittee shall either:
a. in accordance with the "Schedule of Compliance", provide an alternative power source sufficient to operate the wastewater control facilities; or,
b. if such alternative power source is not in existence, and nodate for its implementation appears in the Compliance Schedule, halt or otherwise control production and all discharges upon the reduction, loss, or failure of the primary source of power to the wastewater control facilities.

8. **Right of Entry**
For the purpose of inspecting, monitoring, or sampling the point source, water contaminant source, or wastewater treatment facility for compliance with the Clean Water Law and these regulations, authorized representatives of the Department, shall be allowed by the permittee, upon presentation of credentials and at reasonable times;
a. to enter upon permittee's premises in which a point source, water contaminant source, or wastewater treatment facility is located or in which any records are required to be kept under terms and conditions of the permit;
b. to have access to, or copy, any records required to be kept under terms and conditions of the permit;
c. to inspect any monitoring equipment or method required in the permit;
d. to inspect any collection, treatment, or discharge facility covered under the permit; and
e. to sample any wastewater at any point in the collection system or treatment process.

9. **Permits Transferable**
a. Subject to Section (3) of 10 CSR 20-6.010 an operating permit may be transferred upon submission to the Department of an application to transfer signed by a new owner. Until such time as the permit is officially transferred, the original permittee remains responsible for complying with the terms and conditions of the existing permit.
b. The Department, within thirty(30) days of receipt of the application shall notify the new permittee of its intent to revoke and reissue or transfer the permit.

10. **Availability of Reports**
Except for data determined to be confidential under Section 308 of the Act, and the Law and Missouri Clean Water Commission Regulation for Public Participation, Hearings and Notice to Governmental Agencies 10 CSR 20-6.020, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department. As required by statute, effluent data shal not be considered confidential. Knowingly making any false statement on any such report shall be subject to the imposition of criminal penalties as provided in Section 204.076 of the Law.

a. Subject to compliance with statutory requirements of the Law and Regulations and applicable Court Order, this permit may be modified, suspended, or revoked in whole or in part during its term for cause including, but not limited to, the following:
   (i) violation of any terms or conditions of this permit or the Law;
   (ii) having obtained this permit by misrepresentation or failure to disclose fully any relevant facts;
   (iii) a change in any circumstances or conditions that requires either a temporary or permanent reduction or elimination of the authorized discharge, or
   (iv) any reason set forth in the Law and Regulations.
b. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

12. **Permit Modification - Less Stringent Requirements**
If any permit provisions are based on legal requirements which are lessened or removed, and should no other basis exist for such permit provisions, the permit shall be modified after notice and opportunity for a hearing.

13. **Civil and Criminal Liability**
Except as authorized by statute and provided in permit conditions on "Bypassing" (Standard Condition B-5) and "Power Failures" (Standard Condition B-7) nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.

14. **Oil and Hazardous Substance Liability**
Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Act, and the Law and Regulations. Oil and hazardous materials discharges must be reported in compliance with the requirements of the Federal Clean Water Act.

15. **State Laws**
Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state statute or regulations.

16. **Property Rights**
The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, no does it authorize any injury to private property or any invasion of personal rights, nor any infringement of or violation of federal, state or local laws or regulations.

17. **Duty to Reapply**
If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for a new permit 180 days prior to expiration of this permit.

18. **Toxic Pollutants**
If a toxic effluent standard, prohibition, or schedule of compliance is established, under Section 307(a) of the Federal Clean Water Act for a toxic pollutant in the discharge of permittee's facility and such standard is more stringent than the limitations in the permit, then the more stringent standard, prohibition, or schedule shall be incorporated into the permit as one of its conditions, upon notice to the permittee.

19. **Signatory Requirement**
All reports, or information submitted to the Director shall be signed (see 40 CFR-122.6).

20. **Rights Not Affected**
Nothing in this permit shall affect the permittee's right to appeal or seek a variance from applicable laws or regulations as allowed by law.

21. **Severability**
The provisions of this permit are severable, and if any provisions of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

STANDARD CONDITIONS FOR NPDES PERMITS
ISSUED BY
THE MISSOURI DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION
AUGUST 15, 1994

PART III – SLUDGE & BIOSOLIDS FROM DOMESTIC WASTEWATER TREATMENT FACILITIES

SECTION A – GENERAL REQUIREMENTS

1. This permit pertains to sludge requirements under the Missouri Clean Water Law and regulation and incorporates applicable federal sludge disposal requirements under 40 CFR 503. The Environmental Protection Agency (EPA) has principal authority for permitting and enforcement of the federal sludge regulations under 40 CFS 503 until such time as Missouri is delegated the new EPA sludge program. EPA has reviewed and accepted these standard sludge conditions. EPA may choose to issue a separate sludge addendum to this permit or a separate federal sludge permit at their discretion to further address federal requirements.
2. These PART III Standard Conditions apply only to sludge and biosolids generated at domestic wastewater treatment facilities, including public owned treatment works (POTW) and privately owned facilities.
3. Sludge and Biosolids Use and Disposal Practices.
   a. Permittee is authorized to operate the sludge and biosolids treatment, storage, use, and disposal facilities listed in the facility description of this permit.
   b. Permittee shall not exceed the design sludge volume listed in the facility description and shall not use sludge disposal methods that are not listed in the facility description, without prior approval of the permitting authority.
   c. Permittee is authorized to operate the storage, treatment or generating sites listed in the Facility Description section of this permit.
   d. A separate operating permit is required for each operating location where sludge or biosolids are generated, stored, treated, or disposed, unless specifically exempted in this permit or in 10 CSR 20, Chapter 6 regulations. For land application, see section H, subsection 3 of these standard conditions.
4. Sludge Received From Other Facilities
   a. Permitees may accept domestic wastewater sludge from other facilities including septic tank pumpings from residential sources as long as the design sludge volume is not exceeded and the treatment facility performance is not impaired.
   b. The permittee shall obtain a signed statement from the sludge generator or hauler that certifies the type and source of the sludge.
   c. Sludge received from out-of-state generators shall receive prior approval of the permitting authority and shall be listed in the facility description or special conditions section of the permit.
5. These permit requirements do not supersede nor remove liability for compliance with county and other local ordinances.
6. These permit requirements do not supersede nor remove liability for compliance with other environmental regulations such as odor emissions under the Missouri Air Pollution Control Law and regulations.
7. This permit may (after du process) be modified, or alternatively revoked and reissued, to comply with any applicable sludge disposal standard or limitation issued or approved under Section 405(d) of the Clean Water Act or under Chapter 644 RsMo.
8. In addition to the STANDARD CONDITIONS, the department may include sludge limitations in the special conditions portion or other sections of this permit.
9. Alternate Limits in Site Specific Permit.
   Where deemed appropriate, the department may require an individual site specific permit in order to authorize alternate limitations:
   a. An individual permit must be obtained for each operating location, including application sites.
   b. To request a site specific permit, an individual permit application, permit fees, and supporting documents shall be submitted for each operating location. This shall include a detailed sludge/biosolids management plan or engineering report.
10. Exceptions to these Standard Conditions may be authorized on a case-by-case basis by the department, as follows:
    a. The department will prepare a permit modification and follow permit public notice provisions as applicable under 10 CSR 20-6.020, 40 CFR 124.10, and 40 CFR 501.15(a)(2)(ix)(E). This includes notification of the owners of property located adjacent to each land application site, where appropriate.
    b. Exceptions cannot be grated where prohibited by the federal sludge regulations under 40 CFR 503.
11. Compliance Period
    Compliance shall be achieved as expeditiously as possible but no later than the compliance dates under 40 CFR 503.2.

SECTION B – DEFINITIONS

1. Biosolids means an organic fertilizer or soil amendment produced by the treatment of domestic wastewater sludge. Untreated sludge or sludge that does not conform to the pollutants and pathogen treatment requirements in this permit is not considered biosolids.
2. Biosolids land application facility is a facility where biosolids are spread onto the land at agronomic rates for production of food or fiber. The facility includes any structures necessary to store the biosolids until soil, weather, and crop conditions are favorable for land application.
3. Class A biosolids means a material that has met the Class A pathogen reduction requirements or equivalent treatment by a Process to Further Reduce Pathogens (PFRP) in accordance with 40 CFR 503.
4. Class B biosolids means a material that has met the Class B pathogen reduction requirements or equivalent treatment by a Process to Significantly Reduce Pathogens (PFRP) in accordance with 40 CFR 503.
5. Domestic wastewater means wastewater originating from the sanitary conveniences of residences, commercial buildings, factories and institutions; or co-mingled sanitary and industrial wastewater processed by a public owned treatment works (POTW) or privately owned facility.
6. Mechanical treatment plants are wastewater treatment facilities that use mechanical devices to treat wastewater, including septic tanks, extended aeration, activated sludge, contact stabilization, trickling filters, rotating biological discs, and other similar facilities. It does not include unaerated wastewater treatment lagoons and constructed wetlands for wastewater treatment.
7. Operating location as defined in 10 CSR 20-2.010 is all contiguous lands owned, operated or controlled by one (1) person or by two (2) or more persons jointly or as tenants in common.
8. Plant Available Nitrogen (PAN) is the nitrogen that will be available to plants during the next growing season after biosolids application.
9. Sinkhole is a depression in the land surface into which surface water flows to join an underground drainage system.
10. Site Specific Permit is a permit that has alternate limits developed to address specific site conditions for each land application site or storage site.
11. Sludge is the solid, semisolid, or liquid residue removed during the treatment of wastewater. Sludge includes septage removed from septic tanks.
12. Sludge lagoon is an earthen basin that receives sludge that has been removed from a wastewater treatment facility. It does not include a wastewater treatment lagoon or sludge treatment units that are not a part of a mechanical wastewater treatment facility.
13. Wetlands are those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamp, marshes, bogs, and similar areas. Wetlands do not include constructed wetlands used for wastewater treatment.

SECTION C – MECHANICAL WASTEWATER TREATMENT FACILITIES

1. Sludge shall be routinely removed from the wastewater treatment facilities and handled according to the permit facility description and sludge conditions in this permit.
2. The permittee shall operate the facility so that there is no sludge loss into the discharged effluent in excess of permit limits, no sludge bypassing, and no discharge of sludge to waters of the state.
3. Mechanical treatment plants shall have separate sludge storage compartments in accordance with 10 CSR 20, Chapter 8. Failure to remove sludge from these storage compartments on the required design schedule is a violation of this permit.

SECTION D – SLUDGE DISPOSED AT OTHER TREATMENT FACILITY OR CONTRACT HAULER

1. This section applies to permittees that haul sludge to another treatment facility for disposal or use contract haulers to remove and dispose of sludge.
2. Permittees that use contract haulers are responsible for compliance with all the terms of this permit including final disposal, unless the hauler has a separate permit for sludge or biosolids disposal issued by the department; or the hauler transports the sludge to another permitted treatment facility.
3. The permittee shall require documentation from the contractor of the disposal methods used and permits obtained by the contractor.
4. Testing of sludge, other than total solids content, is not required if sludge is hauled to a municipal wastewater treatment facility or other permitted wastewater treatment facility.

SECTION E – WASTEWATER TREATMENT LAGOONS AND STORMWATER RETENTION BASINS

1. Sludge that is retained within a wastewater treatment lagoon is subject to sludge disposal requirements when the sludge is removed from the lagoon or when the lagoon ceases to receive and treat wastewater.
2. If sludge is removed during the year, an annual sludge report must be submitted.
3. Storm water retention basins or other earthen basins, which have been used as sludge storage for a mechanical treatment system is considered a sludge lagoon and must comply with Section G of this permit.

SECTION F – INCINERATION OF SLUDGE

1. Sludge incineration facilities shall comply with the requirements of 40 CFR 503 Subpart E; air pollution control regulations under 10 CSR 10; and solid waste management regulations under 10 CSR 80.
2. Permittee may be authorized under the facility description of this permit to store incineration ash in lagoons or ash ponds. This permit does not authorize the disposal of incineration ash. Incineration ash shall be disposed in accordance with 10 CSR 80; or if the ash is determined to be hazardous waste, shall be disposed in accordance with 10 CSR 25.
3. In addition to normal sludge monitoring, incineration facilities shall report the following as part of the annual report, quantity of sludge incinerated, quantity of ash generated, quantity of ash stored; and ash use or disposal method, quantity, and location. Permittee shall also provide the name of the disposal facility and the applicable permit number.
4. Additional limitations, monitoring, and reporting requirements may be addressed in the Special Conditions sections of this permit.

SECTION G – SURFACE DISPOSAL SITES AND SLUDGE LAGOONS

1. Surface disposal sites shall comply with the requirements in 40 CFR 503 Subpart C, and solid waste disposal regulations under 10 CSR 80.
2. Additional limitations, monitoring, and reporting requirements may be addressed in the Special Conditions section of this permit.
3. Effective February 19, 1995, a sludge lagoon that has been in use for more than two years without removal of accumulated sludge, or that has not been properly closed shall comply with one of the following options:
   a. Permittee shall obtain a site specific permit to address surface disposal requirements under 40 CFR 503, ground water quality regulations under 10 CSR 20, Chapter 7 and 8, and solid waste management regulations under 10 CSR 80;
   b. Permittee shall clean out the sludge lagoon to remove any sludge over two years old and shall continue to remove accumulated sludge at least every two years or an alternate schedule approved under 40 CFR 503.20(b). In order to avoid damage to the lagoon seal during cleaning, the permittee may leave a layer of sludge on the bottom of the lagoon, upon prior approval of the department; or
   c. Permittee shall close the lagoon in accordance with Section 1.

SECTION H – LAND APPLICATION

1. The permittee shall not land apply sludge or biosolids unless land application is authorized in the Facility Description or special conditions section of the permit.
2. This permit replaces and terminates all previous sludge management plan approvals by the department for land application of sludge or biosolids.
3. Land application sites within a 20 mile radius of the wastewater treatment facility are authorized under this permit when biosolids are applied for beneficial use in accordance with these standard conditions unless a site specific permit is required under Section A, Subsection 9.
4. Biosolids shall not be applied unless authorized in this permit or exempted under 10 CSR 20, Chapter 6.
   a. This permit does not authorize the land application of sludge except when sludge meets the definition of biosolids.
   b. This permit authorizes “Class A or B” biosolids derived from domestic wastewater sludges to be land applied onto grass land, crop land, timber land or other similar agricultural or silviculture lands at rates suitable for beneficial use as organic fertilizer and soil conditioner.
5. Public Contact Sites.
   Permittees who wish to apply Class A biosolids to public contact sites must obtain approval from the department. Applications for approval shall be in the form of an engineering report and shall address priority pollutants and dioxin concentrations. Authorization for land applications must be provided in the special conditions section of this permit or in a separate site-specific permit.

6. Agricultural and Silvicultural Sites.
   In addition to specified conditions herein, this permit is subject to the attached Water Quality Guides numbers WQ 422 through 426 published by the University of Missouri, and herby incorporated as though fully set forth herein. The guide topics are as follows:
   - WQ 422 Land Application of Septage
   - WQ 423 Monitoring Requirements for Biosolids Land Application
   - WQ 424 Biosolids Standards for Pathogens and Vectors
   - WQ 425 Biosolids Standards for Metals and Other Trace Substances
   - WQ 426 Best Management Practices for Biosolids Land Applications

SECTION I – CLOSURE REQUIREMENTS

1. This section applies to all wastewater treatment facilities (mechanical and lagoons) and sludge or biosolids storage and treatment facilities and incineration ash ponds. It does not apply to land application sites.
2. Permittees who plan to cease operation must obtain department approval of a closure plan which addresses proper removal and disposal of all residues, including sludge, biosolids, and ash. Permittee must maintain this permit until the facility is properly closed per 10 CSR 20-6.010 and 10 CSR 20-6.015.
3. Residuals that are left in place during closure of a lagoon or earthen structure shall not exceed the agricultural loading rates as follows:
   a. Residuals shall meet the monitoring and land application limits for agricultural rates as referenced in Section H of these standard conditions.
   b. If a wastewater treatment lagoon has been in operation for 15 years or more, the sludge in the lagoon qualifies for Class B with respect to pathogens (see WQ 424, Table 3), and testing for fecal coliform is not required. For other lagoons, testing for fecal coliform is required to show compliance with Class B limitations. Se WQ 423 and 424.
   c. The allowable nitrogen loading that may be left in the lagoon shall be based on the plant available nitrogen (PAN) loading. See WQ 426 for calculation procedures. For a grass cover crop, the allowable PAN is 300 pounds/acre.
4. When closing a wastewater treatment lagoon with a design treatment capacity equal or less than 150 persons, the residuals are considered “septage” under the similar treatment works” definition. See WQ 422. Under the septage category, residuals may be left in place as follows:
   a. Testing for metals or fecal coliform is not required.
   b. If the wastewater treatment lagoon has been in use for less than 15 years, mix lime with the sludge at the rate of 50 pounds of hydrated lime per 1000 gallons (134 cubic feet) of sludge.
   c. The amount of sludge that may be left in the lagoon shall be based on the plan available nitrogen (PAN) loading. 100 dry tons/acre of sludge may be left in the basin without testing for nitrogen. If more than 100 dry tons/acre will be left in the lagoon, test for nitrogen and determine the PAN in accordance with WQ 426. Allowable PAN loading is 300 pounds/acre.
5. Residuals left within the lagoon shall be mixed with soil on at least a 1 to 1 ratio, the lagoon berms shall be demolished, and the site shall be graded and vegetated so as to avoid ponding of storm water and provide adequate surface water drainage without creating erosion.
6. Lagoon closure activities shall obtain a storm water permit for land disturbance activities that equal or exceed five acres in accordance with 10 CSR 20-6.200.
7. If sludge exceeds agricultural loading rates under Section H or I, a landfill permit or solid waste disposal permit shall be obtained to authorize on-site sludge disposal under the Missouri Solid Waste Management Law and regulations per 10 CSR 80, and the permittee must comply with the surface disposal requirements under 40 CFR 503, Subpart C.

SECTION J – MONITORING FREQUENCY

1. At a minimum, sludge or biosolids shall be tested for volume and percent total solids on a frequency that will accurately respresent sludge quantities produced and disposed.
2. Testing for land application is listed under Section H, Subsection 6 of these standard conditions (see WQ 423). Once per year is the minimum test frequency. Additional testing shall be performed for each 100 dry tons of sludge generated or stored during the year.
3. Additional testing may be required in the special conditions or other sections of the permit. Permittees receiving industrial wastewater may be required to conduct additional testing upon request from the department.
4. Monitoring requirements shall be performed in accordance with, “POTW Sludge Sampling and Analysis Guidance Document”, United States Environmental Protection Agency, August 1989, and subsequent revisions.

SECTION K – RECORD KEEPING AND REPORTING REQUIREMENTS

1. The permittee shall maintain records on file at the facility for at least five years for the items listed in these Standard Conditions and any additional items in the Special Conditions section of this permit. This shall include dates when the sludge facility is checked for proper operation, records of maintenance and repairs and other relevant information.
2. Reporting Period
   a. By January 28th of each year, an annual report shall be submitted for the previous calendar year period for all mechanical wastewater treatment facilities, sludge lagoons, and sludge or biosolids disposal facilities.
   b. Permittees with wastewater treatment lagoons shall submit the above annual report only when sludge or biosolids are removed from the lagoon during the report period or when the lagoon is closed.
3. Report Forms. The annual report shall be submitted on report forms provided by the department or equivalent forms approved by the department.
4. Report shall be submitted as follows:
   Major facilities (those serving 10,000 persons or 1 million gallons per day) shall report to both the department and EPA. Other facilities need to report only to the department. Reports shall be submitted to the addresses listed as follows:

   DNR regional office listed in your permit
   (See cover letter of permit)

   EPA Region VII
   Water Compliance Branch (WACM)
   Sludge Coordinator
   901 N 5th Street
   Kansas City, KS 66101

5. Annual Report Contents. The annual report shall include the following:
   a. Sludge/biosolids testing performed. Include a copy or summary of all test results, even if not required by this permit.
   b. Sludge or Biosolids quantity shall be reported as dry tons for quantity generated by the wastewater treatment facility, the quantity stored on site at end of year, and the quantity used or disposed.
   c. Gallons and % solids data used to calculate the dry ton amounts.
   d. Description of any unusual operating conditions.
   e. Final disposal method, dates, and location, and person responsible for hauling and disposal.
      (1) This must include the name, address and permit number for the hauler and the sludge facility. If hauled to a municipal wastewater treatment facility, sanitary landfill, or other approved treatment facility, give the name and permit number of that facility.
      (2) Include a description of the type of hauling equipment used and the capacity in tons, gallons, or cubic feet.
   f. Contract Hauler Activities.
      If contract hauler, provide a copy of a signed contract or billing receipts from the contractor. Permittee shall require the contractor to supply information required under this permit for which the contractor is responsible. The permittee shall submit a signed statement from the contractor that he has complied with the standards contained in this permit, unless the contract hauler has a separate sludge disposal or biosolids use permit.
   g. Land Application Sites.
      (1) Report the location of each application site, the annual and cumulative dry tons/acre for each site, and the landowners name and address. The location for each spreading site shall be given as legal description for nearest ¼, ¼, Section, Township, Range, and County, or as latitude and longitude.
      (2) If biosolids application exceeds 2 dry tons/acre/year, report biosolids nitrogen results. Plant Available Nitrogen (PAN) in pounds/acre, crop nitrogen requirement, available nitrogen in the soil prior to biosolids application, and PAN calculations for each site.
      (3) If the "Low Metals" criteria is exceeded, report the annual and cumulative pollutant loading rates in pounds per acre for each applicable pollutant, and report the percent of cumulative loading which has been reached at each site.
      (4) Report the method used for compliance with pathogen and vector attraction requirements.
      (5) Report soil test results for pH, CEC, and phosphorus. If none was tested during the year, report the last date when tested and results.

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM, WATER POLLUTION BRANCH

APPLICATION FOR TRANSFER OF OPERATING PERMIT

FOR AGENCY USE ONLY	
CHECK NO. 10004	
DATE RECEIVED 8/2/16	FEE SUBMITTED $100.00

PERMIT NUMBER
#MO- 0137031

THE FOLLOWING ITEMS (1 – 4) ARE TO BE COMPLETED BY THE CURRENT OWNER.
SEE INSTRUCTIONS FOR APPROPRIATE FEE TO BE SUBMITTED WITH APPLICATION.

1. FACILITY

NAME		TELEPHONE NUMBER WITH AREA CODE	
Steed Communities LLC. The Shores of TRL		417-739-3262	
ADDRESS (PHYSICAL)	CITY	STATE	ZIP
Valley View Blvd	Branson West	MO	65737

2. CURRENT OWNER

NAME	EMAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE	
Frank J. Steed Jr - Steed Communities	jay@steedcommunities.com	417-699-0369	
ADDRESS	CITY	STATE	ZIP
P.O. Box 1009	Branson West	MO	65737

3. CONTINUING AUTHORITY: Permanent organization that will serve as the continuing authority for the operation, maintenance and modernization of the facility. (If same as current owner, respond "same")

NAME	EMAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE	
SAME			
ADDRESS	CITY	STATE	ZIP

4. CERTIFICATION

I certify I am familiar with the information contained in the application, that to the best of my knowledge and belief such information is true, complete and accurate, and upon transfer approval, I agree to abide by the Missouri Clean Water Law and all rules, regulations, orders and decisions, subject to any legitimate appeal available under the Missouri Clean Water Law. Further, I certify I have read the existing permit and agree to abide by the terms and conditions once the transfer is complete.

NAME (TYPE OR PRINT)	OFFICAL TITLE	TELEPHONE NUMBER WITH AREA CODE
Frank J. Steed Jr	Steed Communities Owner	417-739-3262
SIGNATURE Frank J. Steed Jr		DATE SIGNED 7/28/16

THE FOLLOWING ITEMS (5 – 10) WILL APPLY AFTER THE COMPLETION OF TRANSFER (SALE) AND ARE TO BE COMPLETED BY THE APPLICANT FOR TRANSFER OF OPERATING PERMIT (BUYER) OR AUTHORIZED AGENT.

5. FACILITY (IF DIFFERENT THAN ABOVE)

NAME	TELEPHONE NUMBER WITH AREA CODE
SAME	

6. FUTURE OWNER

NAME	EMAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE	
SHORES of TRL POA INC	CHRISTMANNSTEVEN@GMAIL.COM	636-458-8582	
ADDRESS	CITY	STATE	ZIP
1630 CHERRY ORCHARD DR.	WILDWOOD	MO.	63040

7. CONTINUING AUTHORITY: Permanent organization that will serve as the continuing authority for the operation, maintenance and modernization of the facility. (If same as future owner, respond "same")

NAME	EMAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE	
SAME			
ADDRESS	CITY	STATE	ZIP

8. FACILITY CONTACT

NAME	TITLE		
RANDY DEHNE	UTILITIES PRESIDENT		
EMAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE		
ALLTALKRADER@AOL.COM	405-640-9874		
ADDRESS	CITY	STATE	ZIP
24501 N. WESTERN	EDMOND	OK.	73025

9. ADDITIONAL INFORMATION

9.1 Anticipated Effective Date of Transfer of Ownership: AUGUST 1ST, 2016

9.2 Are any changes in production, in raw materials, or in the quantity of discharges from this facility planned or anticipated?
☐ Yes ☑ No If yes, explain (Attach sheets as necessary)

10. CERTIFICATION

I certify I am familiar with the information contained in the application, that to the best of my knowledge and belief such information is true, complete and accurate, and upon transfer approval, I agree to abide by the Missouri Clean Water Law and all rules, regulations, orders and decisions, subject to any legitimate appeal available under the Missouri Clean Water Law. Further, I certify I have read the existing permit and agree to abide by the terms and conditions once the transfer is complete.

NAME (TYPE OR PRINT)	OFFICIAL TITLE	TELEPHONE NUMBER WITH AREA CODE
STEVEN CHRISTMANN	PRESIDENT	636-458-8582
SIGNATURE Steven Christmann		DATE SIGNED 7-28-16