

STATE OF MISSOURI  
**DEPARTMENT OF NATURAL RESOURCES**

MISSOURI CLEAN WATER COMMISSION



**MISSOURI STATE OPERATING PERMIT**

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92<sup>nd</sup> Congress) as amended,

Permit No. MO-0137391

Owner: Jeff Klein  
Address: 32867 Highway M, Smithton, MO 65350

Continuing Authority: Klein Campbell  
Address: 32867 Highway M, Smithton, MO 65350

Facility Name: Klein Campbell Wastewater Treatment Facility  
Facility Address: 33601 Cooper Rd., Gravois Mills, MO 65037

Legal Description: NE¼, SW¼, Sec. 29, T40N, R18W, Morgan County  
UTM Coordinates: X = 504589, Y= 4228309

Receiving Stream: Lake of the Ozarks (L2)  
First Classified Stream and ID: Lake of the Ozarks (L2) (7205)  
USGS Basin & Sub-watershed No.: (10290109-0205)

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 - NON-POTW – SIC # 8811  
No Certified Operator Required.  
Septic Tank/Orenco Advantex Recirculating Fabric Filter/UV disinfection/sludge removed by contract hauler.  
Design population equivalent is 7.4 PE.  
Design flow is 555 gallons per day.  
Design sludge production is 0.0518 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.

September 1, 2015      September 30, 2016  
Effective Date      Modification Date

Sara Parker Pauley, Director, Department of Natural Resources

August 31, 2020  
Expiration Date

John Madras, Director, Water Protection Program

<b>OUTFALL #001</b>	<b>TABLE A-1. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS</b>
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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 on **upon issuance** and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Flow	gpd	*		*	once/month	24 hr. estimate
Biochemical Oxygen Demand <sub>5</sub>	mg/L	15		10	once/quarter****	composite**
Total Suspended Solids	mg/L	20		15	once/quarter****	composite**
Ammonia as N	mg/L	12.1		4.6	once/quarter****	grab
pH – Units	SU	***		***	once/quarter****	grab
<i>E. coli</i>	#/100 ml	630		126	once/quarter****	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE January 28, 2016. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

- \* Monitoring requirement only.
- \*\* A composite sample made up from a minimum of four grab samples collected within a 24 hour period with a minimum of two hours between each grab sample.
- \*\*\* pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.5-9.0 pH units.
- \*\*\*\* Quarterly sampling is required and samples shall be collected and tested for the parameters listed in Table A-1 if a discharge occurs during the reporting period. If the facility serves a part-time or seasonal establishment/residence(s), then sampling shall occur while the treatment facility is operating and after a discharge begins. See table below for quarterly sampling schedule.

Minimum Sampling Requirements				
Quarter	Months	<i>E. coli</i>	All Other Parameters	Report is Due
First	January, February, March	Not required to sample.	Sample at least once during any month of the quarter	April 28 <sup>th</sup>
Second	April, May, June	Sample at least once during any month of the quarter	Sample at least once during any month of the quarter	July 28 <sup>th</sup>
Third	July, August, September	Sample at least once during any month of the quarter	Sample at least once during any month of the quarter	October 28 <sup>th</sup>
Fourth	October, November, December	Sample once during October; no sample required in either November or December	Sample at least once during any month of the quarter	January 28 <sup>th</sup>

**B. STANDARD CONDITIONS**

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

### C. SPECIAL CONDITIONS

1. This permit may be reopened and modified, or alternatively revoked and reissued, to:
  - (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
    - (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
    - (2) controls any pollutant not limited in the permit.
  - (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
  - (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.
  - (d) Incorporate the requirement to develop a pretreatment program pursuant to 40 CFR 403.8(a) when the Director of the Water Protection Program determines that a pretreatment program is necessary due to any new introduction of pollutants into the Publically Owned Treatment Works or any substantial change in the volume or character of pollutants being introduced.

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) To the extent required by law, discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.
  - (b) General Criteria. The following general water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
    - (1) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
    - (2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
    - (3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
    - (4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
    - (5) There shall be no significant human health hazard from incidental contact with the water;
    - (6) There shall be no acute toxicity to livestock or wildlife watering;
    - (7) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
    - (8) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

C. SPECIAL CONDITIONS (Continued)

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 by the Director in accordance with 40 CFR 122.44(f).
- (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.

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

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

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

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

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

11. At least one (1) warning sign shall be placed on each side of the facility enclosure in such positions as to be clearly visible from all directions of approach. There shall also be one (1) sign placed for every five hundred feet (500') (150 m) of the perimeter fence. A sign shall also be placed on each gate. Minimum wording shall be SEWAGE TREATMENT FACILITY—KEEP OUT. Signs shall be made of durable materials with characters at least two inches (2") high and shall be securely fastened to the fence, equipment or other suitable locations.

12. 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.

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

14. The discharge from the wastewater treatment facility shall be conveyed to the receiving stream via a closed pipe or a paved or rip-rapped open channel. Sheet or meandering drainage is not acceptable. The outfall sewer shall be protected against the effects of floodwater, ice or other hazards as to reasonably insure its structural stability and freedom from stoppage. The outfall shall be maintained so that a sample of the effluent can be obtained at a point after the final treatment process and before the discharge mixes with the receiving waters.

**MISSOURI DEPARTMENT OF NATURAL RESOURCES**  
**STATEMENT OF BASIS**  
**MO-0137391**  
**KLEIN CAMPBELL WWTF**

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: Private Households  
Facility SIC Code(s): #8811

Facility Description:

Septic Tank/Orenco Advantex Recirculating Fabric Filter/UV disinfection/sludge removed by contract hauler.  
Design population equivalent is 7.4 PE.  
Design flow is 555 gallons per day.  
Design sludge production is 0.0518 dry tons/year.

**Part II – Modification Rationale**

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

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 15, 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**  
**FACT SHEET**  
**FOR NEW FACILITY OF**  
**HALL/CAMPBELL WWTF**  
**MO-0137391**

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

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

A Factsheet is not an enforceable part of an operating permit. This Factsheet is for a Minor Operating Permit covering non-POTW domestic Wastewater Treatment Plants (WWTP).

**Part I – Facility Information**

Facility Type: NON-POTW SIC# - 8811

Facility Description:

Hall Campbell is a two house development approximately 10.0 miles from the city limits of Laurie. Both houses have existing septic systems which are believed to be leaking due to age. As a result of the submitted Antidegradation Review (Appendix A) analysis, the applicant's preferred alternative is Orenco Advantex Recirculating Fabric Filter with UV disinfection. The Advantex Recirculating Fabric Filter consists of a plastic box containing a felt-like material used to treat the wastewater. The system is similar to a recirculating sand filter except that the filter media is an engineered fabric textile. The raw sewage first goes through a septic tank with the Advantex filter treating the water from the septic tank. (Appendix B: facility flow diagram). The design flow will be 555 GPD.

The construction of this facility will be handled under CP0001502.

**OUTFALL(S) TABLE:**

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE
#001	0.00086	Secondary	Domestic (sanitary)

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

This facility is not required to have a certified operator.

**Part III– Operational Monitoring**

As per [10 CSR 20-9.010(4)], the facility is not required to conduct operational monitoring.

**Part IV – Receiving Stream Information**

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

**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 seven (7) categories. Each category lists effluent limitations for specific parameters, which are presented in each outfall's Effluent Limitation Table and further discussed in the Derivation & Discussion of Limits section. This permit only applies to facilities discharging to the following categories of water body.

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

**RECEIVING STREAM(S) TABLE:**

WATER-BODY NAME	CLASS	WBID	DESIGNATED USES*	12-DIGIT HUC	DISTANCE TO CLASSIFIED SEGMENT (MI)
Lake of the Ozarks	(L2)	7205	AQL, LWW, SCR, WBC(A)	10290109-0205	0.0

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

\*\* - Ecological Drainage Unit

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

**ALTERNATIVE EVALUATIONS FOR NEW FACILITIES:**

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

Not Applicable : The facility does not discharge to a Losing Stream as defined by [10 CSR 20-2.010(36)] & [10 CSR 20-7.031(1)(N)]. As part of the Antidegradation Review, the facility explored regional connection and it is unavailable at this time.

**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.

**ANTIDEGRADATION:**

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

Applicable : New and/or expanded discharge, please see **APPENDIX A: ANTIDEGRADATION ANALYSIS**. As a result of the submitted Antidegradation Review (Appendix A) analysis, the applicant's preferred alternative is Orenco Advantex Recirculating Fabric Filter with UV disinfection.

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

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

**BIOSOLIDS & SEWAGE SLUDGE:**

Biosolids are solid materials resulting from domestic wastewater treatment that meet federal and state criteria for beneficial uses (i.e. fertilizer). Sewage sludge is solids, semi-solids, or liquid residue generated during the treatment of domestic sewage in a treatment works; including but not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment process; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in a treatment works. Additional information regarding biosolids and sludge is located at the following web address: <http://dnr.mo.gov/env/wpp/pub/index.html>, items WQ422 through WQ449. With prior approval from the department, permittees are authorized to land apply biosolids, or utilize other methods of sludge disposal contained in Standard Conditions Part III.

- Permittee is not authorized to land apply biosolids. Sludge/biosolids are removed by contract hauler,

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

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

Per 644.051.4 RSMo, a permit may be issued with a Schedule of Compliance (SOC) to provide time for a facility to come into compliance with new state or federal effluent regulations, water quality standards, or other requirements. Such a schedule is not allowed if the facility is already in compliance with the new requirement, or if prohibited by other statute or regulation. A SOC includes 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. *See also* Section 502(17) of the Clean Water Act, and 40 CFR §122.2. For new effluent limitations, the permit includes interim monitoring for the specific parameter to demonstrate the facility is not already in compliance with the new requirement. Per 40 CFR § 122.47(a)(1) and 10 CSR 20-7.031(10), compliance must occur as soon as possible. If the permit provides a schedule for meeting new water quality based effluent limits, a SOC must include an enforceable, final effluent limitation in the permit even if the SOC extends beyond the life of the permit.

Not Applicable ; This permit does not contain a SOC.

**VARIANCE:**

As per the Missouri Clean Water Law § 644.061.4, variances shall be granted for such period of time and under such terms and conditions as shall be specified by the commission in its order. The variance may be extended by affirmative action of the commission. In no event shall the variance be granted for a period of time greater than is reasonably necessary for complying with the Missouri Clean Water Law §§644.006 to 644.141 or any standard, rule or regulation promulgated pursuant to Missouri Clean Water Law §§644.006 to 644.141. This operating permit is not drafted under premises of a petition for variance.

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

As per [10 CSR 20-2.010(78)], the amount of pollutant each discharger is allowed by the Department to release into a given stream after the Department has determined total amount of pollutant that may be discharged into that stream without endangering its water quality. Wasteload allocations were calculated where applicable using water quality criteria or water quality model results and the dilution equation below:

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

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

Chronic wasteload allocations were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration) and stream volume of flow at the edge of the mixing zone (MZ). Acute wasteload allocations were determined using applicable water quality criteria (CMC: criteria maximum concentration) and stream volume of flow at the edge of the zone of initial dilution (ZID). Water quality based maximum daily and average monthly effluent limitations were calculated using methods and procedures outlined in USEPA’s “Technical Support Document For Water Quality-based Toxics Control” (EPA/505/2-90-001).

Number of Samples “n”:

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

**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. 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 is defined as an intentional diversion of waste streams from any portion of a treatment facility, [40 CFR 122.41(m)(1)(i)]. Additionally, Missouri regulation 10 CSR 20-2.010(11) defines a bypass as the diversion of wastewater from any portion of wastewater treatment facility or sewer system to waters of the state. Only under exceptional and specified limitations do the federal regulations allow for a facility to bypass some or all of the flow from its treatment process. Bypasses are prohibited by the CWA unless a permittee can meet all of the criteria listed in 40 CFR 122.41(m)(4)(i)(A), (B), & (C). Any bypasses from this facility are subject to the reporting required in 40 CFR 122.41(l)(6) and per Missouri’s Standard Conditions I, Section B, part 2.b. Additionally, Anticipated Bypasses include bypasses from peak flow basins or similar devices designed for peak wet weather flows. This facility does not anticipate bypassing.

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

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

A TMDL is a calculation of the maximum amount of a given pollutant that a body of water can absorb before its water quality is affected. If a water body is determined to be impaired as listed on the 303(d) list, then a watershed management plan will be developed that shall include the TMDL calculation. This permit does not apply within a watershed for which an approved Total Maximum Daily Load includes wasteload allocations for oxygen demand, nitrogen, phosphorus, or ammonia. These pollutants are discharged by domestic wastewater treatment facilities, and therefore it may be necessary to apply a lower wasteload allocation than appears in this permit to any new or existing discharge in order to protect water quality.

**Part VI – Effluent Limits Determination**

**OUTFALL #001 EFFLUENT LIMITATIONS TABLE:**

PARAMETER	Unit	Basis for Limits	Daily Maximum	Weekly Average	Monthly Average
Flow	MGD	1	*		*
BOD <sub>5</sub>	mg/L	1, 6	15		10
TSS	mg/L	1, 6	20		15
pH	SU	1, 2	6.5-9.0		6.5-9.0
Ammonia as N	mg/L	2, 3, 5	12.1		4.6
Escherichia coli	**	1, 2, 3	630		126

\* - Monitoring requirement only.

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

**Basis for Limitations Codes:**

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

**OUTFALL #001 – DERIVATION AND DISCUSSION OF LIMITS:** SEE ANTIDEGRADATION REVIEW DISCUSSION OF EFFLUENT LIMITS, SECTION 10.1 OF APPENDIX A (PAGE 15 OF FACT SHEET).

**Part VII – Finding of Affordability**

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

**Part VIII – Administrative Requirements**

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

**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 August 16, 2013 to September 16, 2013. No responses received or responses to the Public Notice of this operating permit do not warrant the modification of effluent limits and/or the terms and conditions of this permit.

**DATE OF FACT SHEET:** AUGUST 12, 2013

**COMPLETED BY:**

LEASUE MEYERS, EIT  
WATER PROTECTION PROGRAM  
MISSOURI DEPARTMENT OF NATURAL RESOURCES  
[leasue.meyers@dnr.mo.gov](mailto:leasue.meyers@dnr.mo.gov)

**Appendix A: Hall Campbell WQAR**

# **Water Quality and Antidegradation Review**

*For the Protection of Water Quality and Determination of Effluent Limits for  
Discharge to Lake of the Ozarks*

*by*

***Hall Campbell Treatment Plant***



May 2013

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## 1. Facility Information

FACILITY NAME: Hall Campbell Treatment Plant NPDES #: NEW FACILITY

FACILITY TYPE/DESCRIPTION: Hall/Campbell is a two house development approximately 10.0 miles from the city limits of Laurie. Both houses have existing septic systems which are believed to be leaking due to age. As a result of the submitted alternative analysis, the applicant's preferred alternative is Orenco Advantex Recirculating Fabric Filter with UV disinfection. The design flow will be 555 GPD.

COUNTY: Morgan UTM COORDINATES: X= 504589 / Y= 4228309  
 12- DIGIT HUC: 102901090205 LEGAL DESCRIPTION: NE ¼ , SW ¼, Section 29, T 40N, R18W  
 EDU\*: Ozark/Osage COREGION: Ozark Highland

\* - Ecological Drainage Unit

## 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:

This is a new facility. Lake of the Ozarks is listed in the 2010 303(d) water quality report as impaired for nitrogen and phosphorus.

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	RECEIVING WATERBODY	DISTANCE TO CLASSIFIED SEGMENT (MI)
001	0.00086	Secondary	Lake of the Ozarks	0

## 3. Receiving Waterbody Information

WATERBODY NAME	CLASS	WBID	LOW-FLOW VALUES (CFS)			DESIGNATED USES **
			1Q10	7Q10	30Q10	
Lake of the Ozarks	L2	7205	-	-	-	AQL, LWW, SCR, WBC(A) General Criteria

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

## 4. General Comments

Lake Professional Engineering Services, Inc. prepared, on behalf of Jeffery Campbell, owner of Hall/Campbell, the *Antidegradation Report for Hall/Campbell* dated February 2013. Geohydrological Evaluation was submitted with the request and the receiving waterbody is gaining for discharge purposes (Appendix A: Map). Applicant elected to assume that all pollutants of concern (POC) are significantly degrading the receiving stream in the absence of existing water quality. An alternative analysis was conducted to fulfill the requirements of the AIP. Information that was provided by the applicant in the submitted report and summary forms in Appendix C was used to develop this review document.

## 5. Antidegradation Review Information

The following is a review of the *Antidegradation Report for Hall/ Campbell Treatment Plant* received March 29, 2013.

### 5.1. TIER DETERMINATION

Below is a list of pollutants of concern reasonably expected to be in the discharge (see Appendix D: Tier Determination and Effluent Limit Summary). Pollutants of concern are defined as those pollutants “proposed for discharge that affects 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). Tier 2 was assumed for all POCs, except total nitrogen and total phosphorus which have a Tier 1 status (see Appendix D).

Table 1. Pollutants of Concern and Tier Determination

POLLUTANTS OF CONCERN	TIER*	DEGRADATION	COMMENT
BOD <sub>5</sub> /DO	2	Significant	
Total Suspended Solids (TSS)	**	Significant	
Ammonia	2	Significant	
pH	***	Significant	Permit limits applied
Escherichia coli (E. coli)	2	Significant	
Nitrogen, Total	1	No Degradation	
Phosphorus, Total	1	No Degradation	

\* Tier assumed. Tier determination not possible: \*\* No in-stream standards for these parameters. \*\*\* Standards for these parameters are ranges

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

- Tier Determination and Effluent Summary
- Attachment A, Tier 2 with significant degradation.

### 5.2. EXISTING WATER QUALITY

No existing water quality data was submitted. All POCs except total nitrogen and total phosphorus were considered to be Tier 2 and significantly degraded in the absence of existing water quality. Total nitrogen and total phosphorus have a Tier 1 status.

### 5.3. DEMONSTRATION OF NECESSITY AND SOCIAL AND ECONOMIC IMPORTANCE

Missouri’s antidegradation implementation procedures specify that if the proposed activity does result in significant degradation then a demonstration of necessity (i.e., alternatives analysis) and a determination of social and economic importance are required. Eleven alternatives from non-degrading to less degrading to degrading alternatives were evaluated.

Nondegrading options evaluated included land application, subsurface irrigation, recycling or reuse, and individual holding tanks. Land application was determined to require approximately 14,560 ft<sup>2</sup>. The amount of land owned is only 13,068 ft<sup>2</sup>, so land application is impracticable due to insufficient available land. Subsurface irrigation was determined to require approximately 6000 ft<sup>2</sup>. The lot with the new house is unusable due to the fill material. The remaining space, not including setbacks, available for subsurface irrigation is only 2000 ft<sup>2</sup>. Soil absorption capacity in this area will be poor due to the amount of clay in the soil. The soil in the area is very shallow, so additional soil would likely need to be hauled to the site for subsurface irrigation to be a possibility. Subsurface irrigation was determined to be impracticable due to shallow soil with poor adsorption capacity and lack of available land area. The recycling or reuse of grey water, for example to wash the car, or water the lawn or garden, was evaluated, and it was determined to be impracticable due to the insufficient amount of available area to use or dispose of this amount of water. The use of individual holding tanks to be pumped and hauled was determined to be impracticable due to the possible frequency at which they may have to be pumped. On-site septic systems were determined to be impracticable due to the lack of area available for septic fields. Also, the existing septic field is believed to have failed due to a combination of its age, the shallowness of the soil, the proximity to the Lake of the Ozarks, and the inadequate size of the field.

The recirculating sand filter (RSF) was the first degrading system evaluated, and was the base case technology. This system is simple, stable, highly effective, easily built and maintained, and economical to operate. The raw sewage first goes through a septic tank with the RSF treating the water from the septic tank. This option is both practicable and economically efficient.

The second degrading alternative evaluated was an extended aeration system consisting of concrete tanks for aeration, clarification, and sludge holding. Extended aeration systems are a proven technology and can commonly meet lake effluent limits. Peak flows could compromise the quality of the effluent unless an equalization basin is used. This option is both practicable and economically efficient.

The Advantex Recirculating Fabric Filter consists of a plastic box containing a felt-like material used to treat the wastewater. The system is similar to an RSF except that the filter media is an engineered fabric textile. The raw sewage first goes through a septic tank with the Advantex filter treating the water from the septic tank. The Advantex system is relatively new and is very effective at treating settled sewage and can commonly meet lake effluent limits. The Advantex filter is considered both practicable and economically efficient.

The Zabel SCAT Recirculating Fabric Filter consists of a plastic box containing foam like material used to treat the wastewater. The raw sewage is collected in either individual septic tanks or in a common septic tank before being drawn out of the septic tank and into the central recirculation tank. The wastewater flows through a diffuser before flowing down through the foam. This system is effective at treating settled sewage and can commonly meet lake effluent limits. Although this system is fairly new, it is believed that the performance will be comparable to other fabric filters. This option is both practicable and economically efficient.

The Delta EcoPOD consists of a plastic or concrete box containing a fixed film. The raw sewage is collected in either individual septic tanks or in a common septic tank before being drawn out of the septic tank and into an aeration tank with a fixed film media in the EcoPOD system. The applicant stated that it has been their experience that this system has a difficult time meeting lake effluent limits. Therefore, this option is considered impracticable.

The Bio-Microbics FAST system consists of a plastic or concrete box containing a fixed film. The raw sewage is collected in either individual septic tanks or in a common septic tank before being drawn out of the septic tank and into an aeration tank with a fixed film media in the FAST system. The applicant stated that it has been their experience that this system has a difficult time meeting lake effluent limits. Therefore, this option is considered impracticable.

A lagoon would anaerobically break down the raw sewage. Lagoons are not as effective as the other alternatives at producing a quality effluent. Lagoons are prone to overflow from large peak flows or heavy rains and animals may use the lagoon as a water source. This option was considered impracticable due to the lower quality effluent.

Only those alternatives that were considered practicable were included in the economic efficiency analysis (Table 2). An affordability analysis was not conducted. The preferred alternative is the Orenco Advantex Recirculating Fabric Filter. Although other forms of treatment were more economically efficient and performed just as effectively, the Orenco Advantex was chosen due to size constraints of the available area and the aesthetics of the treatment unit.

TABLE 2: ALTERNATIVES ANALYSIS COMPARISON

	Recirculating Sand Filter	Extended Aeration	Zabel Scat	Orenco Advantex
BOD (mg/L)	10	20	10	10
TSS (mg/L)	15	20	15	15
E. Coli (#/100mL)	126	126	126	126
Ammonia (s/w) (mg/L)	3.0/3.0	3.0/3.0	3.0/3.0	3.0/3.0
Practical	Y	Y	Y	Y
Economical	Y	Y	Y	Y
Present Worth*	\$46,838	\$54,506	\$55,672	\$62,506
Ratio	100% (base)	116%	119%	133%

\*Present Worth at 25 year design life and 6% interest

### 5.3.1. REGIONALIZATION ALTERNATIVE

Within Section II B 1. of the AIP, discussion of the potential for discharge to a regional waste water collection system is mentioned. The applicant provided discussion of this alternative. There are no municipalities, public sewer districts, or sewer companies regulated by the Public Service Commission to provide sewer service.

NEEDS A WAIVER TO PREVENT CONFLICT WITH AREA WIDE MANAGEMENT PLAN APPROVED UNDER SECTION 208 OF THE CLEAN WATER ACT AND/OR UNDER 10 CSR 20-6.010(3) (B) 1 OR 2 CONTINUING AUTHORITIES? (Y OR N) N

### 5.3.2. SOCIAL AND ECONOMIC IMPORTANCE EVALUATION

The applicant first identified the community that will be affected by the proposed degradation of water quality as the people who vacation and enjoy the Lake of the Ozarks, as well as the landowners and residents in the Lake of the Ozarks area. The economy of the area is primarily tourism based. The construction of this treatment plant will employ approximately four workers for two months. The two homes provide housing for two working class families which will increase the tax base. The new system will replace a potentially leaking septic tank with a new system capable of producing quality effluent, reducing environmental risk.

## 6. 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.
9. If the proposed treatment technology is not covered in 10 CSR 20-8 Design Guides, the treatment process may be considered a new technology. As a new technology, the permittee will need to work with the review engineer to ensure equipment is sized properly. The operating permit may contain additional requirements to evaluate the effectiveness of the technology once the facility is in operation. This Antidegradation Review is based on the information provided by the facility and is not a comprehensive review of the proposed treatment technology. If the review engineer determines the proposed technology will not consistently meet proposed effluent limits, the permittee will be required to revise their Antidegradation Report.

## 7. Mixing Considerations

### Triangular Prism Method

#### Mixing Zone (MZ) Parameters:

According to the USGS 1:24,000K Quadrangle, the lake cove width near the new facility outfall location is approximately 2200 feet (ft). One-quarter of this width equals 550ft. Therefore, because 550 feet is greater than 100 ft, MZ = 100 feet [10 CSR 20-7.031(4)(A)5.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) = 100 ft, and depth (D) = 50 ft. Depth was obtained using mixing zone length projected 100 ft from shoreline to the intersecting contour on 7.5' USGS topographic map.

$Volume = L * W * (D * 0.5) = (100') * (100') * (50' * 0.5) = 250,000 \text{ ft}^3$ .

The flow volume of 60,000  $\text{ft}^3$  is assumed as the daily mixing zone. Therefore;  
 $(250,000 \text{ ft}^3/\text{day}) * (1 \text{ day}/86,400 \text{ sec}) = 2.89 \text{ ft}^3/\text{sec}$ .

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

**8. Permit Limits and Monitoring Information**  
**OUTFALL #001**

WASTELOAD ALLOCATION STUDY CONDUCTED (Y OR N):  N  USE ATTAINABILITY ANALYSIS CONDUCTED (Y OR N):  N  WHOLE BODY CONTACT USE RETAINED (Y OR N):  Y

WET TEST (Y OR N):  N  FREQUENCY:           N/A           AEC:           N/A           METHOD:           N/A          

Table 3. Effluent Limits

PARAMETER	UNITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	BASIS FOR LIMIT (NOTE 2)	MONITORING FREQUENCY
FLOW	MGD	*		*	FSR	Once/quarter
BIOCHEMICAL OXYGEN DEMAND <sub>5</sub>	MG/L	15		10	PEL	ONCE/QUARTER
DISSOLVED OXYGEN	MG/L	5.0 (MINIMUM)		5.0 (MINIMUM)	PEL	ONCE/QUARTER
TOTAL SUSPENDED SOLIDS	MG/L	20		15	PEL	ONCE/QUARTER
PH	SU	6.5–9.0		6.5 – 9.0	FSR	ONCE/QUARTER
AMMONIA AS N	MG/L	12.1		4.6	WQBEL	ONCE/QUARTER
TOTAL PHOSPHORUS (MG/L)	SEE DISCUSSION SECTION 10.2 BELOW.					
TOTAL NITROGEN (MG/L)						
ESCHERICHIA COLIFORM (E. COLI)	NOTE 1	630**		126**	FSR	ONCE/QUARTER

\* - Monitoring requirements only.

\*\* - The Monthly Average for E. coli shall be reported as a Geometric Mean.

NOTE 1 – COLONIES/100 ML

NOTE 2– WATER QUALITY-BASED EFFLUENT LIMITATION --WQBEL; OR MINIMALLY DEGRADING EFFLUENT LIMIT--MDEL; OR PREFERRED ALTERNATIVE EFFLUENT LIMIT-PEL; TECHNOLOGY-BASED EFFLUENT LIMIT-TBEL;OR NO DEGRADATION EFFLUENT LIMIT--NDEL; OR FSR --FEDERAL/STATE REGULATION; OR N/A--NOT APPLICABLE. ALSO, PLEASE SEE THE **GENERAL ASSUMPTIONS OF THE WQAR #4 & #5.**

**9. Receiving Water Monitoring Requirements**

No receiving water monitoring requirements recommended at this time.

## 10. Derivation and Discussion of Limits

Wasteload allocations and limits were calculated using two methods:

1) Water quality-based – Using water quality criteria or water quality model results and the dilution equation below:

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

Where C = downstream concentration

C<sub>s</sub> = upstream concentration

Q<sub>s</sub> = upstream flow

C<sub>e</sub> = effluent concentration

Q<sub>e</sub> = effluent flow

Chronic wasteload allocations were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration) and 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). 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).

2) Alternative Analysis-based – Using the preferred alternative's treatment capacity for conventional pollutants such as BOD<sub>5</sub> and TSS that are provided by the consultant as the WLA, the significantly-degrading effluent average monthly and average weekly limits are determined by applying the WLA as the average monthly (AML) and multiplying the AML by 1.5 to derive the average weekly limit (AWL). For toxic and nonconventional pollutant such as ammonia, the treatment capacity is applied as the significantly-degrading effluent monthly average (AML). A maximum daily can be derived by dividing the AML by 1.19 to determine the long-term average (LTA). The LTA is then multiplied by 3.11 to obtain the maximum daily limitation. This is an accepted procedure that is defined in USEPA's "Technical Support Document For Water Quality-based Toxics Control" (EPA/505/2-90-001).

Note: Significantly-degrading effluent limits have been based on the authority included in Section III. Permit Consideration of the AIP. Also under 40 CFR 133.105, permitting authorities shall require more stringent limitations than equivalent to secondary treatment limitations for 1) existing facilities if the permitting authority determines that the

30-day average and 7-day average BOD<sub>5</sub> and SS effluent values that could be achievable through proper operation and maintenance of the treatment works, and 2) new facilities if the permitting authority determines that the 30-day average and 7-day average BOD<sub>5</sub> and SS effluent values that could be achievable through proper operation and maintenance of the treatment works, considering the design capability of the treatment process.

### 10.1. 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<sub>5</sub>).** Applicant proposed BOD<sub>5</sub> limit of 10 mg/L monthly average. 15 mg/L weekly average limit was calculated as 1.5 times the monthly limit.
- **Dissolved Oxygen (DO).** Applicant proposed DO limit of 5 mg/L minimum for monthly average and daily minimum.
- **Total Suspended Solids (TSS).** 15 mg/L monthly average, 20 mg/L weekly average limits proposed.

- **pH.** pH shall be maintained in the range from six and one-half to nine (6.5– 9.0) standard units [10 CSR 20-7.015(3)(A)1.B.].
- **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. Limits for an ammonia mixing zone were calculated and submitted by the applicant. These were used instead of the proposed summer/winter limits of 3.0/3.0 on the Tier Determination form. Water Quality Based Effluent Limits (WQBEL) were calculated using the Triangular Prism Method for determining the Regulatory Mixing Zone. Only the summer WQBEL limits were calculated as they are the same as the winter limits.

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

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

Chronic WLA:  $C_e = ((0.00086 + 2.89)1.5 - (2.89 * 0.01)) / 0.00086$   
 $C_e = 1,198 \text{ mg/L}$

Acute WLA:  $C_e = ((0.00086 + 0)12.1 - (0 * 0.01)) / 0.00086$   
 $C_e = 12.1 \text{ mg/L}$

$LTA_c = 1,198 \text{ mg/L} (0.780) = 934 \text{ mg/L}$  [CV = 0.6, 99<sup>th</sup> Percentile, 30 day avg.]  
 $LTA_a = 12.1 \text{ mg/L} (0.321) = \mathbf{3.88 \text{ mg/L}}$  [CV = 0.6, 99<sup>th</sup> Percentile]

$MDL = 3.88 \text{ mg/L} (3.11) = 12.1 \text{ mg/L}$  [CV = 0.6, 99<sup>th</sup> Percentile]  
 $AML = 3.88 \text{ mg/L} (1.19) = 4.6 \text{ mg/L}$  [CV = 0.6, 95<sup>th</sup> Percentile, n = 30]

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

- **E. coli.** Effluent limitations for WBC(A) are 126 colonies per 100 ml monthly average and 630 colonies per 100 ml daily average [10 CSR 20-7.015 (3)(A)1.C.] and [10 CSR 20-7.031(4)(C), Table A]. For facilities less than 100,000 gpd: 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 month for the monthly average). Further, the limit may change depending on the outcome of future state effluent regulation revision. Please see **GENERAL ASSUMPTIONS OF THE WQAR #7**. The facility is proposing to use UV disinfection to meet *E. coli* effluent limits.
- **Total Phosphorus & Total Nitrogen.** The department has adopted nutrient criteria for discharges to lakes and reservoirs in 10 CSR 20-7.031(4)(N); however it has not developed an approved implementation procedure for total nitrogen and total phosphorus. The department recommends that the facility collect monitoring data for their own use; however it is not required. The potential exists that the facility will have monitoring requirements for nutrients, either due to the finalized Nutrient Implementation Plan or as a result of the total maximum daily load (TMDL) for Lake of the Ozarks.

## 11. ANTIDegradation REVIEW PRELIMINARY DETERMINATION

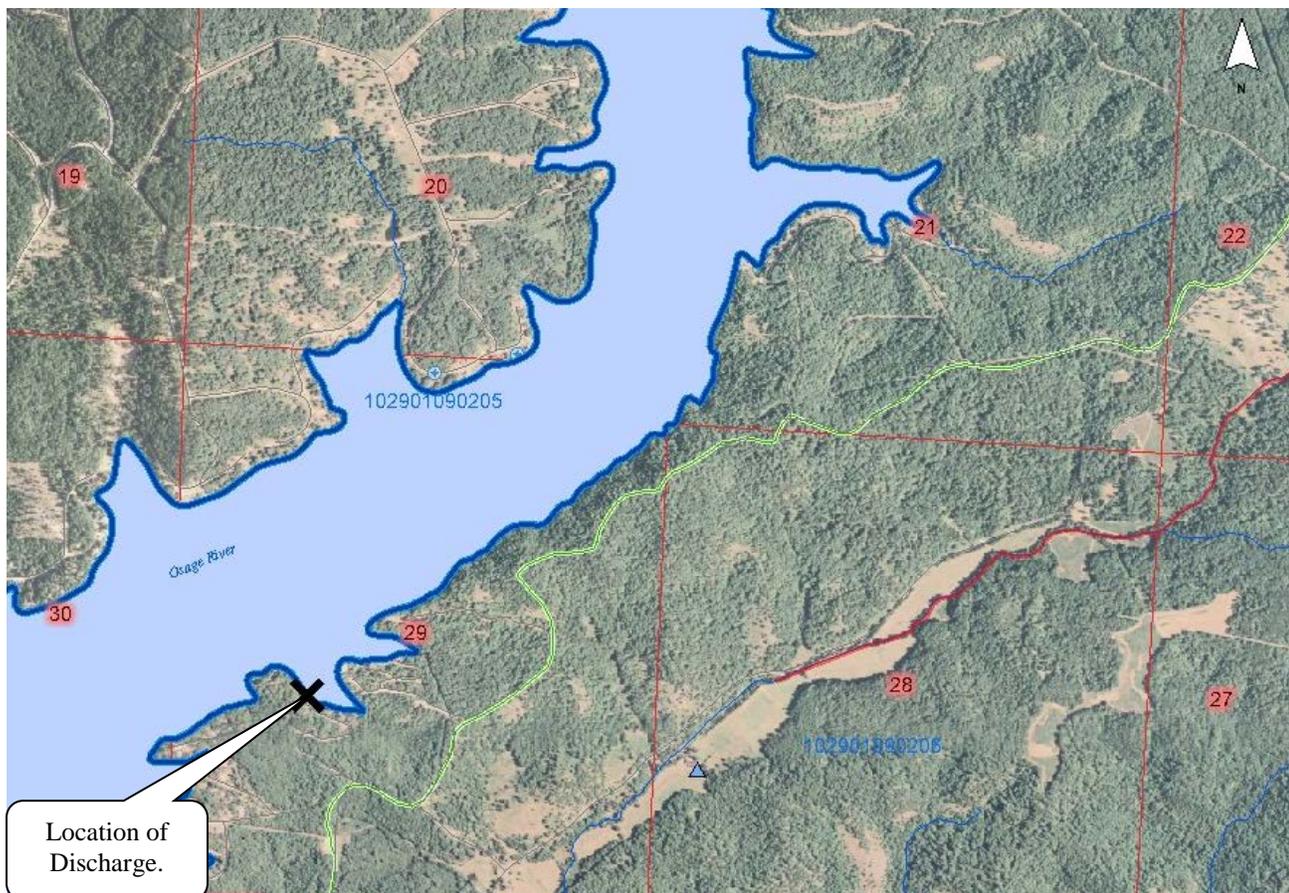
The proposed new facility discharge, Hall/Campbell Treatment Plant, 555 GPD will result in significant degradation of the segment identified in Lake of the Ozarks. A recirculating sand filter was determined to be the base case technology (lowest cost alternative that meets technology and water quality based effluent limitations). The cost effectiveness of the other technologies were evaluated, and the Orenco Advantex Recirculating Fabric Filter was determined to be the preferred alternative.

The Orenco Advantex Recirculating Fabric Filter is not covered in 10 CSR 20-8 Design Guides and may be considered a new treatment technology. As a new technology, the permittee will need to work with the review engineer to ensure equipment is sized properly and that the technology will consistently achieve the proposed effluent limits. The operating permit may contain additional requirements to evaluate the effectiveness of the technology once the facility is in operation.

Per the requirements of the AIP, the effluent limits in this review were developed to be protective of beneficial uses and to attain the highest statutory and regulatory requirements. MDNR has determined that the submitted review is sufficient and meets the requirements of the AIP. No further analysis is needed for this discharge.

Reviewer: Leasue Meyers, EI  
Date: 05/02/2013  
Unit Chief: John Rustige, P.E.

### APPENDIX A: MAP OF DISCHARGE LOCATION



Appendix B: Geohydrological Evaluation



Missouri Department Of Natural Resources

Division of Geology and Land Survey  
 P.O. Box 250  
 Rolla, Missouri 65402-0250  
 Phone - 573.368.2161 Fax - 573.368.2111  
 E-mail - gspgeol@dnr.mo.gov

Project ID Number

**LWE13042**

County

**MORGAN**

**Geohydrologic Evaluation of Liquid Waste Treatment Site**

Project **Hintz and Hall** Quadrangle **BOLLINGER CREEK**  
 Location **NW1/4, NE1/4, SW1/4** Section **29** Township **40 N** Range **18 W**  
 Additional Location Information  
 Latitude **38 Deg 12 Min 9 Sec** Longitude **92 Deg 56 Min 51 Sec**

**Owner**

Al Hintz & Patrice Hall  
 14721 W 80th Street Lenexa KS 66215

**Requestor**

Lake Professional Engineering  
 James O. Jackson (573) 216-7934  
 PO Box 27 Camdenton MO 65020

Previous Report  Not Applicable

Date

Identification Number

Fiscal Year

**Facility/Type**

- Mechanical treatment plant
- Recirculating filter bed
- Earthen lagoon with discharge
- Earthen holding basin
- Land application
- Other type of facility

**Type of Waste**

- Animal
- Human
- Process or industrial
- Leachate
- Other waste type

**Funding Source**

- PPG
- WWLF-SRF
- Non-Point Source

**Other Information**

- Plans were submitted
- Site was investigated by NRCS
- Soil or geotechnical data were submitted

**Date of Field Visit** 12/21/2012

**Stream Classification**

- Gaining
- Losing
- No discharge

**Overall Geologic Limitations**

- Slight
- Moderate
- Severe

**Collapse Potential**

- Not applicable
- Slight
- Moderate
- Severe

**Topography**

- < 4%
- 4% to 8%
- 8% to 15%
- > 15%

**Landscape Position**

- Broad uplands
- Ridgetop
- Hillslope
- Narrow ravine
- Floodplain
- Alluvial plain
- Terrace
- Sinkhole

**Bedrock**

The uppermost bedrock at the site is the Ordovician-age Gunter Sandstone.

**Surficial Materials**

Surficial materials at the site consist of less than 10 feet of sandy, silt residuum.

Project ID Number **LWE13042**

Page 2

**Recommended Construction Procedures**

- Installation of clay pad
- Diversion of subsurface flow
- Rock excavation
- Compaction
- Artificial sealing
- Limit excavation depth

**Required Geologic Exploration**

**(Missouri Clean Water Commission 510 CSR 20.08.200 Wastewater Treatment Ponds)**

**Determine Overburden Properties**

- Particle size analysis
- Standard Proctor density
- Permeability coefficient for undisturbed sample
- Atterburg limits
- Overburden thickness
- Permeability coefficient for remolded sample

**Determine Hydrologic Conditions**

- Groundwater elevation
- Direction of groundwater flow
- 25-year flood level
- 100-year flood level

**Notify Geologist**

- Before exploration
- During construction
- After construction
- Not necessary

**Remarks**

On December 21, 2012 a geologist with the Missouri Geological Survey Program conducted a site evaluation at a residence in Gravois Mills, Missouri for a proposed mechanical treatment plant (MTP) discharging into the Lake of the Ozarks. The goal of this evaluation is to determine the geologic and hydrologic elements of the site, and how they pertain to facility construction, collapse potential, and the potential for groundwater contamination in the event of treatment facility failure.

The uppermost bedrock at the site is the Ordovician-age Gunter Sandstone Member of the Gasconade Dolomite. The Gunter Sandstone is a highly permeable, medium-grained, quartzose sandstone approximately 20 feet thick at the site. Surficial materials at the site consist of highly permeable, sandy, silt residuum generally less than 10 feet thick.

The Osage River Fault has been previously mapped in the area and is approximately 1/3 mile west of the site.

The proposed MTP will discharge into Lake of the Ozarks, which is characterized as a gaining setting.

Based on the geologic and hydrologic characteristics observed at the site, the site receives a slight overall geologic limitations rating and slight collapse potential. In the event of treatment failure, the local, shallow groundwater and the surface waters of Lake of the Ozarks may be adversely impacted.

This document is a preliminary report. It is not a permit. Additional data may be required by the Department of Natural Resources prior to the issuance of a permit. This report is valid only at the above location and becomes invalid one year after the report date below.

Report By: Jeremiah Jackson

Report Date: 1/2/2013

WPP; SWRO



#### APPENDIX C: ANTIDegradation REVIEW SUMMARY ATTACHMENTS

The attachments that follow contain summary information provided by the applicant, Hall/Campbell Treatment Plant. MDNR staff determined that changes must be made to the information contained within these attachments. The following were modified and can be found within the MDNR WQAR:

- 1) Water Quality Review Assistance /Antidegradation Review Request. No changes needed.
- 2) Tier Determination and Effluent Limit Summary: Limits for an ammonia mixing zone were calculated and submitted by the applicant. These were used instead of the proposed summer/winter limits of 3.0/3.0 on the Tier Determination form.
- 3) Attachment A: Tier 2 – Significant Degradation. No changes needed.



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
 WATER PROTECTION PROGRAM, WATER POLLUTION CONTROL BRANCH  
**WATER QUALITY REVIEW ASSISTANCE/ANTIDEGRADATION REVIEW REQUEST**  
 PRE-CONSTRUCTION REVIEW FOR PROTECTION OF BENEFICIAL USES AND DEVELOPING EFFLUENT LIMITS

TYPE OF PROJECT  
 Grant     SRF Loan     All Other Projects

REQUESTER James O Jackson Jr - Lake Professional Engineering    TELEPHONE NUMBER WITH AREA CODE 573-873-3898

PERMITTEE Jeffrey Campbell    TELEPHONE NUMBER WITH AREA CODE 425-736-4754

**REASON FOR REQUEST**

New Discharge (See Instruction #9)     Upgrade (No expansion) (See AIP)     Expansion

DESCRIPTION OF PROPOSED ACTIVITY:  
New Advantex System w/ UV Light

**FACILITY INFORMATION**

FACILITY NAME Hall / Campbell    MSOP NUMBER (IF APPLICABLE)

COUNTY Morgan    SIC / NAICS CODE 4952

METHOD OF BACTERIA COMPLIANCE  
 Chlorine Disinfection     Ultraviolet Disinfection     Ozone     Not Applicable

WATER QUALITY ISSUES  
NONE

Water quality issues include: effluent limit compliance issues, notice (s) of violation, water body beneficial uses not attained or supported, etc.

OUTFALL	LOCATION (LAT/LONG OR LEGAL DESCRIPTION)	MAPPED <sup>1</sup> (CHECK)	RECEIVING WATER BODY <sup>2</sup>
1	N38°12'9.53" W92°56'51.07"	<input checked="" type="checkbox"/>	Lake of the Ozarks
		<input type="checkbox"/>	
		<input type="checkbox"/>	

<sup>1</sup> Attach topographic map (See www.dnr.mo.gov/internetmapviewer/) with outfall location(s) clearly marked. For additional outfalls, attach a separate form.  
<sup>2</sup> See general instructions for discharges to streams.

OUTFALL	NEW DESIGN FLOW ** (MGD)	TREATMENT TYPE	EFFLUENT TYPES*
1	.00555	Fabric Filter	Domestic Wastewater

\* Describe predominating character of effluent. Example: domestic wastewater, municipal wastewater, industrial wastewater, storm water, mining leachate, etc.  
 \*\* If expansion, indicate new design flow.

Checked for rare or endangered species and provided determination with this request. See Instruction #8.

**ANTIDEGRADATION REVIEW SUBMISSION:**

See attached Antidegradation instructions. Applicant supplied a summary within:

Tier Determination and Effluent Limit Summary  
 Attachment A – Significant Degradation  
 Attachment B – Minimal Degradation  
 Attachment C – Temporary degradation  
 Attachment D – Tier 1 Review  
 No Degradation Evaluation – Conclusion of Antidegradation Review

MO 780-1893 (03-09)

See general instructions. Additional information may be needed to complete your request. Your request may be returned if items are missing. Revised submittal will be considered a new submittal.

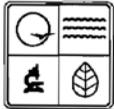
SIGNATURE [Signature]    DATE

PRINT NAME JEFFREY A CAMPBELL

E-MAIL ADDRESS jeff.campbell@jedunn.com

RECEIVED

MAR 29 2013



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

WATER PROTECTION PROGRAM

**1. FACILITY**

NAME <i>Hall / Campbell</i>		TELEPHONE NUMBER WITH AREA CODE <i>425-736-4754</i>	
ADDRESS (PHYSICAL) <i>3360 Cooper Rd</i>	CITY <i>Gravois Mills</i>	STATE <i>MO</i>	ZIP CODE <i>65037</i>

**2. RECEIVING WATER BODY SEGMENT #1**

NAME  
*Lake of the Ozarks*

2.1 UPPER END OF SEGMENT (Location of discharge)  
 UTM \_\_\_\_\_ OR Lat *N38°18'45.5"* Long *W92°56'51.07"*

2.2 LOWER END OF SEGMENT  
 UTM \_\_\_\_\_ OR Lat \_\_\_\_\_ Long \_\_\_\_\_

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 \_\_\_\_\_

**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.

RECEIVED

MAR 29 2013



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

WATER PROTECTION PROGRAM

**1. FACILITY**

NAME <i>Hall / Campbell</i>		TELEPHONE NUMBER WITH AREA CODE <i>425-736-4754</i>	
ADDRESS (PHYSICAL) <i>3360 Cooper Rd</i>	CITY <i>Gravois Mills</i>	STATE <i>MO</i>	ZIP CODE <i>65037</i>

**2. RECEIVING WATER BODY SEGMENT #1**

NAME  
*Lake of the Ozarks*

2.1 UPPER END OF SEGMENT (Location of discharge)  
 UTM \_\_\_\_\_ OR Lat *N38°18'45.5"* Long *W92°56'51.07"*

2.2 LOWER END OF SEGMENT  
 UTM \_\_\_\_\_ OR Lat \_\_\_\_\_ Long \_\_\_\_\_

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 \_\_\_\_\_

**5. PROJECT INFORMATION**

Is the receiving water body an Outstanding National Resource Water, an Outstanding State Resource Water, or drainage thereto?

Yes  No

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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.

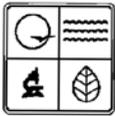
Has the project been determined as non-degrading?

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.

MAR 29 2013



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
 WATER PROTECTION PROGRAM, WATER POLLUTION CONTROL BRANCH  
**ANTIDEGRADATION REVIEW SUMMARY**  
**ATTACHMENT A: TIER 2 – SIGNIFICANT DEGRADATION**

WATER PROTECTION PROGR

**1. FACILITY**

NAME Hall/Campbell		TELEPHONE NUMBER WITH AREA CODE 425-736-4754	
ADDRESS (PHYSICAL) 33601 Cooper Rd	CITY Graouis Mills	STATE MO	ZIP CODE 65037

**2. RECEIVING WATER BODY SEGMENT #1**

NAME  
Lake of the Ozarks

**3. WATER BODY SEGMENT #2 (IF APPLICABLE)**

NAME

**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, On-site Septic

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	Dissolved
	(mg/L)	(mg/L)	5/W (mg/L)	(E. Coli) (#/100mL)	Oxygen mg/L
Delta EcoPod	20	20	3.0/3.0	126	5
Bio-Microbics	20	20	3.0/3.0	126	5
Extended-Air	20	20	3.0/3.0	126	5
Sand Filter	10	15	3.0/3.0	126	5
Zabel Seat	10	15	3.0/3.0	126	5
Orenco Advantex	10	15	3.0/3.0	126	5

**Identifying Alternatives Summary:**  
 Base technology is Extended air. Preferred is Orenco Advantex  
 Attached Report details why non degrading and  
 Some degrading options were not chosen to be  
 Proposed based on practicality, economics  
 and other issues.

**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.

Land application, on-site treatment, subsurface irrigation, and subsurface treatment was found to be not technically feasible. Eggpod + microfast were also found to be not technically feasible. Fabric Filter, Sand filter, + Extended air were all found to meet effective + reliability issues as well as environmental factors.

**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.

Present worth economic analysis showed the cost effective alternative to be extended aeration. However, the Orenco Advantex is the Preferred alternative

**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."

Not performed

**Preferred Chosen Alternative:**

Advantex fabric Filter

**Reasons for Rejecting the other Evaluated Alternatives:**

Size of available area needed and aesthetics

**Comments/Discussion:**

All alternatives are capable of meeting water Quality Standards

**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."

Vacationers and people who enjoy the Lake of the Ozarks as well as the land owners of the Lake of the Ozarks

**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., but specific community examples are encouraged.

Maintaining and possibly increasing the tax base to the community

**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.

removal of two possibly failed septic systems

**PROPOSED PROJECT SUMMARY:**

Provide treatment for 2 houses for working class families  
 Provide monitored sewage treatment at acceptable discharge  
 Levels utilizing Chemco's Advantex Fabric filter

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.

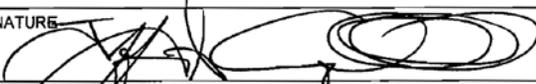
**CONSULTANT:** I have prepared or reviewed this form and all attached reports and documentation. The conclusion proposed is consistent with the Antidegradation Implementation Procedure and current state and federal regulations.

SIGNATURE:  DATE:

PRINT NAME: James O Jackson LICENSE #: PE 2003014984

TELEPHONE NUMBER WITH AREA CODE: 573-873-3898 E-MAIL ADDRESS:

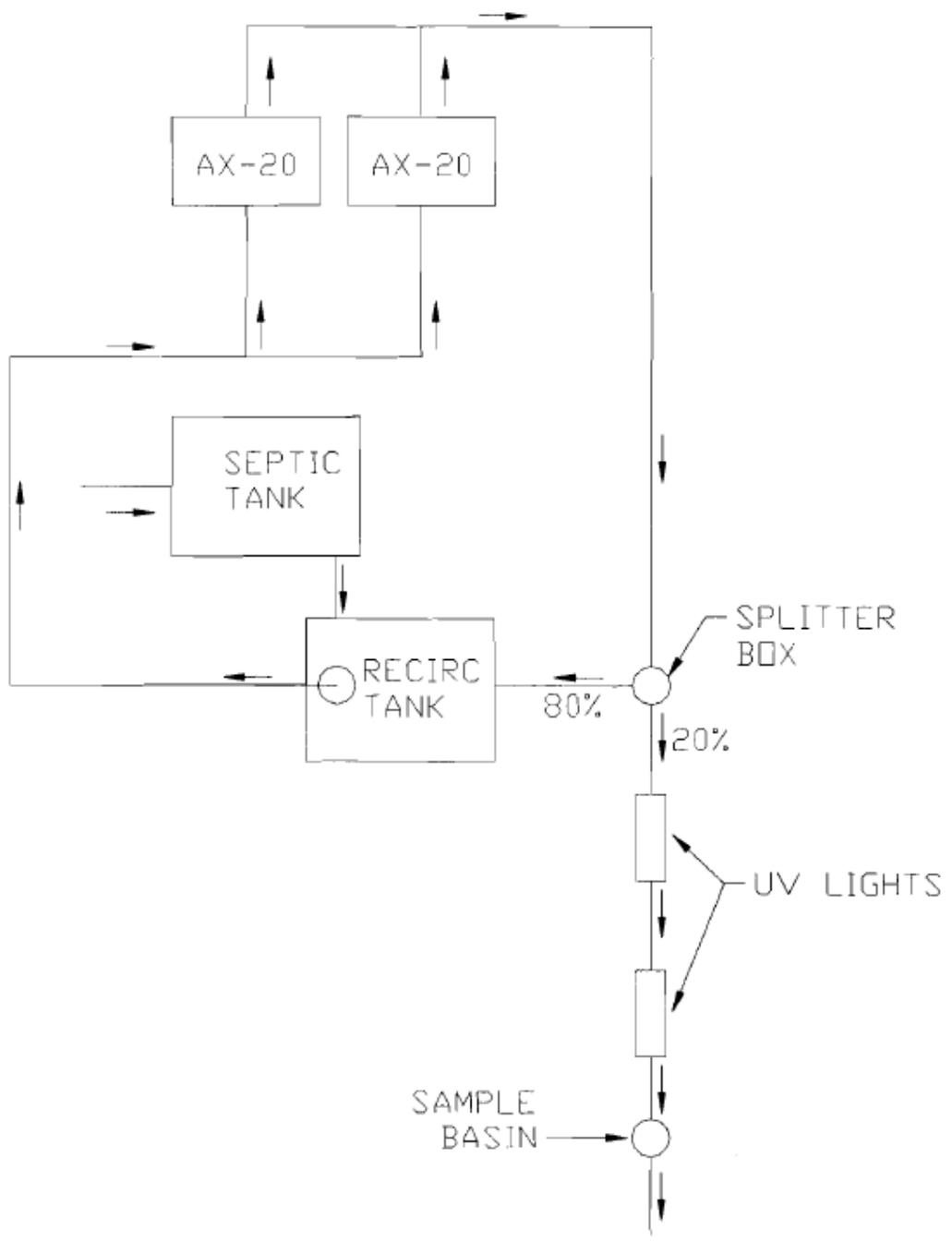
**OWNER:** I have read and reviewed the prepared documents and agree with this submittal.

SIGNATURE:  DATE:

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

SIGNATURE:  DATE:

Appendix B: Facility Flow Diagram



**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 shall 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 day of the month following the completed reporting period. Signed copies of these, and all other reports required herein, shall 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 the 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 any monitoring 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 by this 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 frequency shall 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 change, 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 being taken 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 necessary to 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 shall 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 no date 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 shall 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, nor 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. Permittees 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 granted 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 hereby 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. See 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 plant 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 represent 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 28<sup>th</sup> 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 5<sup>th</sup> 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**

RECEIVED  
 AUG 29 2016

FOR AGENCY USE ONLY	
CHECK NO.	9326
DATE RECEIVED	8-29-16
FEE SUBMITTED	\$100.00 SB

PERMIT NUMBER  
 #MO- 0137391

**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 Hall Campbell		TELEPHONE NUMBER WITH AREA CODE	
ADDRESS (PHYSICAL) 33601 Cooper Rd	CITY Gravois Mills	STATE MO	ZIP 65037

**2. CURRENT OWNER**

NAME Jeffrey Campbell		TELEPHONE NUMBER WITH AREA CODE (425) 736-4754	
ADDRESS 7827 Oakview Lane	CITY Lenexa	STATE KS	ZIP 66216

**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 Hall Campbell		TELEPHONE NUMBER WITH AREA CODE (425) 736-4754	
ADDRESS 7827 Oakview Lane	CITY Lenexa	STATE KS	ZIP 66216

**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) JEFF CAMPBELL	OFFICIAL TITLE Co-Owner	TELEPHONE NUMBER WITH AREA CODE (425) 736-4754
SIGNATURE 		DATE SIGNED 8-21-16

**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 Klein Campbell	TELEPHONE NUMBER WITH AREA CODE (660) 596-5333
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**6. FUTURE OWNER**

NAME Jeff Klein		TELEPHONE NUMBER WITH AREA CODE (660) 596-5333	
ADDRESS 32867 Hwy M	CITY Smithton	STATE MO	ZIP 65350

**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 Klein Campbell		TELEPHONE NUMBER WITH AREA CODE (660) 596-5333	
ADDRESS 32867 Hwy M	CITY Smithton	STATE MO	ZIP 65350

**8. FACILITY CONTACT**

NAME Jeff Klein		TITLE Co-Owner	
EMAIL ADDRESS jsklein5@gmail.com		TELEPHONE NUMBER WITH AREA CODE (660) 596-5333	
ADDRESS 32867 Hwy M	CITY Smithton	STATE MO	ZIP 65350

**9. ADDITIONAL INFORMATION**

- 9.1 Anticipated Effective Date of Transfer of Ownership: 05/31/2016
- 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) Jeffrey Klein	OFFICIAL TITLE Co-Owner	TELEPHONE NUMBER WITH AREA CODE (660) 596-5333
SIGNATURE 		DATE SIGNED 8-21-16