

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-0129470

Owner: Stone County Public Sewer District #1  
Address: 118 Notch Lane, Suite C; Branson West, MO 65737

Continuing Authority: Same as above  
Address: Same as above

Facility Name: Box Canyon Watershed WWTF  
Facility Address: Cape Cod Drive; Branson, MO 65616

Legal Description: NW ¼, SW ¼, NE ¼, Sec. 04, T22N, R22W, Stone County  
UTM Coordinates: X= 471449, Y= 4054788

Receiving Stream: Unnamed Tributary to Table Rock Lake (U)  
First Classified Stream and ID: Table Rock Lake (L2) (07313) 303(d) List  
USGS Basin & Sub-watershed No.: (11010001-1404)

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

**FACILITY DESCRIPTION**

Outfall #001 – POTW – SIC #4952

The use or operation of this facility shall be by or under the supervision of a Certified “B” Operator.  
Chemical addition to facilitate phosphorus removal / dual sequencing batch reactors (SBRs)/ tertiary filtration/ ultraviolet disinfection/ aerobic sludge digestion/ sludge disposal by contract hauler,  
Design population equivalent is 650.  
Design flow is 150,000 gallons per day.  
Actual flow is 55,000 gallons per day.  
Design sludge production is 39.5 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 621.250 RSMo, Section 640.013 RSMo and Section 644.051.6 of the Law.

April 12, 2011      November 16, 2015  
Effective Date      Revised Date

  
Sara Parker Pauley, Director, Department of Natural Resources

April 11, 2016  
Expiration Date

  
John Madras, Director, Water Protection Program

<b>OUTFALL #001</b>	<b>TABLE A FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS</b>	PERMIT NUMBER MO-0129470
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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 **November 16, 2015** and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Flow	MGD	*		*	once/weekday	24 hr. total
Biochemical Oxygen Demand <sub>5</sub>	mg/L		30	20	once/month	composite**
Total Suspended Solids	mg/L		30	20	once/month	composite**
<i>E. coli</i> (Note 1, Page 2)	MPN/100mL		630	126	once/week	grab
pH – Units	SU	***		***	once/month	grab
Ammonia as N (April 1 – Sept 30) (Oct 1 – March 31)	mg/L	1.7 5.6		0.6 2.1	once/month	grab
Total Nitrogen	mg/L	*		*	once/month	grab
Total Phosphorus	mg/L	*		0.5	once/month	grab
Oil & Grease	mg/L	15		10	once/month	grab
Aluminum, Total Recoverable	mg/L	0.75		0.37	once/month	grab
Iron, Total Recoverable	µg/L	*		*	once/month	grab

MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**; THE FIRST REPORT IS DUE **DECEMBER 28, 2015**. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

EFFLUENT PARAMETER(S)	UNITS	DAILY MINIMUM	WEEKLY AVERAGE MINIMUM	MONTHLY AVERAGE MINIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
Dissolved Oxygen	mg/L	6.0		6.0	once/month	grab

MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**. THE FIRST REPORT IS DUE , **DECEMBER 28, 2015**.

- \* Monitoring requirement only.
- \*\* A 24-hour composite sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.
- \*\*\* pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.0-9.0 pH units.

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

Note 2 - If no aluminum or iron was used in a given sampling period, an actual analysis is not necessary. Simply report as “0 mg/L”.

OUTFALL #001	<b>TABLE A- continued</b> <b>WHOLE EFFLUENT TOXICITY</b> <b>FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS</b>			PERMIT NUMBER MO-0129470	
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 <u>November 16, 2015</u> 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		
			MEASUREMENT FREQUENCY	SAMPLE TYPE	
Acute Whole Effluent Toxicity (Note 3)	% Survival	See Special Conditions #20	once/permit cycle	composite**	
MONITORING REPORTS SHALL BE SUBMITTED <b><u>ONCE PER PERMIT CYCLE</u></b> ; THE FIRST REPORT IS DUE <b><u>JANUARY 28, 2017</u></b> .					

\*\* A 24-hour composite sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.

Note 3 – The Acute WET test shall be conducted once per permit cycle. The report is due at least six (6) months prior to the expiration date of this permit. See Special Condition #20 for additional requirements.

<b>TABLE B.</b> <b>INFLUENT MONITORING REQUIREMENTS</b>			PERMIT NUMBER MO-0129470	
The facility is required to meet a removal efficiency of 85% or more as a monthly average. The monitoring requirements shall become effective on <u>November 16, 2015</u> and remain in effect until expiration of the permit. To determine removal efficiencies, the influent wastewater shall be monitored by the permittee as specified below:				
SAMPLING LOCATION AND PARAMETER(S)	UNITS	MONITORING REQUIREMENTS		
		MEASUREMENT FREQUENCY	SAMPLE TYPE	
Biochemical Oxygen Demand <sub>5</sub>	mg/L	once/month	composite**	
Total Suspended Solids	mg/L	once/month	composite**	
MONITORING REPORTS SHALL BE SUBMITTED <b><u>MONTHLY</u></b> ; THE FIRST REPORT IS DUE <b><u>DECEMBER 28, 2015</u></b> .				

\*\* A 24-hour composite sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.

**C. STANDARD CONDITIONS**

In addition to specified conditions stated herein, this permit is subject to the attached Parts I, II, & III standard conditions dated November 1, 2013; May 1, 2013; and March 1, 2014; respectively and hereby incorporated as though fully set forth herein.

**D. SPECIAL CONDITIONS**

1. This permit establishes final ammonia limitations based on Missouri’s current Water Quality Standard. On August 22, 2013, the U.S. Environmental Protection Agency (EPA) published a notice in the Federal Register announcing of the final national recommended ambient water quality criteria for protection of aquatic life from the effects of ammonia in freshwater. The EPA’s guidance, Final Aquatic Life Ambient Water Quality Criteria for Ammonia – Fresh Water 2013, is not a rule, nor automatically part of a state’s water quality standards. States must adopt new ammonia criteria consistent with EPA’s published ammonia criteria into their water quality standards that protect the designated uses of the water bodies. The Department of Natural Resources has initiated stakeholder discussions on how to best incorporate these new criteria into the State’s rules. A date for when this rule change will occur has not been determined. Also, refer to Section VI of this permit’s factsheet for further information including estimated future effluent limits for this facility. It is recommended the permittee view the Department’s 2013 EPA criteria Factsheet located at <http://dnr.mo.gov/pubs/pub2481.htm>.

D. SPECIAL CONDITIONS (continued)

2. This permit may be reopened and modified, or alternatively revoked and reissued, to:
- (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, 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 Publicly 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.

3. All outfalls must be clearly marked in the field.
4. Permittee will cease discharge by connection to a facility with an area-wide management plan per 10 CSR 20-6.010(3)(B) within 90 days of notice of its availability.
5. 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.

6. 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 (500µg/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.

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

D. SPECIAL CONDITIONS (continued)

8. Reporting of Non-Detects:
  - (a) An analysis conducted by the permittee or their contracted laboratory shall be conducted in such a way that the precision and accuracy of the analyzed result can be enumerated.
  - (b) The permittee shall not report a sample result as "Non-Detect" without also reporting the detection limit of the test. Reporting as "Non Detect" without also including the detection limit will be considered failure to report, which is a violation of this permit.
  - (c) The permittee shall provide the "Non-Detect" sample result using the less than sign and the minimum detection limit (e.g. <10).
  - (d) Where the permit contains a Minimum Level (ML) and the permittee is granted authority in the permit to report zero in lieu of the < ML for a specified parameter (conventional, priority pollutants, metals, etc.), then zero (0) is to be reported for that parameter.
  - (e) See Standard Conditions Part I, Section A, #4 regarding proper detection limits used for sample analysis.
9. It is a violation of the Missouri Clean Water Law to fail to pay fees associated with this permit (644.055 RSMo).
10. The permittee shall comply with any applicable requirements listed in 10 CSR 20-9, unless the facility has received written notification that the Department has approved a modification to the requirements. The monitoring frequencies contained in this permit shall not be construed by the permittee as a modification of the monitoring frequencies listed in 10 CSR 20-9. If a modification of the monitoring frequencies listed in 10 CSR 20-9 is needed, the permittee shall submit a written request to the Department for review and, if deemed necessary, approval.
11. The permittee shall submit a report annually by January 28<sup>th</sup> to the Southwest Regional Office with the Discharge and Monitoring reports which address measures taken to locate and eliminate sources of infiltration and inflow into the collection system serving the facility for the previous year.
12. Bypasses, as defined in 10 CSR 20-7.015(9)(G), 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. Relevant information shall be provided orally within 24 hours from the time the permittee becomes aware of a bypass, and shall be reported to the Southwest Regional Office during normal business hours or the Environmental Emergency Response hotline at 573-634-2436 outside of normal business hours.
13. The facility must be sufficiently secured to restrict entry by children, livestock and unauthorized persons as well as to protect the facility from vandalism.
14. At least one gate must be provided to access the wastewater treatment facility and provide for maintenance and mowing. The gate shall remain closed except when temporarily opened by; the permittee to access the facility, perform operational monitoring, sampling, maintenance, mowing, or for inspections by the Department. The gate shall be closed and locked when the facility is not staffed.
15. 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.
16. 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.
17. An all-weather access road shall be provided to the treatment facility.
18. The discharge from the wastewater treatment facility shall be conveyed to the receiving stream via a closed pipe or a paved or riprapped 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.

D. SPECIAL CONDITIONS (continued)

19. The media in the sand filter beds shall be properly maintained to prevent surface pooling, vegetative growth, and accumulation of leaf litter.

20. Acute Whole Effluent Toxicity (WET) tests shall be conducted as follows:

SUMMARY OF ACUTE WET TESTING FOR THIS PERMIT					
OUTFALL	AEC	Acute Toxic Unit (TU <sub>a</sub> )	FREQUENCY	SAMPLE TYPE	MONTH
001	100%	*	once/permit cycle	24 hr. composite	Complete any month prior to Sept. 2015

\*Monitoring only

Dilution Series						
100%	50%	25%	12.5%	6.25%	(Control) 100% upstream, if available	(Control) 100% Lab Water, also called synthetic water

a) Freshwater Species and Test Methods

i. Species and short-term test methods for estimating the acute toxicity of NPDES effluents are found in the fifth edition of *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* (EPA/821/R-02/012, 2002; Table IA, 40 CFR Part 136). The permittee shall concurrently conduct 48-hour static non-renewal toxicity tests with the following vertebrate species:

- The fathead minnow, *Pimephales promelas* (Acute Toxicity Test Method 2000.0).

And the following invertebrate species:

- The daphnid, *Ceriodaphnia dubia* (Acute Toxicity Test Method 2002.0).

ii. Chemical and physical analysis of an upstream control sample and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping. Where upstream receiving water is not available, synthetic laboratory control water may be used.

iii. Test conditions must meet all test acceptability criteria required by the EPA Method used in the analysis.

iv. Any and all chemical or physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% Effluent concentration in addition to analysis performed upon any other effluent concentration.

v. All chemical analyses shall be performed and results shall be recorded in the appropriate field of the report form. The parameters for chemical analysis include Temperature (°C), pH (SU), Conductivity (µmohs/cm), Dissolved Oxygen (mg/L), Un-ionized Ammonia (mg/L), Total Alkalinity (mg/L), and Total Hardness (mg/L).

b) Reporting of Acute Toxicity Monitoring Results

i. WET test results shall be submitted to the Southwest Regional Office, or by eDMR, with the permittee's Discharge Monitoring Reports by September, 28, 2015. The submittal shall include:

1. A full laboratory report for all toxicity testing.
2. Copies of chain-of-custody forms.
3. The WET form provided by the Department upon permit issuance.

ii. The report must include a quantification of acute toxic units (TU<sub>a</sub> = 100/LC<sub>50</sub>) reported according to the test methods manual chapter on report preparation and test review. The Lethal Concentration, 50 Percent (LC<sub>50</sub>) is the toxic or effluent concentration that would cause death in 50 percent of the test organisms over a specified period of time.

c) Permit Reopener for Acute Toxicity

In accordance with 40 CFR Parts 122 and 124, this permit may be modified to include effluent limitations or permit conditions to address acute toxicity in the effluent or receiving waterbody, as a result of the discharge; or to implement new, revised, or newly interpreted water quality standards applicable to acute toxicity.

**MISSOURI DEPARTMENT OF NATURAL RESOURCES**  
**FACT SHEET**  
**FOR THE PURPOSE OF UPGRADE/EXPANSION**  
**OF**  
**MO-0129470**  
**BOX CANYON WATERSHED WWTF**

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 stormwater 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 facility permit.

**Part I – Facility Information**

Facility Type: POTW - SIC #4952

Facility Description:

The use or operation of this facility shall be by or under the supervision of a Certified "B" Operator.

Chemical addition to facilitate phosphorus removal / dual sequencing batch reactors (SBRs)/ tertiary filtration/ ultraviolet disinfection/ aerobic sludge digestion/ sludge disposal by contract hauler,

Design population equivalent is 650.

Design flow is 150,000 gallons per day.

Actual flow is 55,000 gallons per day.

Design sludge production is 39.5 dry tons/year.

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

- Yes; Sequential batch reactors are being installed to replace the recirculating sand filters. The design treatment capacity is being increased from 0.029715 million gallons per day (MGD) to 015 MGD.

- No.

Application Date: 03/12/2014

Expiration Date: 04/11/2016

**OUTFALL(S) TABLE:**

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE
#001	0.233	Tertiary	Domestic

Facility Performance History:

A review of the past five (5) years of discharge monitoring reports (DMRs) revealed the facility has consistently exceed biochemical oxygen demand (BOD), phosphorus, *E. Coli*, and total suspended solids (TSS) effluent limits the past two years. The most recent compliance inspection (10/16/2013) also revealed the facility was not properly secured with a fence, that it released pollutants to the receiving stream and the treatment units not being properly operated and maintained. The facility is currently under enforcement action.

## **Part II – Operator Certification Requirements**

- This facility is required to have a certified operator.

As per [10 CSR 20-6.010(8) Terms and Conditions of a Permit], the permittee 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:

Owned or operated by or for a

- Municipalities
- Public Sewer District
- County
- Public Water Supply Districts
- Private Sewer Company regulated by the Public Service Commission
- State agency
- Federal agency

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

This facility currently requires an operator with a "B" Certification Level. Please see **Appendix - Classification Worksheet**. Modifications made to the wastewater treatment facility may cause the classification to be modified.

<http://www.dnr.mo.gov/operator/index.do>

Operator's Name: Roger Mullis  
Certification Number: 9795  
Certification Level: B

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

- This facility does not currently retain an operator with the correct level of certification required to operate the wastewater treatment facility. Missouri Clean Water Law and its implementing regulation 10 CSR 20-9.020(2)(F) allows the Department to develop a schedule of activities including the date by which compliance shall be obtained. This schedule of activities shall be established in this operating permit as a Schedule of Compliance.

- 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 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 CSR20-7.031(4)].

**RECEIVING STREAM(S) TABLE: OUTFALL #001**

WATER-BODY NAME	CLASS	WBID	DESIGNATED USES*	12-DIGIT HUC	DISTANCE TO CLASSIFIED SEGMENT (MI)
Tributary to Table Rock Lake	U	NA	General Criteria	11010001-1404	0.24
Table Rock Lake	L2	07313	AQL, LWW, SCR, WBC(A)		

\* - 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).

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

RECEIVING STREAM (U, C, P)	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Tributary to Table Rock Lake	0.0	0.0	0.0
Table Rock Lake	--	--	--

**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.

- The facility discharges to a Losing Stream as defined by [10 CSR 20-2.010(36)] & [10 CSR 20-7.031(1)(N)], or is an existing facility, and has submitted an alternative evaluation.

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

**ANTI-BACKSLIDING:**

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

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

**ANTIDegradation:**

In accordance with Missouri’s Water Quality Standard [10 CSR 20-7.031(3)], the Department is to document by means of Antidegradation Review that the use of a water body’s available assimilative capacity is justified. Degradation is justified by documenting the socio-economic importance of a discharging activity after determining the necessity of the discharge.

- No degradation proposed and no further review necessary. Facility did not apply for authorization to increase pollutant loading or to add additional pollutants to their discharge.

- This permit contains expanded discharge, please see **APPENDIX FOR ANTIDegradation ANALYSIS**.

**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://extension.missouri.edu/main/DisplayCategory.aspx?C=74>, items WQ422 through WQ449.

- Permittee land applies biosolids in accordance with Standard Conditions III and a Department approved biosolids management plan.
- Permittee is not authorized to land apply biosolids. Sludge/biosolids are removed by contract hauler and disposed of at a permitted facility.
- This condition is not applicable to the permittee for this facility.

**COMPLIANCE AND ENFORCEMENT:**

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

- The facility is currently under enforcement action. The enforcement action is due to failure to operate and maintain facilities properly, polluting waters of the State, and failure to meet permit limits.
- The facility is not currently under Water Protection Program enforcement action.

**PRETREATMENT PROGRAM:**

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

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

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

- Implementation and enforcement of the program,
  - Annual pretreatment report submittal,
  - Submittal of list of industrial users,
  - Technical evaluation of need to establish local limitations, and
  - Submittal of the results of the evaluation
- This permittee has an approved pretreatment program in accordance with the requirements of [40 CFR Part 403] and [10 CSR 20-6.100] and is expected to implement and enforce its approved program.
  - The permittee, at this time, is not required to have a Pretreatment Program or does not have an approved pretreatment program.

**REASONABLE POTENTIAL ANALYSIS (RPA):**

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

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

- A RPA was conducted on appropriate parameters. Please see **APPENDIX – RPA RESULTS.**
- A RPA was not conducted for this facility.

**REMOVAL EFFICIENCY:**

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

- Secondary Treatment is 85% removal [40 CFR Part 133.102(a)(3) & (b)(3)].
- Equivalent to Secondary Treatment is 65% removal [40 CFR Part 133.105(a)(3) & (b)(3)].
- Influent monitoring is not being required to determine percent removal.

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

Sanitary Sewer Overflows (SSOs) are defined as untreated sewage releases and are considered bypassing under state regulation [10CSR 20-2.010(11)] and should not be confused with the federal definition of bypass. SSOs result from a variety of causes including blockages, line breaks, and sewer defects that can either allow wastewater to backup within the collection system during dry weather conditions or allow excess stormwater and groundwater to enter and overload the collection system during wet weather conditions. SSOs can also result from lapses in sewer system operation and maintenance, inadequate sewer design and construction, power failures, and vandalism. SSOs include overflows out of manholes, cleanouts, broken pipes, and other conveyances into waters of the state and onto city streets, sidewalks, and other terrestrial locations.

Inflow and Infiltration (I&I) is defined as unwanted intrusion of stormwater or groundwater into a collection system. This can occur from points of direct connection such as sump pumps, roof drain downspouts, foundation drains, and storm drain cross-connections or through cracks, holes, joint failures, faulty line connections, damaged manholes, and other openings in the collection system itself. I&I results from a variety of causes including line breaks, improperly sealed connections, cracks caused by soil erosion/settling, penetration of vegetative roots, and other sewer defects. In addition, excess stormwater and groundwater entering the collection system from line breaks and sewer defects have the potential to negatively impact the treatment facility.

Missouri RSMo §644.026.1.(13) mandates that the Department issue permits for discharges of water contaminants into the waters of this state, and also for the operation of sewer systems. Such permit conditions shall ensure compliance with all requirements as established by sections 644.006 to 644.141. Standard Conditions Part I, referenced in the permit, contains provisions requiring proper operation and maintenance of all facilities and systems of treatment and control. Missouri RSMo §644.026.1.(15) instructs the Department to require proper maintenance and operation of treatment facilities and sewer systems and proper disposal of residual waste from all such facilities. To ensure that public health and the environment are protected, any noncompliance which may endanger public health or the environment must be reported to the Department within 24 hours of the time the permittee becomes aware of the noncompliance. This includes SSOs and other releases as discussed above. Standard Conditions Part I, referenced in the permit, contains the reporting requirements for the permittee when bypasses, sanitary sewer overflows, and upsets occur. The Department has been asked whether this includes “basement back-ups” hereby referred to as “building backups”, which are releases of sewage from sewer systems into homes and other buildings which do not necessarily reach waters of the state. The Department is charged with protecting public health, not just the environment, in the process of regulating wastewater treatment facilities. The release of sewage from the collection system into a location where public exposure can occur is a threat to public health, whether it reaches waters of the state or not. Just as an overflow of sewage from a manhole in a street is a threat to public health, so too is an overflow of sewage into homes and other buildings. Such occurrences must be reported within 24 hours of the permittee becoming aware of the occurrence. The permittee must also make a reasonable attempt to become aware of and mitigate any such overflow, if it is associated with the permittee’s portion of the collection system.

The permittee is not liable for reporting a building back-up or overflow caused by a blockage in the private service connection to the permittee’s portion of the sewer system. A permittee is not required to report an overflow into a storage device intended to contain sewage, such as a storage basin at a lift station, or a storage tank or tunnel associated with the collection system, as these facilities are required to be secured to prevent the public from being exposed to the sewage. Neither of these situations is considered non-compliance. In instances where the cause of a building back-up is unclear, it is recommended the permittee report the back-up, and then explain in a follow up written report if the cause was determined to be associated with a private service connection.

- In accordance with Missouri RSMo §644.026.1.(15) and 40 CFR Part 122.41(e), the permittee is required to develop and/or implement a program for maintenance and repair of the collection system and shall be required in this operating permit by either means of a Special Condition or Schedule of Compliance. In addition, the Department considers the development of this program as an implementation of this condition. Additionally, 40 CFR Part 403.3(o) defines a POTW to include any device and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of liquid nature. It also includes sewers, pipes, and other conveyances only if they convey wastewater to a POTW Treatment Plant.

At this time, the Department recommends the US EPA's Guide for Evaluating Capacity, Management, Operation and Maintenance (CMOM) Programs At Sanitary Sewer Collection Systems (Document # EPA 305-B-05-002). The CMOM identifies some of the criteria used by the EPA to evaluate a collection system's management, operation, and maintenance and was intended for use by the EPA, state, regulated community, and/or third party entities. The CMOM is applicable to small, medium, and large systems; both public and privately owned; and both regional and satellite collection systems. The CMOM does not substitute for the Clean Water Act, the Missouri Clean Water Law, and both federal and state regulations, as it is not a regulation.

- 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(11), 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.

A SOC is not allowed:

- For effluent limitations based on technology-based standards established in accordance with federal requirements, if the deadline for compliance established in federal regulations has passed. 40 CFR § 125.3.
- For a newly constructed facility in most cases. Newly constructed facilities must meet applicable effluent limitations when discharge begins, because the facility has installed the appropriate control technology as specified in a permit or antidegradation review. A SOC is allowed for a new water quality based effluent limit that was not included in a previously public noticed permit or antidegradation review, which may occur if a regulation changes during construction.
- To develop a TMDL, UAA, or other study associated with development of a site specific criterion. A facility is not prohibited from conducting these activities, but a SOC may not be granted for conducting these activities.

In order to provide guidance to Permit Writers in developing SOC's, and attain a greater level of consistency, on October 25, 2012 the Department issued a policy on development of SOC's. This policy provides guidance to Permit Writers on the standard time frames for schedules for common activities, and guidance on factors that may modify the length of the schedule such as an affordability analysis.

- The time given for effluent limitations of this permit listed under Interim Effluent Limitation and Final Effluent Limitations were established in accordance with [10 CSR 20-7.031(11)]. The facility has been given a schedule of compliance to meet final effluent limits for \_\_\_\_\_.

- This permit does not contain a SOC.

**STORMWATER POLLUTION PREVENTION PLAN (SWPPP):**

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

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

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

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

**VARIANCE:**

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

- This operating permit is drafted under premises of a petition for variance.
- 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
  - Cs = upstream concentration
  - Qs = upstream flow
  - Ce = effluent concentration
  - Qe = effluent flow

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

Water quality based maximum daily and average monthly effluent limitations were calculated using methods and procedures outlined in USEPA's "Technical Support Document For Water Quality-based Toxics Control" (EPA/505/2-90-001).

Number of Samples "n":

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

- Wasteload allocations were not calculated.

**WLA MODELING:**

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

- A WLA study including model was submitted to the Department.

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

**WATER QUALITY STANDARDS:**

Per [10 CSR 20-7.031(4)], 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.

Under the federal Clean Water Act (CWA) §101(a)(3), requiring WET testing is reasonably appropriate for site-specific Missouri State Operating Permits for discharges to waters of the state issued under the National Pollutant Discharge Elimination System (NPDES). WET testing is also required by 40 CFR 122.44(d)(1). WET testing ensures that the provisions in the 10 CSR 20-6.010(8)(A)7. and the Water Quality Standards 10 CSR 20-7.031(4)(D),(F),(G),(I)2.A & B are being met. Under [10 CSR 20-6.010(8)(A)4], the Department may require other terms and conditions that it deems necessary to assure compliance with the Clean Water Act and related regulations of the Missouri Clean Water Commission. In addition the following MCWL apply: §§644.051.3 requires the Department to set permit conditions that comply with the MCWL and CWA; 644.051.4 specifically references toxicity as an item we must consider in writing permits (along with water quality-based effluent limits, pretreatment, etc...); and 644.051.5 is the basic authority to require testing conditions. WET test will be required by facilities meeting the following criteria:

- Facility is a designated Major.
- Facility continuously or routinely exceeds its design flow.
- Facility that exceeds its design population equivalent (PE) for BOD<sub>5</sub> whether or not its design flow is being exceeded.
- Facility (whether primarily domestic or industrial) that alters its production process throughout the year.
- Facility handles large quantities of toxic substances, or substances that are toxic in large amounts.
- Facility has Water Quality-based Effluent Limitations for toxic substances (other than NH<sub>3</sub>)
- Facility is a municipality with a Design Flow ≥ 22,500 gpd.
- Other – please justify.

- 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 20-7.015(9)(G) states a bypass means the intentional diversion of waste streams from any portion of a treatment facility, except in the case of blending, 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.

- Bypasses occur or have occurred at this facility.
- The permittee has meet the criteria as established in 40 CFR 122.41(m)(4)(i)(A), (B), and (C).
- Outfall #001 is no longer authorized to discharge as it is a Bypass. The Department has developed a Voluntary Compliance Agreement (VCA) for communities that believe they need time to eliminate this discharge. The VCA requires communities to develop and submit bypass elimination plans, to make progress, and to report on this progress. The terms of the VCA is for five (5) years, and is renewable for another five (5) years assuming that adequate progress is being made. In return, the State of Missouri will not initiate enforcement actions for the terms contained in the VCA. The permittee has entered into a VCA.
- The permittee has not entered or does not meet the necessary requirements for entering into a VCA with the Department.
- 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.

- Table Rock Lake, the 1<sup>st</sup> classified water body for this facility, is listed on the 2012 Missouri 303(d) List for nutrient and eutrophication biological indicators.
- This facility is not considered to be a source of the above listed pollutant(s) or considered to contribute to the impairment of Table Rock Lake.
- It is unknown at this time if the facility is a source of the above listed pollutant(s) or considered to contribute to the impairment of Table Rock Lake. Once a TMDL is developed, the permit may be modified to include WLAs from the TMDL.
- This facility is considered to be a source of or has the potential to contribute to the above listed pollutant(s). When the nutrient implementation procedure is approved, the permit may be reopened and modified to include nutrient monitoring. Once a TMDL is developed, the permit will be modified to include WLAs from the TMDL.
- This facility does not discharge to a 303(d) listed stream.

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

Upcoming changes to the Water Quality Standard for ammonia may require significant upgrades to wastewater treatment facilities.

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

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

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

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

Ammonia toxicity varies by temperature and by pH of the water. Assuming a stable pH value, but taking into account winter and summer temperatures, Missouri includes two seasons of ammonia effluent limitations. Current effluent limitations in this permit are:

Summer – 1.7 mg/L daily maximum, 0.6 mg/L monthly average.

Winter – 5.6 mg/L daily maximum, 2.1 mg/L monthly average.

Under the new EPA criteria, where mussels of the family Unionidae are present or expected to be present, the estimated effluent limitations for a facility in a location such as this that discharges to a receiving stream with no mixing will be:

Summer – 1.7 mg/L daily maximum, 0.6 mg/L monthly average.

Winter – 5.6 mg/L daily maximum, 2.1 mg/L monthly average.

Actual effluent limits will depend in part on the actual performance of the facility.

Operating permits for facilities in Missouri must be written based on current statutes and regulations. Therefore permits will be written with the existing effluent limitations until the new standards are adopted. To aid permittees in decision making, an advisory will be added to permit Fact Sheets notifying permittees of the expected effluent limitations for ammonia. When setting schedules of compliance for ammonia effluent limitations, consideration will be given to facilities that have recently constructed upgraded facilities to meet the current ammonia limitations.

For more information on this topic feel free to contact the Missouri Department of Natural Resources, Water Protection Program, Water Pollution Control Branch, Operating Permits Section at (573) 751-1300.

## **Part VII – Effluent Limits Determination**

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

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

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

**OUTFALL #001 – MAIN FACILITY OUTFALL**

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

**EFFLUENT LIMITATIONS TABLE:**

PARAMETER	Unit	Basis for Limits	Daily Maximum	Weekly Average	Monthly Average	Modified	Previous Permit Limitations
Flow	MGD	1	*		*	No	NA
BOD <sub>5</sub>	mg/L	1, 3		30	20	No	30/20
TSS	mg/L	1, 3		30	20	No	30/20
pH	SU	1, 3	6.0 – 9.0			No	6.0 – 9.0
Ammonia as N (April 1 – Sept 30)	mg/L	2, 3, 5	1.7		0.6	Yes	3.7/1.4
Ammonia as N (Oct 1 – March 31)	mg/L	2, 3, 5	5.6		2.1	Yes	7.5/2.9
Dissolved Oxygen (DO)**	mg/L	3, 9	6.0		6.0	No	6.0/6.0
Escherichia coli ( <i>E.Coli</i> )	***	1, 3		630	126	No	630/126
Oil & Grease (mg/L)	mg/L	1, 3	15		10	No	15/10
Total Nitrogen	mg/L	1	*		*	No	NA
Total Phosphorus	mg/L	1	*		0.50	No	*/0.50
Aluminum, Total Recoverable	mg/L	3	0.75		0.37	No	0.75/0.37
Iron, Total Recoverable	mg/L	3	*		*	No	NA
Acute Whole Effluent Toxicity	TUa	1	*/TU			No	NA

\* - Monitoring requirement only.

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

\*\*\* - MPN/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 (includes RPA) | 8. Water Quality Model             |
| 3. Water Quality Based Effluent Limits   | 9. Best Professional Judgment      |
| 4. Lagoon Policy                         | 10. TMDL or Permit in lieu of TMDL |
| 5. Ammonia Policy                        | 11. WET Test Policy                |
| 6. Antidegradation Review                |                                    |

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

- **Flow.** In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the Department, which may require the submittal of an operating permit modification.

- **Biochemical Oxygen Demand (BOD<sub>5</sub>).**

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

- 30 mg/L as a Weekly Average and 20 mg/L as a Monthly Average. Please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Effluent Limits Determination**.

- 15 mg/L Weekly Average and 10 mg/L Monthly Average effluent limitations, as per [10 CSR 20-7.015].

- **Total Suspended Solids (TSS).**
  - Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Effluent Limits Determination.**
  - 30 mg/L as a Weekly Average and 20 mg/L as a Monthly Average. Please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Effluent Limits Determination.**
  - 20 mg/L Weekly Average and 15 mg/L Monthly Average effluent limitations, as per [10 CSR 20-7.015].
- **pH.** – 6.0-9.0 SU. Technology based limits [10 CSR 20-7.015] are protective of the water quality standard [10 CSR 20-7.031(5)(E)], due to the buffering capacity of the mixing zone.
- **Total Ammonia Nitrogen.** See “Out #001 – Main Facility Outfall Limit Derivation” on page 8 of the *Water Quality and Antidegradation Review* in Appendix A, for the total ammonia nitrogen derivation.
- **Dissolved Oxygen.** Dissolved oxygen in the stream is dependent upon the wastewater treatment plant effluent concentration of dissolved oxygen. 6.0 mg/l was proposed as the minimum concentration, which the department is requiring 6.0 mg/l as a daily minimum and monthly average for the outfall. For protection of aquatic life, dissolved oxygen must be at least 5.0 mg/l at confluence with Table Rock Lake. [10 CSR20-7.031(4)(J)].
- **Escherichia coli (E. coli).** Monthly average of 126 per 100 mL as a geometric mean and Weekly Average of 630 per 100 mL as a geometric mean during the recreational season (April 1 – October 31), to protect Whole Body Contact Recreation (A) designated use of the receiving stream, as per 10 CSR 20-7.031(5)(C). An effluent limit for both monthly average and weekly average is required by 40 CFR 122.45(d).
- **Oil & Grease.** Conventional pollutant, effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.
- **Total Phosphorus.** The 0.5 mg/L effluent limitation is required per 10 CSR 20-7.015(3)(F). Monitoring required for facilities greater than 100,000 gpd design flow per 10 CSR 20-7.015(9)(D)7.
- **Total Nitrogen.** Monitoring required for facilities greater than 100,000 gpd design flow per 10 CSR 20-7.015(9)(D)7.
- **Aluminum, Total Recoverable.** This facility uses chemicals for phosphorous removal that may contain aluminum. Based on previous monitoring data, a reasonable potential exists for this facility’s discharge to exceed water quality standards for Aluminum (Total Recoverable).
- **Iron, Total Recoverable.** Monitoring requirement only. This facility uses chemicals for phosphorous removal that may contain iron. Monitoring is required to determine if reasonable potential exists for this facility’s discharge to exceed water quality standards for Iron (Total Recoverable).
- **Acute Whole Effluent Toxicity.** Monitoring requirement only. Monitoring is required to determine if reasonable potential exists for this facility’s discharge to exceed water quality standards.

**Minimum Sampling and Reporting Frequency Requirements.**

PARAMETER	SAMPLING FREQUENCY	REPORTING FREQUENCY
Flow	once/weekday	once/month
BOD <sub>5</sub>	once/month	once/month
TSS	once/month	once/month
pH	once/month	once/month
Ammonia as N	once/month	once/month
<i>E. coli</i>	once/week	once/month
Dissolved Oxygen	once/month	once/month
Oil & Grease	once/month	once/month
Total Phosphorus	once/month	once/month
Total Nitrogen	once/month	once/month
Aluminum, Total Recoverable	once/month	once/month
Iron, Total Recoverable	once/month	once/month
Acute Whole Effluent Toxicity	once/permit cycle	once/permit cycle

**Sampling Frequency Justification:**

Sampling and Reporting Frequency was retained from previous permit, except for *E. coli*, where weekly sampling is required per 10CSR 20-7.015.

**WET Test Sampling Frequency Justification.** WET Testing schedules and intervals are established in accordance with the Department’s Permit Manual; Section 5.2 *Effluent Limits / WET Testing for Compliance Bio-monitoring*. It is recommended that WET testing be conducted during the period of lowest stream flow.

**Acute Whole Effluent Toxicity**

- **No less than ONCE/PERMIT CYCLE:**
  - Municipality with a design flow  $\geq$  22,500 gpd, but less than 1.0 MGD.
  - Other, please justify.
  
- **No less than ONCE/YEAR:**
  - Facility is designated as a Major facility or has a design flow  $\geq$  1.0 MGD.
  - Facility continuously or routinely exceeds their design flow.
  - Facility exceeds its design population equivalent (PE) for BOD<sub>5</sub> whether or not its design flow is being exceeded.
  - Facility has Water Quality-based effluent limitations for toxic substances (other than NH<sub>3</sub>).
  
- **No less than TWICE/YEAR:**
  - Facility is subject to production processes alterations throughout the year.
  - Facility handles large quantities of toxic substances, or substances that are toxic in large amounts.
  - Facility has been granted seasonal relief of numeric limitations.

**Sampling Type Justification**

As per 10 CSR 20-7.015, BOD<sub>5</sub>, TSS, Aluminum, Iron, and WET test samples collected for mechanical plants shall be a 24 hour composite sample. Grab samples, however, must be collected for pH, dissolved oxygen, Ammonia as N, *E. coli*, Oil & Grease, Total Nitrogen, and Total Phosphorus. This is due to the holding time restriction for *E. coli*, the volatility of Ammonia, and the fact that pH and DO cannot be preserved and must be sampled in the field. As Ammonia, Oil & Grease, and Total Phosphorus samples must be immediately preserved with acid, these samples are to be collected as a grab.

## **Part VIII – Finding of Affordability**

Pursuant to Section 644.145, RSMo, when issuing permits under this chapter that incorporate a new requirement for discharges from publicly owned combined or separate sanitary or storm sewer systems or publicly owned treatment works, or when enforcing provisions of this chapter or the Federal Water Pollution Control Act, 33 U.S.C. 1251 et seq., pertaining to any portion of a publicly owned combined or separate sanitary or storm sewer system or [publicly owned] treatment works, the Department of Natural Resources shall make a finding of affordability upon which to base such permits and decisions, to the extent allowable under this chapter and the Federal Water Pollution Control Act. Where permit modifications, permit renewals, or sewer extensions do not impose new requirements and/or do not require rate increases, the affordability finding may receive a less detailed review. Permits that do not include new requirements may be deemed affordable.

- The Department is required to determine findings of affordability because the permit applies to a **combined or separate sanitary sewer system for a publically-owned treatment works**.

**Finding of affordability** - The Department has made a reasonable search for empirical data indicating the permit is affordable. The search consisted of a review of Department records that might contain economic data on the community, a review of information provided by the applicant as part of the application, and public comments received in response to public notices of this draft permit. If the empirical cost data was used by the permit writer, this data may consist of median household income, any other ongoing projects that the Department has knowledge, and other demographic financial information that the community provided as contemplated by Section 644. 145.3. See **Appendix – Affordability Analysis**

- The Department is not required to determine findings of affordability because the permit contains no new conditions or requirements that convey a new cost to the facility.

## **Part IX – 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. Renewal applications must continue to be submitted within 180 days of expiration, however, in instances where effluent data from the previous renewal is less than 4 years old, that data may be re-submitted to meet the requirements of the renewal application. If the permit provides a schedule of compliance for meeting new water quality based effluent limits beyond the expiration date of the permit, the time remaining in the schedule of compliance will be allotted in the renewed permit.

### **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 is tentatively scheduled to begin on July 11, 2014 to August 11, 2014.

**DATE OF FACT SHEET:** JUNE 4, 2014

**COMPLETED BY:**

**STEPHEN P. BUSCH, P.E.; ENVIRONMENTAL ENGINEER**  
**MISSOURI DEPARTMENT OF NATURAL RESOURCES**  
**WATER PROTECTION PROGRAM**  
**ENGINEERING SECTION**  
**(573) 526-**  
**7558 [steve.busch@dnr.m](mailto:steve.busch@dnr.mo.gov)**  
**[o.gov](mailto:steve.busch@dnr.mo.gov)**

**FINALIZED BY (October 26, 2015):**

**TODD BLANC.; ENVIRONMENTAL SCIENTIST**  
**DEPARTMENT OF NATURAL RESOURCES**  
**WATER PROTECTION PROGRAM**  
**ENGINEERING SECTION**  
**(314) – 416 - 2064**  
**[todd.blanc@dnr.mo.gov](mailto:todd.blanc@dnr.mo.gov)**

### **Appendices**

**APPENDIX A - CLASSIFICATION WORKSHEET**  
**APPENDIX B – AFFORDABILITY ANALYSIS**  
**APPENDIX C – ANTIDegradation REVIEW**

**APPENDIX A - CLASSIFICATION WORKSHEET:**

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
Maximum Population Equivalent (P.E.) served (Max 10 pts.)	1 pt./10,000 PE or major fraction thereof.	0.065
Maximum: 10 pt Design Flow (avg. day) or peak month; use greater (Max 10 pts.)	1 pt. / MGD or major fraction thereof.	0.15
<b>EFFLUENT DISCHARGE RECEIVING WATER SENSITIVITY:</b>		
Missouri or Mississippi River	0	
All other stream discharges except to losing streams and stream reaches supporting whole body contact	1	
Discharge to lake or reservoir outside of designated whole body contact recreational area	2	
Discharge to losing stream, or stream, lake or reservoir area supporting whole body contact recreation	3	3
<b>PRELIMINARY TREATMENT - Headworks</b>		
Screening and/or comminution	3	3
Grit removal	3	
Plant pumping of main flow (lift station at the headworks)	3	
<b>PRIMARY TREATMENT</b>		
Primary clarifiers	5	
Combined sedimentation/digestion	5	
Chemical addition (except chlorine, enzymes)	4	4
<b>REQUIRED LABORATORY CONTROL – performed by plant personnel (highest level only)</b>		
Push – button or visual methods for simple test such as pH, Settleable solids	3	3
Additional procedures such as DO, COD, BOD, titrations, solids, volatile content	5	
More advanced determinations such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc.	7	
Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph	10	
<b>ALTERNATIVE FATE OF EFFLUENT</b>		
Direct reuse or recycle of effluent	6	
Land Disposal – low rate	3	
High rate	5	
Overland flow	4	
<b>Total from page ONE (1)</b>	----	13.22

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

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
<b>VARIATION IN RAW WASTE (highest level only) (DMR exceedances and Design Flow exceedances)</b>		
Variation do not exceed those normally or typically expected	0	
Recurring deviations or excessive variations of 100 to 200 % in strength and/or flow	2	
Recurring deviations or excessive variations of more than 200 % in strength and/or flow	4	4
Raw wastes subject to toxic waste discharge	6	
<b>SECONDARY TREATMENT</b>		
Trickling filter and other fixed film media with secondary clarifiers	10	
Activated sludge with secondary clarifiers (including extended aeration and oxidation ditches)	15	15
Stabilization ponds without aeration	5	
Aerated lagoon	8	
Advanced Waste Treatment Polishing Pond	2	
Chemical/physical – without secondary	15	
Chemical/physical – following secondary	10	10
Biological or chemical/biological	12	
Carbon regeneration	4	
<b>DISINFECTION</b>		
Chlorination or comparable	5	
Dechlorination	2	
On-site generation of disinfectant (except UV light)	5	
UV light	4	4
<b>SOLIDS HANDLING - SLUDGE</b>		
Solids Handling Thickening	5	
Anaerobic digestion	10	
Aerobic digestion	6	6
Evaporative sludge drying	2	
Mechanical dewatering	8	
Solids reduction (incineration, wet oxidation)	12	
Land application	6	
Total from page <b>TWO (2)</b>	---	39
Total from page <b>ONE (1)</b>	---	13.22
Grand Total	---	52.22

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

APPENDIX B – AFFORDABILITY ANALYSIS:

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

**Box Canyon Watershed WWTF, Permit Modification  
Stone County Public Sewer District #1  
Missouri State Operating Permit #MO-129470**

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

The Department is required to issue a permit with final effluent limits in accordance with 644.051.1.(1) RSMo, 644.051.1.(2) RSMo, and the Clean Water Act. The practical result of many affordability findings will be to allow longer compliance schedules to mitigate adverse impact to distressed populations resulting from the costs of upgrading the wastewater treatment facility. In the event that the Stone County Public Sewer District #1 (SCPSD #1) cannot meet the tailored schedule of compliance due to financial hardship, the applicant should consider pursuit of a Use Attainability Analysis (UAA) under 40 CFR 131.10(g) for Department and EPA approval.

This finding of affordability is based on data available to the Department as provided by the permittee and what can be obtained from readily available sources. A request for information was sent to the permittee, seeking data for input into this analysis prior to its development. The cost estimates located within this document are for the construction of a brand new treatment facility as the Department must be able to estimate the cost of construction for every site-specific permit within the state. For the most accurate analysis, it is essential that the permittee provides the Department with current information about the SCPSD #1’s financial and socioeconomic situation.

**Facility Description:** The Box Canyon Watershed WWTF will be a dual sequencing batch reactors (SBR) followed by tertiary filtration and ultraviolet disinfection. Preliminary screening is provided by a manual bar screen. Chemical addition is provided to facilitate phosphorus removal. The WWTF has a design flow of 150,000 gallons per day (gpd). Current actual flows at the site are approximately 55,000 gpd. Flows vary significantly with highest flow rates occurring during the summer recreation season. The facility provides aerobic sludge digestion of biological solids. Sludge disposal is provided by a contract hauler.

Receiving Stream: Unnamed Tributary to Table Rock Lake (U)  
First Classified Stream and ID: Table Rock Lake (L2) (07313) 303(d) List  
USGS Basin & Sub-watershed No.: 11010001-1404

**Flow evaluated:**

Residential Connections:	308
Commercial Connections:	<u>0</u>
Industrial Connections:	<u>0</u>
Total Connections for this facility: <sup>2</sup>	308

**New Permit Requirements:**

The permit requires compliance with the existing effluent limitations for the new permit with the exception of ammonia limits which will be more restrictive (e.g, 1.7 mg/L daily maximum and 0.6 mg/L monthly average during the recreation season). The current facility capacity is undersized requiring a new design, construction and operation of new technology. The cost assumptions in this affordability analysis anticipate complete replacement of the existing treatment facility. To calculate the estimated user cost, the Department used the equations currently being used in the Financial Assistance Center's rate calculator. The equations account for replacement costs, debt retirement, capital costs, and an inflation factor. Because the methods used to derive the analysis estimate costs that are greater than actual costs associated with an upgrade, it reflects a conservative estimate anticipated for a community. This is because it is not possible for the permit writer to determine what existing equipment and structures will be reused in the upgraded facility before an engineer completes a facility design.

The size of the facility, design flow, evaluated for upgrades was chosen based on actual average flows reported by the facility. If significant population growth is expected in the community, or if a significant portion of the flow is due to I&I, the flows used in the Facility Plan prepared by a consulting engineer may be different than this flow.

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

The estimated cost for complete replacement of the existing treatment facility in order to meet new loading requirements is estimated to be approximately \$1.5 million to \$1.9 million. This cost, if financed through user fees, might cost each household approximately \$33.50 per month. The Department has estimated the construction and treatment costs for the SBR only. Sludge handling has not been included in the capital, operations and maintenance, and present worth cost estimations.

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

Current Monthly User Rates: <sup>3</sup>	<u>\$45.00</u> Rate
Capacity or Pay as You Go Option:	<u>N/A</u>
Municipal Bond Rating (if applicable):	<u>N/A</u>
Bonding Capacity:	<u>\$2,671,000</u>
Current outstanding debt:	<u>\$850,000</u>
Other indicators:	<u>N/A</u>

Costs specific to SCPSW #1 such as current debt retirement have not been added to the estimated user rate because the Department does not know how the current rate is structured or where the money from the rate is allocated.

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

**A. Current Costs**

Current operating costs (exclude depreciation):	\$20,000
Current user rate: <sup>3</sup>	<u>\$45.00</u>

**B. Estimated Costs for Mechanical Plant Pollution Control Options**

Estimated capital cost of pollution control options	\$1,500,000 - <u>\$1,900,000</u>
Annual Cost of Operation and Maintenance:	<u>\$45,000 - \$55,000</u>
Estimated Resulting User Cost per Household per Month: <sup>4</sup>	\$50.00 - \$60.00
Median Household Income	\$50,465
Cost per Household as a Percent of Median Household Income:	<u>1.2% - 1.4%</u>

Estimates of the capital cost to finance a new mechanical treatment facility with disinfection to be between \$1,500,000 and \$1,900,000. If financed through user costs, the future user costs have the potential to be between \$26.30 and \$33.50 per month for the proposed capital improvements. These costs assume a 5% interest rate over 30 years. The Department has estimated the construction and treatment costs for an SBR only. The treatment technology was set to meet effluent ammonia limits of less than 0.6 mg/L and losing stream criteria for BOD<sub>5</sub> and TSS. Sludge handling and sludge treatment have not been included in the capital, operations and maintenance, and present worth cost estimations.

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

On August 22, 2013, the U.S. Environmental Protection Agency (EPA) finalized new water quality criteria for ammonia, based on toxicity studies of mussels and gill breathing snails. When new water quality criteria are established by the EPA, states must adopt them into their regulations in order to keep their authorization to issue permits under the National Pollutant Discharge Elimination System. This permit modification requires final effluent limitations for Ammonia as N based on Missouri Water Quality Standards (WQS) 10 CSR 20-7.031 and the Clean Water Act. Ammonia (NH<sub>3</sub>) is toxic to early stages of aquatic life. NH<sub>3</sub> removal prevents damage to aquatic life and enables the receiving stream to support a healthier and diverse aquatic life community. The technology evaluated was for an SBR. The technology evaluated has demonstrated the capability of meeting the 2013 ammonia criteria when operated and maintained at a proper level. Please see the Water Protection Program fact sheet titled “Changes to the Water Quality Standard for Ammonia” at <http://dnr.mo.gov/pubs/pub2481.htm>.

For all mechanical treatment technologies calculated by the Department, sludge handling and sludge treatment is not included in the capital, operations and maintenance, and annual or present worth costs. All treatment technologies were designed to meet effluent ammonia of less than 1.0 mg/L and losing stream criteria for BOD<sub>5</sub> and TSS of less than 10 mg/L.

*E. coli* is an indicator of the presence of fecal contamination in water and possible disease-causing bacteria and viruses in water and wastewater. The receiving stream has a WBC (B) designated use to protect human health in accordance with Water Quality Standards (10 CSR 20-7.031) and the Clean Water Act. Disinfection benefits human health by reducing exposure to disease-causing bacteria and viruses. The SCPSD #1 is including a disinfection system with the treatment system in order to meet the final effluent limitations.

Nutrients are mineral compounds that are required for organisms to grow and thrive. Of the six (6) elemental macronutrients, Nitrogen and Phosphorus are generally not readily available and limit growth of organisms. If excess Nitrogen and Phosphorus are introduced into a waterbody, some species' populations will dramatically increase, while other populations will not be able to sustain life. This causes a shift in the ecosystem's food web. Competition and productivity are two factors in which nutrients can alter aquatic ecosystems and the designated uses of a waterbody. For example, designated uses, like drinking water source or recreational uses become impaired when algal blooms take over a waterbody. These blooms can cause foul tastes and odors in the drinking water, and also cause unsightly appearance, and fish mortality in the waterbody. Some algae also produce toxins that may cause serious adverse health conditions such as liver damage, tumor promotion, paralysis, and kidney damage. Increased productivity of aquatic life may also clog treatment equipment and cause an increase in organic matter, bacteria, and fungi. The die-off and decomposition of algal blooms can reduce dissolved oxygen and suffocate fish and other aquatic life in the waterbody. The monitoring requirements for Nitrogen and Phosphorus have been added to the permit to provide data to the Department regarding the health of the receiving stream's and lake's aquatic life.

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

- (a) Allowing adequate time in implementation schedules to mitigate potential adverse impacts on distressed populations resulting from the costs of the improvements and taking into consideration local community economic considerations.
- (b) Allowing for reasonable accommodations for regulated entities when inflexible standards and fines would impose a disproportionate financial hardship in light of the environmental benefits to be gained.

Potentially Distressed Populations – City of Branson West	
Unemployment <sup>5</sup>	15.7%
Median Household Income (MHI) <sup>6</sup>	\$ 50,465
Percent Change in MHI (1990-2012)	Not available
Percent Population Growth/Decline (1990-2012) <sup>7</sup>	+2,116.2%
Change in Median Age in Years (1990-2012)	Not available
Percent of Households in Poverty <sup>8</sup>	25.4%
Percent of Households Relying on Food Stamps	30.0%

Opportunity for cost savings or cost avoidance:

If available, connection to a larger centralized sewer system in the area may be more cost effective for the community.

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

The community did not report any other investments relating to environmental improvements.

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

**Secondary indicators for consideration:**

Indicators	Strong (3 points)	Mid-Range (2 points)	Weak (1 point)	Score
Bond Rating Indicator	Above BBB or Baa	BBB or Baa	Below BBB or Baa	NA
Overall Net Debt as a % of Full Market Property Value	Below 2%	2% - 5%	Above 5%	NA
Unemployment Rate	>1% below Missouri average	± 1% of Missouri average	>1% above Missouri average	1
Median Household Income	More than 25% above Missouri MHI	± 25% of Missouri MHI	More than 25% below Missouri average	2
Property Tax Revenues as a % of Full Market Property Value	Below 2%	2% - 4%	Above 4%	NA
Property Tax Collection Rate	Above 98%	94% - 98%	Below 94%	NA

Secondary Indicators Average Score:  $\frac{(1+2)}{2} = 1.5$   
 Residential Indicator (from Criteria #2 above):  $\frac{1.2\% - 1.4\%}{}$

**Financial Capability Matrix:**

Financial Capability Indicators Score from above ↓	Residential Indicator (User cost as a % of MHI)		
	Low (Below 1%)	Mid-Range (Between 1.0% and 2.0%)	High (Above 2.0%)
Weak (below 1.5)	Medium Burden	High Burden	High Burden
Mid-Range (1.5 – 2.5)	Low Burden	Medium Burden	High Burden
Strong (above 2.5)	Low Burden	Low Burden	Medium Burden

Estimated Financial Burden: Medium Burden

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

The community did not report any other relevant local economic conditions.

**Conclusion and Finding**

As a result of increased connections/flow and new regulations, the Department is proposing modifications to the current operating permit that will require the permittee to upgrade the facility and construct new control technologies to meet effluent limitations including nutrients. The Department identified the actions for which an affordability analysis is required under Section 644.145 RSMo.

The Department estimates the total present worth for complete replacement of the existing treatment facility in order to meet increased flow and new ammonia effluent limits is between \$2.3 million and \$2.7 million. Should these costs be financed through user fees, it may require user fees between 1.2% and 1.4% of the community's MHI. Considering that several of the economic factors show a mid-range financial capability in this community, this analysis concludes that the evaluated permit action may result in user fees between 1% and 2% of the community's median household income.

The Department considered all seven (7) of the criteria presented in subsection 644.145.3 when evaluating the affordability of the relevant actions. Taking into consideration these criteria, this analysis examined whether the above referenced permit modifications affects the ability of an individual customer or household to pay a utility bill without undue hardship or unreasonable sacrifice in the essential lifestyle or spending patterns of the individual or household. As a result of reviewing the above criteria, the Department hereby finds that the action described above may result in a mid-range burden with regard to the community's overall financial capability and a medium financial impact for most individual customers/households.

However, this determination is based on readily available data and may over-estimate the financial impact on the community, when the community submits their facility plan as part of the construction permit process, the plan includes a discussion of community details, what the community can afford, existing obligations, future growth potential, an evaluation of options available to the community with cost information, and a discussion on no-discharge alternatives. The cost information provided through the facility plan process, which is developed by the community and their engineer, is more comprehensive of the community's individual factors in relation to selected treatment technology and costing information.

**References:**

1. <http://www.hydromantis.com/>
2. The number of connections was obtained from Form B of the application for permit renewal/ SCPSD #1 Affordability Information Form.
3. This figure was obtained from the SCPSD #1 Affordability Information Form.
4. Antidegradation Review Determination
5. Unemployment data was obtained from Missouri Department of Economic Development (March 2014) – <http://www.missourieconomy.org/pdfs/ure11403.pdf>
6. Median Household Income data from American Community Survey – Median income in the past 12 months – <http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?ftp=table>
7. Population trend data was obtained from online at: 2012 Census Bureau Population Data - <http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?ftp=table>, 2000 Census Bureau Population Data - <http://www.census.gov/popest/data/cities/totals/2009/tables/SUB-EST2009-04-29.xls>, 1990 Census Bureau Population Data - <http://www.census.gov/prod/cen1990/cp1/cp-1-27.pdf>
8. Poverty data – American Community Survey- <http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>

APPENDIX C – ANTIDegradation REVIEW:



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

DEPARTMENT OF NATURAL RESOURCES

[www.dnr.mo.gov](http://www.dnr.mo.gov)

JAN 09 2014

Ms. Kathy Isaacs, District Administrator  
Stone County Public Sewer District No. 1  
118 Notch Lane, Suite C  
Branson West, MO 65737

RE: Water Quality Review / Antidegradation Review Preliminary Determination on  
*Antidegradation Report Proposed Wastewater Treatment Facility for Box Canyon  
Watershed, MOOJ29470, Stone County*

Dear Ms. Isaacs:

Enclosed please find the finalized Water Quality and Antidegradation Review (WQAR) for the Box Canyon Watershed Waste Water Treatment Facility (WWTF) in Stone County. The WQAR contains pertinent antidegradation review information based on the use of existing water quality, effluent limitations and monitoring requirements for the facility discharge. It was developed in accordance with 10 CSR 20-7.031, the Clean Water Commission approved *Missouri Antidegradation Implementation Procedure* (AIP) dated May 2, 2012, U.S. Environmental Protection Agency (US EPA) guidance, the applicant-supplied antidegradation review documentation, and the State of Missouri's effluent regulations (10 CSR 20-7.015). Please refer to the *General Assumptions of the Water Quality and Antidegradation Review* section of the enclosed WQAR. The WQAR is preliminary and subject to change as new information becomes available during future permit application processing.

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

You may proceed with submittal of an application for an operating permit and antidegradation review public notice, an engineering report, or a complete application for a construction permit. These submittals must reflect the design flow, facility description, and general treatment components of this WQAR or this preliminary determination may have to be revisited. To reduce cost and time spent scanning permit applications, plans, and specification, the Water Protection Program's Engineering Section has begun asking for electronic copies of submitted documents in addition to paper copies. While it is not currently a requirement, submittal of electronic documents on a compact disc or other removable electronic media is being proposed in the new rulemaking for 10 CSR 20-6.010.

Ms. Issacs  
Page Two

Following the department's public notice of draft Missouri State Operating Permit including the antidegradation review findings and preliminary determination, the department will review any public notice comments received. If significant comments are made, the project may require another public notice and potentially another antidegradation review. If no comments are received or comments are resolved without another public notice, these findings and determinations will be considered final.

If you should have questions regarding the enclosed WQAR, please contact Leasue Meyers by telephone at (573) 751-7906 by e-mail at [leasue.meyers@dnr.mo.gov](mailto:leasue.meyers@dnr.mo.gov), or by mail at the Missouri Department of Natural Resources, Water Protection Program, PO Box 176, Jefferson City, Missouri 65102-0176.

Sincerely,

WATER PROTECTION PROGRAM

Permits and Engineering Section

RM:lmn

Enclosure

c: Fred Matthews, PE, Crawford, Murphy & Tilly, 1631 West Elfindale, Springfield, MO  
65807  
Kevin Hess, SWRO

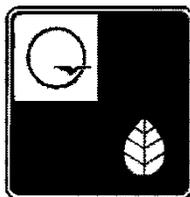
Missouri Department of Natural Resources  
Water Protection Program  
Water Pollution Control Branch  
NPDES Permits and Engineering Section

## **Water Quality and Antidegradation Review**

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

*by*

*Box Canyon Watershed Wastewater Treatment Facility*



December 2013

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1. FACILITY INFORMATION

FACILITY NAME: Box Canyon Watershed WWTF NPDES #: MO-0129470

FACILITY TYPE/DESCRIPTION: Currently, there is an existing 0.029 MGD recirculating gravel filter. As a result of current residential expansion near Branson, MO, an alternatives analysis was performed for the necessary expansion. Previous Antidegradation Review demonstrated different preferred alternatives. With Stone County Sewer District #1 taking over the treatment plant, a review of the variability of the flows and the treatment technologies were reevaluated and the evaluation led to the preferred alternative being a three-basin sequencing batch reactor (SBR), filtration with phosphorus removal and ultraviolet disinfection. The design flow of the facility is 0.15 MGD.

COUNTY:	<u>Stone</u>	UTM COORDINATES:	<u>x= 471449; y= 4054788</u>
12 DIGIT HUC:	<u>11010001-1404</u>	LEGAL DESCRIPTION:	<u>SW V. NE V. Sec. 4, T 22N, R22W</u>
EDU*:	<u>OzarkJWhite</u>	ECOREGION:	<u>Ozark Highlands</u>

\* - Ecological Drainage

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:

Box Canyon Watershed is currently permitted for 0.029 MGD. Upon review of the discharge monitoring reports from 2009 through October 2013, the facility has had multiple exceedances of BOD<sub>5</sub>, total phosphorus and TSS effluent limits. Stone County Sewer District took over control of the facility in August 2012; however there were compliance issues when the facility was privately owned. The facility was not in compliance with its permits when inspected in 2010 and 2011.

Box Canyon received an inspection from the Southwest Regional Office in September 2013 which resulted in a Notice of Violation for operation and maintenance problems at the facility. Box Canyon discharges in to Table Rock Lake, which is on the 2012 303(d) list for nutrients, eutrophication, chlorophyll, and biological indicators.

OUTFALL	DESIGN FLOW(CFS)	TREATMENT LEVEL	RECEIVING WATERBODY	DISTANCE TO CLASSIFIED SEGMENT (MI)
001	0.233	Tertiary	Tributary to Table Rock Lake	0.24

3. RECEIVING WATERBODY INFORMATION

WATERBODY NAME	CLASS	WBID	DESIGNATED USES**
Tributary to Table Rock Lake	<b>U</b>	NA	General Criteria
Table Rock Lake	L2	07313	AQL, LWV, SCR, WBC (A)

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

RECEIVING WATER BODY SEGMENT #1: Tributary to Table Rock LakeUpper end segment\* UTM or Lat!Long coordinates: x= 471449; y= 4054788 (Outfall)Lower end segment\* UTM or Lat!Long coordinates: x= 471211; y=4054603 (Confluence with a cove in Table Rock Lake)

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

## 4. GENERAL COMMENTS

A three basin sequencing batch reactor (SBR) with filtration, UV disinfection and phosphorus treatment is what Box Canyon Watershed is proposing to build. The Geohydrological Evaluation was submitted with the request and the receiving stream is gaining for discharge purposes (Appendix A: Map). Applicant elected to assume that all pollutants of concern (POC) are significantly degrading in the absence of existing water quality. An alternative analysis was conducted to fulfill the requirements of the AIP. A Missouri Department of Conservation Natural Heritage Review was obtained by the applicant; and no endangered species were found to be impacted by the discharge (Appendix B). 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 *Box Canyon Watershed Antidegradation Report* dated November 2013.

## 5.1. TIER DETERMINATION

Below is a list of pollutants of concern reasonably expected to be in the discharge. 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 (see Appendix C), except nutrients.

TABLE 1: POLLUTANTS OF CONCERN AND TIER DETERMINATION

POLLUTANTS OF CONCERN	TIER*		COMMENT
DO	2	Significant	
<i>BODs</i>	2	Significant	
Total Suspended Solids (TSS)	**	Significant	
Ammonia	2	Significant	
pH	***	Significant	State Regulations applied
<i>Escherichia coli (E. coli)</i>	2	Significant	Disinfection/ State Regulations applied
Total Phosphorous	1	Significant	State Regulations applied
Total Nitrogen	1	Significant	
Aluminum	2	Significant	
Oil and Grease	2	Significant	State Regulations applied

\*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 C were used by the applicant:

Water Quality Review and Antidegradation Request  
Attachment A, Tier 2 with significant degradation.

## 5.2. EXISTING WATER QUALITY

No existing water quality data was submitted. All POCs were considered to be Tier 2, except nutrients and significantly degraded in the absence of existing water quality. Table Rock Lake is on the 2012 303(d) list for nutrients, eutrophication, chlorophyll, and biological indicators.

## 5.3. ALTERNATIVES ANALYSIS AND SOCIAL AND ECONOMIC IMPORTANCE

This antidegradation review assumed significant degradation for all Pollutants of Concern, so there is a demonstration of necessity (i.e., alternatives analysis) and a determination of social and economic importance included in the *Box Canyon Watershed* Antidegradation Reports dated September 2009, amended February 2010 and November 2013. There were a total of three (3) no discharge alternatives and seven (7) discharging alternatives reviewed. The no discharge alternatives were: land application, subsurface irrigation and discharge to a regional wastewater treatment facility. Due to the cost of land acquisition and the construction cost both land application and subsurface irrigation were not considered feasible. Discharging to a regional wastewater treatment facility, Branson Cooper Creek, is the preferred alternative, however Cooper Creek does not have the capacity available to handle flows from Box Canyon. In the future when capacity and financing is available, the plan is for the Box Canyon treatment plant to be converted to a lift station and pumped to Cooper Creek. This is the preferred method and the long term plan for this facility. The cost to connect to Cooper Creek is estimated to exceed four million(\$ 4.0 million); however that includes costs for improvements that are not in the Stone County Sewer Districts service area and the total cost cannot be determined until the actual scope is defined in the future.

In the previously completed Antidegradation Review for a design flow of 0.15 MGD, five other discharging alternatives were evaluated, including the Pura Max-Moving Bed Biological Reactor (MBBR), Recirculating Sand/ Gravel Filter (RSF), Bioficient, Pura M Membrane Bioreactor, and a Three Phase Luxury Uptake Process. The five degrading technologies achieve Water Quality Standards. The MBBR, RSF, Bioficient and the 3 phase LUTP offered similar levels of treatment.

With this review, two additional alternatives were reviewed, with the Sequencing Batch Reactor (SBR) being the preferred discharging alternative. The Sequencing Batch Reactor can handle the variety of flows experienced at the treatment plant. Also, SBR's are a proven technology in meeting Water Quality Standards. Also, the facility looked at expanding and cleaning up the existing RSF, but decided that the SBR was the preferred alternative in terms of meeting Water Quality Standards and to handle the variety of flows experienced at the facility. Stone County is proposing to build a three basin SBR facility to handle the flows, filtration, phosphorus removal and UV disinfection. The construction cost for a new SBR is estimated at \$1,500,000 with an annual operating and maintenance cost of \$48,400 per year.

If connection to Cooper Creek Plant happens in the shorter term, the equipment from the SBR could be reused at another of Stone County's regional plants. If connection is longer time, the SBR could be used for its lifespan and provide high quality treatment.

This facility is experiencing flows above their existing design flow of 29,000 gpd, and has been cited for operational and maintenance concerns in not meeting existing effluent limits by the Southwest Regional Office. By replacing the existing treatment plant with a larger plant that can meet its existing obligation of 125,000 gpd and meet Water Quality Standards, this would provide an environmental benefit to the Table Rock Lake. The expansion is proposed to accommodate development of residential, commercial, condominium and resort/time-share properties in the area. With the close proximity to Branson, the areas entertainment and Table Rock Lake, Stone County has continued to see significant growth. With the high densities and resort/commercial style of development, the County's tax base and sales taxes will increase as a result. The social benefits of the project will facilitate the continued development of surrounding properties.

5.3.1. REGIONALIZATION ALTERATIVE

Within Section II B 1. of the AIP, discussion of the potential for discharge to a regional waste water collection system is mentioned. Stone County Sewer District No. 1 is the regional and continuing authority.

NEEDS A WAJVER 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

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.

7. MIXING CONSIDERATIONS

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

Zone of Initial Dilution (ZID): Not Allowed [10 CSR 20-7.031(4)(A)4.B.(I)(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):	Y	FREQUENCY:	TWICE/PERMIT CYCLE	AEC:	100%      METHOD: MULTIPLE

\_\_\_\_\_

TABLE 2- EFFLUENT LIMITS

PARAMETER	UNITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	BASIS FOR LIMIT(NOTE 2)	MONITORING FREQUENCY
FLOW		*		*	FSR	ONCE/WEEKDAY
BOD <sub>5</sub> **	MOIL		30	20	FSRIPEL	ONCE/MONTH
TSS **	MOIL		30	20	FSRIPEL	ONCE/MONTH
DISSOLVED OXYGEN	MOIL	6.0 MINIMUM		6.0 MINIMUM	PEL	ONCE/MONTH
PH	S.U.	6.0 9.0		6.0-9.0	FSR	ONCE/MONTH
OIL AND GREASE	MOIL	15		10	FSR	ONCE/MONTH
ESCHERICHIA COUFORM (E. COLI)	NOTE 1		630	126***	FSR	ONCE/WEEK
AMMONIAASN (APR 1 - SEPT 30)	MG/L	1.7		0.6	PEL	ONCE/MONTH
AMMONIAASN (OCT 1 - MAR 30)	MOIL	5.6		2.1	PEL	ONCE/MONTH
TOTAL NITROGEN	MOIL	*		*	FSR	ONCE/MONTH
TOTAL PHOSPHORUS	MOIL	*		0.50	FSR	ONCE/MONTH
ALUMINUM, TOTAL RECOVERABLE	fl.GIL	*		*	WQBEL	ONCE/MONTH
IRON, TOTAL RECOVERABLE	fl.G/L	*		*	WQBEL	ONCE/MONTH

\*- Montonng requirements only.

\*\*-. This facility is required to meet a removal efficiency of 85% or more for BOD<sub>5</sub> and TSS. Influent BOD<sub>5</sub> and TSS data should be reported to ensure removal efficiency requirements are met.

\*\*\*- The Monthly Average 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 TECHNOLOGY-BASED EFFLUENT LIMIT--TBEL; OR FSR --FEDERAL/ STATE REGULATION; OR PEL--PREFERRED ALTERNATIVE LIMIT; 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:

$$C = \frac{(C_s \times Q_s) + (C_e \times Q_e)}{(Q_e + Q_s)} \quad (\text{EPN505/2-90-001, Section 4.5.5})$$

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). 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 provided by the consultant as the WLA, the significantly-degrading effluent average monthly and daily maximum limits are determined by applying the WLA as the average monthly (AML) and multiplying the AML by 1.5 to derive the maximum daily limit. 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.

#### 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).** Proposed Technology based effluent limits in the Antidegradation are equal to the Water Quality Standard for lake discharges, 20 mg/L monthly average and 30 mg/L weekly average. Influent monitoring will be required for this facility in its Missouri State Operating Permit.
- **Total Suspended Solids (TSS).** Proposed Technology based effluent limits in the Antidegradation are equal to the Water Quality Standard for lake discharges, 20 mg/L monthly average and 30 mg/L weekly average. Influent monitoring will be required for this facility in its Missouri State Operating Permit.
- **Dissolved Oxygen.** Dissolved oxygen in the stream is dependent upon the wastewater treatment plant effluent concentration of dissolved oxygen. 6.0 mg/l was proposed as the minimum concentration, which the department is requiring 6.0 mg/l as a daily minimum and monthly average for the outfall. For protection of aquatic life, dissolved oxygen must be at least 5.0 mg/l at confluence with Table Rock Lake. [10CSR20-7.031(4)(J)].
- ***E. coli*.** Monthly average of 126 per 100 ml as a geometric mean and Weekly Average of 630 per 100 ml as a geometric mean during the recreational season (April 1 – October 31), to protect Whole Body Contact Recreation (A) designated use of the receiving stream, as per 10 CSR 20-7.031(4)(C). An effluent limit for both monthly average and weekly average is required by 40 CFR 122.45(d). Also, please see GENERAL ASSUMPTIONS OF THE WQRS #7. Facility plans to meet *E. Coli* effluent limit with UV disinfection.
- **Oil & Grease.** Conventional pollutant, [10 CSR 20-7.031, Table A]. Effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.
- **pH.** pH shall be maintained between six and half and nine (6.5-9.0) Standard pH Units (SU), as per the applicable section of 10 CSR 20-7.015. pH is not to be averaged.
- **Total Ammonia Nitrogen.** The applicant proposed effluent limits based on the 2013 EPA Ammonia Criteria that EPA published in August 2013. Missouri plans to adopt the 2013 Ammonia Criteria as part of its next triennial review of Water Quality Standards. More information about the new ammonia

criteria for aquatic life protection may be found at: <http://dnr.mo.gov/pubs/pub248Lpdf>. Background total ammonia nitrogen 0.01 mg/L. No ammonia decay was taken into consideration due to the proximity between the discharge location and the classified segment.

Season	Temp (°C)	pH (SU)	Total Ammonia Nitrogen CCC (mgN/L)	Total Ammonia Nitrogen CMC (mgN/L)
Summer	26	7.8	0.7	3.4
Winter	6	7.8	2.3	8.1

Summer: April 1 September 30; Winter: October 1 March 30.

SUMMER

$$C_e = \frac{((Q_c + Q_s) * C_s) - (Q_s * C_r)}{Q_c}$$

$$WLA_c = \frac{(((0.233 + 0.0) * 0.7) - (0 * 0.01))}{0.233} = 0.7 \text{ mg/l}$$

$$WLA_a = \frac{(((0.233 + 0.0) * 3.4) - (0 * 0.01))}{0.233} = 4 \text{ mg/l}$$

LTAc = 0.7 mg/L (0.780) = 0.55 mg/L [CV = 0.6, 99th Percentile, 30 day avg.]  
 LTAA = 3.4 mg/L (0.321) = 1.09 mg/L [CV = 0.6, 99th Percentile]  
 MDL = 1.2 mg/L (3.11) = 1.7 mg/L [CV = 0.6, 99th Percentile]  
 AML = 1.2 mg/L (1.19) = 0.6 mg/L [CV = 0.6, 95th Percentile, n = 30]

WINTER

$$WLA_c = \frac{(((2.233 + 0.0) * 2.3) - (0 * 0.01))}{0.233} = 2.3 \text{ mg/l}$$

$$WLA_a = \frac{(((0.233 + 0.0) * 8.1) - (0 * 0.01))}{0.233} = 8.1 \text{ mg/l}$$

LTAc = 2.3 mg/L (0.780) = 1.79 mg/L [CV = 0.6, 99th Percentile, 30 day avg.]  
 LTAA = 8.1 mg/L (0.321) = 2.6 mg/L [CV = 0.6, 99th Percentile]  
 MDL = 1.79 mg/L (3.11) = 5.6 mg/L [CV = 0.6, 99th Percentile]  
 AML = 1.79 mg/L (1.19) = 2.1 mg/L [CV = 0.6, 95th Percentile, n = 30]

Season	Maximum Daily Limit (mg/l)	Average Monthly Limit (mg/l)
Summer	1.7	0.6
Winter	5.6	2.1

- **Total Phosphorous.** Average monthly limit 0.5 mg/L [10 CSR 20-7.015(3)G]. Table Rock Lake is 303 (d) listed for nutrients. Limits have been applied by regulation to affect the Tier 1 status of the POC with Table Rock Lake. Applicant is currently discharging this POC.
- **Total Nitrogen.** Monitoring only requirement. Table Rock Lake is 303 (d) listed for nutrients.
- **Aluminum, Total Recoverable.** Monitoring requirement only. This facility uses chemicals for phosphorous removal that may contain aluminum. Monitoring is required to determine if reasonable potential exists for this facility's discharge to exceed water quality standards for Aluminum (Total Recoverable).

- **Iron, Total Recoverable.** Monitoring requirement only. This facility uses chemicals for phosphorous removal that may contain iron. Monitoring is required to determine if reasonable potential exists for this facility's discharge to exceed water quality standards for Iron (Total Recoverable).

#### 11. ANTIDegradation REVIEW PRELIMINARY DETERMINATION

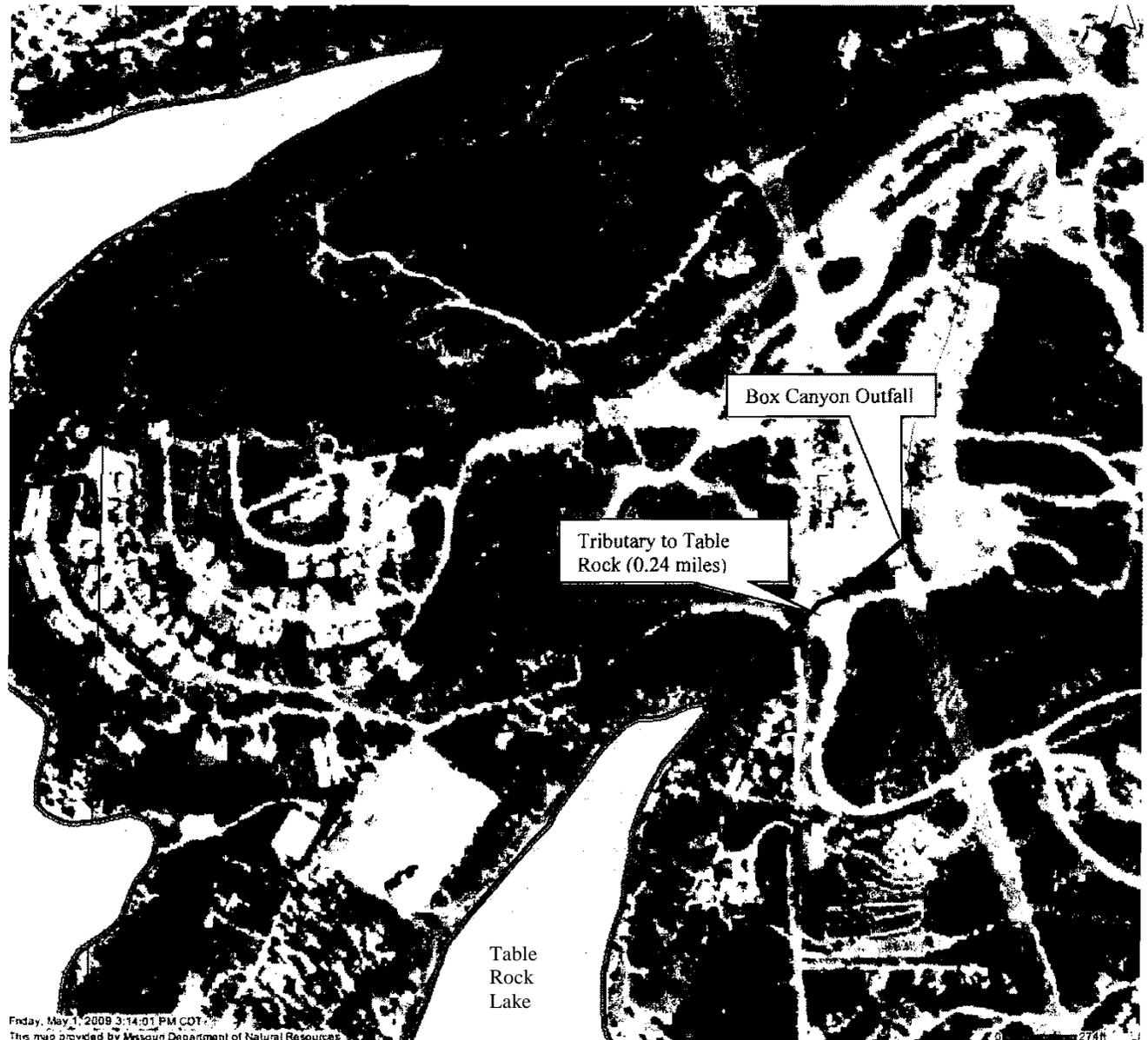
The proposed facility discharge, Box Canyon Watershed WWTF, 0.15 MGD will discharge to a Tributary to Table Rock Lake. The Sequencing Batch Reactor (SBR) was evaluated as the base cost technology; it achieves effluent levels at or below the Water Quality Standards. Per the requirements of the AIP, the 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, EIT *ot:}f\*

Date: 12/11/2013

Unit Chief: John Rustige, **P**

Appendix A: Map of Discharge Location





Missouri Department of Conservation
Heritage Review Report

July 26, 2007- Page 1 of 2

Policy Coordination Unit
P.O.Box 180
Jefferson City, MO 65102
Prepared by: Shannon Cave
slannon-cavetmdc.mo.QQV
573-522-4115X3250

To: Adam Black, E.I.
Civil Engineer
Heithaus Engineering Incorp«?rated
535 W. Battlefield Rd.,
Springfield, MO 65807

Project: Two Wastewater Treatment Systems
Location: Portions of T22N R22W S 32 & 33 and T21N R22W
and T22N R22W S4
County: Stone
Query reference: HEI207043 – Freund Estates and HEI205049 Canyon Park
Query received: JUV 26.2007

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G.-
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1 -) t, N - k u - f t j - v - d M V V " I r

This HERITAGE REVIEW is not a site clearance letter. Rather, it indicates whether or not public lands and sensitive resources are known to be located close to the proposed project. It provides information about species and habitats that could be affected by the project. Heritage records were positively identified at some date and time, marked at a more or less precise location. Animals move around but, over time, so do plant communities. To say "there is a record" does not mean the species/habitat is still there. To say that "there is no record" does not mean the project may not encounter something not in the records. Because of this, reports include information about records near but not necessarily on the project site. On-site verification is the responsibility of the project

Signature of this form is not required and authenticity may be the Policy Coordination Unit of the Missouri Department of Conservation, 573-522-4115

Records of species/habitats with federal or state listing as conservation concerns: None.

Some tributaries of Table Rock Lake provide habitat for aquatic species of concern. While the Se may use the lake and maintaining and improving water quality entering it is encouraged, the lake itself does not generally provide habitat critical to survival of species of conservation concern. Terrestrial species of concern like bald eagles and bats often take advantage of the lake and shore habitat and may be encountered, but are not recorded in proximity to either project site.

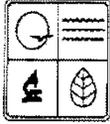
Considerations related to project/site not specific heritage records:

- The project area is in region with known karst geologic features (e.g. caves, springs, and sinkholes, all characterized by subterranean water movement). Few karst features are recorded in heritage records, and ones not noted here may be encountered at the project site or affect the project. Cave fauna (many of which are species of conservation concern) are influenced by changes to water quality, so check your project site for any karst features and make every effort to protect them.
Gray bats (myotis grisescens, federally and state listed "endangered") are likely to occur in the project area, as they forage over streams, rivers, and reservoirs in this part of Missouri. Avoid entry or disturbance of any cave inhabited by gray bats and when possible retain forest vegetation along the stream and from the gray bat cave opening to the stream. See http://www.mdc.mo.gov/documents/nathis/endangered/graybat.odf for best management recommendations.
Construction should be managed to minimize erosion and sedimentation/runoff to nearby streams and lakes, including adherence to any "Clean Water Permit" conditions. Project design should include stormwater management elements that assure storm discharge rates to streams for heavy rain events will not increase from present levels. Revegetate disturbed areas to minimize

Vertical text on the left margin, possibly a stamp or reference code.







MISSOURI DEPARTMENT OF NATURAL RESOURCES  
 WATER PROTECTION PROGRAM, WATER POLLUTION CONTROL BRANCH  
 ANTIDegradation REVIEW SUMMARY FOR PUBLIC NOTICE  
 ATTACHMENT A: TIER 2- SIGNIFICANT DEGRADATION

**1. FACILITY**

NAME Stone County Public Sewer District No. 1, Box Canyon WWTP		TELEPHONE NUMBER WITH AREA CODE (417) 338-5231	
ADDRESS (PHYSICAL) Cape Cod Drive	CITY Branson	STATE MO	ZIP CODE 65616

**2. OWNER**

NAME AND OFFICIAL TITLES Stone County Public Sewer District No. 1			
ADDRESS 118 Notch Lane, Suite C	CITY Branson West	STATE MO	ZIP CODE 65737
TELEPHONE NUMBER WITH AREA CODE (417) 338-5231	E-MAIL ADDRESS stonecounty2pswd@gmail.com		

**3. CONTINUING AUTHORITY** The regulatory requirement regarding continuing authority is found in 10 CSR 20-6.010(3) available at [www.sos.mo.gov/adrules/csr/current/10csr/10c20-6a.pdf](http://www.sos.mo.gov/adrules/csr/current/10csr/10c20-6a.pdf).

NAME AND OFFICIAL TITLES Stone County Public Sewer District No. 1			
ADDRESS 18 Notch Lane, Suite C	CITY Branson West	STATE MO	ZIP CODE 65737
TELEPHONE NUMBER WITH AREA CODE (417) 338-5231	E-MAIL ADDRESS stonecounty2pswd@gmail.com		

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

NAME Unnamed Tributary to Table Rock Lake	
4.1 UPPER END OF SEGMENT (Location of discharge) UTM ___ OR Lat 34° __' N Long ___ W	
4.2 LOWER END OF SEGMENT UTM ___ OR Lat ___' N Long ___ W	

Per the Missouri Antidegradation 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."

**5. WATER BODY SEGMENT #2 (IF APPLICABLE Use another form if a third segment is needed)**

NAME	
5.1 UPPER END OF SEGMENT UTM ___ OR Lat ___' N Long ___ W	
5.2 LOWER END OF SEGMENT UTM ___ OR Lat ___' N Long ___ W	

**6. WET WEATHER ANTICIPATIONS**

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

What is the Wet Weather Flow Peaking Factor in relation to design flow? 2: 1

Wet Weather Design Summary:

Refer to Preliminary Engineering Report

**7. EXISTING WATER QUALITY DATA OR MODEL SUMMARY**

Obtaining Existing Water Quality is possible by three methods according to the Antidegradation Implementation Procedure Section II.A.1.: (1) using previously collected data with an appropriate Quality Assurance Project Plan, or QAPP (2) collecting water quality data approved by the Missouri Department of Natural Resources methodology or (3) using an appropriate water quality model. QAPPs must be submitted to the department for approval well in advance (six months) of the proposed activity. Provide all the appropriate corresponding data and reports which were approved by the department Watershed Protection Section. **Additional information needed with the EWQ data includes:** 1) Date existing water quality data was provided by the Watershed Protection Section, 2) Approval date by the Watershed Protection Section of the QAPP, project sampling plan, and data collected for all appropriate POCs.

Comments!DiscussJon:

**8. SUMMARY OF THE POLLUTANTS OF CONCERN AND THE PROPOSED EFFLUENT LIMITS**

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

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

Pollutants of Concern*	Units	Waste/load Allocation	Average Monthly Limit	Daily Maximum Limit
BODS	MG/L		20	30 (weekly avg.)
TSS	MG/L		20	30 (weekly avg.)
DISSOLVED OXYGEN	MG/L		6	6
AMMONIA	MG/L		0.6/2.9	
BACTERIA (E. COLI)	CFUS		126	600 (weekly avg.)

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

\*Assumed per 2.

**9. 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 11.8.1. Per 10 CSR 20-6.010(4)(0)1., the feasibility of a no-discharge system must be considered. Attach all supportive documentation in the Antidegradation Review report.

Applicants choosing to use a new wastewater technology that are considered an "unproven technology" in Missouri in their Tier 2 Reviews with alternative analysis must comply with the requirements set forth in the *New Technology Definitions and Requirements Factsheet* that can be found at: [hi11j.lldnr.mo.gov/fj.Ubs/!ub2453.gdf](http://hi11j.lldnr.mo.gov/fj.Ubs/!ub2453.gdf).

Non-degrading alternatives: (1) No Discharge (2) Pump to the City of Branson- See Preliminary Engineering Report

Alternatives ranging from less-degrading to degrading including Preferred Alternative (All treatment levels for POCs must at a minimum meet water quality standards):

Alternatives	Level of Treatment Attainable for each Pollutant of Concern			
	BODS	TSS	AMMONIA	AS N
	(MG/L)	MG/L	MG/L	
SBR (preferred)	<20	<20	<0.6	
Expand & Rehab Ex. WWTP	>20	>20	>0.6	

**10. DETERMINATION OF THE REASONABLE ALTERNATIVE**

Per the Antidegradation Implementation Procedure Section 11.8.2, "a reasonable alternative is one that is practicable, economically efficient and affordable." Provide basis and supporting documentation in the Antidegradation Review report. **Please do not write "See Report" for any box below.**

**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.

(Refer to attached Preliminary Engineering Report)

**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 U.B.2.b.

(Refer to attached Preliminary Engineering Report)

**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"

(Refer to attached Preliminary Engineering Report)

**Preferred Chosen Alternative:**

Sequencing Batch Reactor

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

No Discharge- No land available at a reasonable cost, locally, that meets the land use requirements for slope and geologic considerations.

Pump to Branson - Additional capacity not available. Cooper Creek WWTP is operating at 90% of its rated capacity.

**Comments/Discussion:**

**111. 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)(8) 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 •

(Refer to attached Preliminary Engineering Report)

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.

(Refer to attached Preliminary Engineering Report)

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.

(Refer to attached Preliminary Engineering Report)

**PROPOSED PROJECT SUMMARY:**

(Refer to attached Preliminary Engineering Report)

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 - / v - - A. ( M V . U V : : e M J . )		DATE November 6, 2013
NAME AND OFFICIAL TITLES/LICENSE# Fred Mathews, PE- District Engineer (M0-020334)		COMPANY NAME Crawford, Murphy & Tilly, Inc.
1631 West Elfindale	Springfield	MO ZIP CODE 65807
TELEPHONE NUMBER WITH AREA CODE (417) 869-6009	E-MAIL ADDRESS fmathews@cmtengr.com	

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

SIGNATURE i / . . . . k 0 . . / ( / \ . . . . . )	DATE 11 / 11 / 13
--	----------------------

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

SIGNATURE i / . . . . k 0 . . / ( / \ . . . . . )	DATE 11 / 11 / 13
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STANDARD CONDITIONS FOR NPDES PERMITS  
ISSUED BY  
THE MISSOURI DEPARTMENT OF NATURAL RESOURCES  
MISSOURI CLEAN WATER COMMISSION  
REVISED  
NOVEMBER 1, 2013

These Standard Conditions incorporate permit conditions as required by 40 CFR 122.41 or other applicable state statutes or regulations. These minimum conditions apply unless superseded by requirements specified in the permit.

## Part I – General Conditions

### Section A – Sampling, Monitoring, and Recording

1. **Sampling Requirements.**
  - a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
  - b. All samples shall be taken at the outfall(s) or Missouri Department of Natural Resources (Department) approved sampling location(s), and unless specified, before the effluent joins or is diluted by any other body of water or substance.
2. **Monitoring Requirements.**
  - a. Records of monitoring information shall include:
    - 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. If the permittee monitors any pollutant more frequently than required by the permit at the location specified in the permit using test procedures approved under 40 CFR Part 136, or another method required for an industry-specific waste stream under 40 CFR subchapters N or O, the results of such monitoring shall be included in the calculation and reported to the Department with the discharge monitoring report data (DMR) submitted to the Department pursuant to Section B, paragraph 7.
3. **Sample and Monitoring Calculations.** Calculations for all sample and monitoring results which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in the permit.
4. **Test Procedures.** The analytical and sampling methods used shall conform to the reference methods listed in 10 CSR 20-7.015 unless alternates are approved by the Department. The facility shall use sufficiently sensitive analytical methods for detecting, identifying, and measuring the concentrations of pollutants. The facility shall ensure that the selected methods are able to quantify the presence of pollutants in a given discharge at concentrations that are low enough to determine compliance with Water Quality Standards in 10 CSR 20-7.031 or effluent limitations unless provisions in the permit allow for other alternatives. A method is “sufficiently sensitive” when; 1) the method minimum level is at or below the level of the applicable water quality criterion for the pollutant or, 2) the method minimum level is above the applicable water quality criterion, but the amount of pollutant in a facility’s discharge is high enough that the method detects and quantifies the level of pollutant in the discharge, or 3) the method has the lowest minimum level of the analytical methods approved under 10 CSR 20-7.015. These methods are also required for parameters that are listed as monitoring only, as the data collected may be used to determine if limitations need to be established. A permittee is responsible for working with their contractors to ensure that the analysis performed is sufficiently sensitive.
5. **Record Retention.** Except for records of monitoring information required by the permit related to the permittee’s sewage sludge use and disposal activities, which shall be retained for a period of at least five (5) years (or longer as required by 40 CFR part 503), the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by the permit, and records of all data used to complete the application for the 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.

6. **Illegal Activities.**
  - a. 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 the permit shall, upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than two (2) years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than \$20,000 per day of violation, or by imprisonment of not more than four (4) years, or both.
  - b. The Missouri Clean Water Law provides that any person or who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained pursuant to sections 644.006 to 644.141 shall, upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than six (6) months, or by both. Second and successive convictions for violation under this paragraph by any person shall be punished by a fine of not more than \$50,000 per day of violation, or by imprisonment for not more than two (2) years, or both.

### Section B – Reporting Requirements

1. **Planned Changes.**
  - a. The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility when:
    - i. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b); or
    - ii. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under 40 CFR 122.42(a)(1);
    - iii. The alteration or addition results in a significant change in the permittee’s sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan;
    - iv. Any facility expansions, production increases, or process modifications which will result in a new or substantially different discharge or sludge characteristics must be reported to the Department 60 days before the facility or process modification begins. Notification may be accomplished by application for a new permit. If the discharge does not violate effluent limitations specified in the permit, the facility is to submit a notice to the Department of the changed discharge at least 30 days before such changes. The Department may require a construction permit and/or permit modification as a result of the proposed changes at the facility.
2. **Twenty-Four Hour Reporting.**
  - a. The permittee shall report any noncompliance which may endanger health or the environment. Relevant information shall be provided orally or via the current electronic method approved by the Department, within 24 hours from the time the permittee becomes aware of the circumstances, and shall be reported to the appropriate Regional Office during normal business hours or the Environmental Emergency Response hotline at 573-634-2436 outside of normal business hours. A written submission shall also be provided within five (5) business days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.



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- b. The following shall be included as information which must be reported within 24 hours under this paragraph.
    - i. Any unanticipated bypass which exceeds any effluent limitation in the permit.
    - ii. Any upset which exceeds any effluent limitation in the permit.
    - iii. Violation of a maximum daily discharge limitation for any of the pollutants listed by the Department in the permit required to be reported within 24 hours.
  - c. The Department may waive the written report on a case-by-case basis for reports under paragraph 2. b. of this section if the oral report has been received within 24 hours.
3. **Sanitary Sewer Overflow Reporting.** The following requirements solely reflect reporting obligations, and reporting does not necessarily reflect noncompliance, which may depend on the circumstances of the incident reported.
- a. **Twenty-Four Hour (24-Hour) Reporting.** The permittee or owner shall report any incident in which wastewater escapes the collection system such that it reaches waters of the state or it may pose an imminent or substantial endangerment to the health or welfare of persons. Relevant information shall be provided orally or via the current electronic method approved by the Department within 24 hours from the time the permittee becomes aware of the incident. A written submission shall also be provided within five (5) business days of the time the permittee or owner becomes aware of the incident. The Department may waive the written report on a case-by-case basis if the oral report has been received within 24 hours. The five (5) day reports may be provided via the current electronic method approved by the Department.
  - b. **Incidents Reported via Discharge Monitoring Reports (DMRs).** The permittee or owner shall report any event in which wastewater escapes the collection system, which does not enter waters of the state and is not expected to pose an imminent or substantial endangerment to the health or welfare of persons, which occur typically during wet weather events. Relevant information shall be provided with the permittee's or owner's DMRs.
4. **Anticipated Noncompliance.** The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. The notice shall be submitted to the Department 60 days prior to such changes or activity.
5. **Compliance Schedules.** Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of the permit shall be submitted no later than 14 days following each schedule date. The report shall provide an explanation for the instance of noncompliance and a proposed schedule or anticipated date, for achieving compliance with the compliance schedule requirement.
6. **Other Noncompliance.** The permittee shall report all instances of noncompliance not reported under paragraphs 2, 3, 4, and 7 of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph 2. a. of this section.
7. **Other Information.** Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or information.
8. **Discharge Monitoring Reports.**
- a. Monitoring results shall be reported at the intervals specified in the permit.
  - b. Monitoring results must be reported to the Department via the current method approved by the Department, unless the permittee has been granted a waiver from using the method. If the permittee has been granted a waiver, the permittee must use forms provided by the Department.
  - c. Monitoring results shall be reported to the Department no later than the 28<sup>th</sup> day of the month following the end of the reporting period.

## Section C – Bypass/Upset Requirements

1. **Definitions.**
  - a. *Bypass*: the intentional diversion of waste streams from any portion of a treatment facility.
  - b. *Severe Property Damage*: substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
  - c. *Upset*: an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
2. **Bypass Requirements.**
  - a. Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs 2. b. and 2. c. of this section.
  - b. Notice.
    - i. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass.
    - ii. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in Section B – Reporting Requirements, paragraph 5 (24-hour notice).
  - c. Prohibition of bypass.
    - i. Bypass is prohibited, and the Department may take enforcement action against a permittee for bypass, unless:
      1. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
      2. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
      3. The permittee submitted notices as required under paragraph 2. b. of this section.
    - ii. The Department may approve an anticipated bypass, after considering its adverse effects, if the Department determines that it will meet the three (3) conditions listed above in paragraph 2. c. i. of this section.
3. **Upset Requirements.**
  - a. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph 3. b. of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
  - b. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
    - i. An upset occurred and that the permittee can identify the cause(s) of the upset;
    - ii. The permitted facility was at the time being properly operated; and
    - iii. The permittee submitted notice of the upset as required in Section B – Reporting Requirements, paragraph 2. b. ii. (24-hour notice).
    - iv. The permittee complied with any remedial measures required under Section D – Administrative Requirements, paragraph 4.
  - c. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.



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Section D – Administrative Requirements

1. **Duty to Comply.** The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Missouri Clean Water Law and Federal Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.
  - a. The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Federal Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.
  - b. The Federal Clean Water Act provides that any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under section 402, or any requirement imposed in a pretreatment program approved under sections 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed \$25,000 per day for each violation. The Federal Clean Water Act provides that any person who negligently violates sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, or any requirement imposed in a pretreatment program approved under section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal penalties of \$2,500 to \$25,000 per day of violation, or imprisonment of not more than one (1) year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than \$50,000 per day of violation, or by imprisonment of not more than two (2) years, or both. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of \$5,000 to \$50,000 per day of violation, or imprisonment for not more than three (3) years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than \$100,000 per day of violation, or imprisonment of not more than six (6) years, or both. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than \$250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than \$500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the CWA, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than \$1,000,000 and can be fined up to \$2,000,000 for second or subsequent convictions.
  - c. Any person may be assessed an administrative penalty by the EPA Director for violating section 301, 302, 306, 307, 308, 318 or 405 of this Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this Act. Administrative penalties for Class I violations are not to exceed \$10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed \$25,000. Penalties for Class II violations are not to exceed \$10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed \$125,000.
  - d. It is unlawful for any person to cause or permit any discharge of water contaminants from any water contaminant or point source located in Missouri in violation of sections 644.006 to 644.141 of the Missouri Clean Water Law, or any standard, rule or regulation promulgated by the commission. In the event the commission or the director determines that any provision of sections 644.006 to 644.141 of the Missouri Clean Water Law or standard, rules, limitations or regulations promulgated pursuant thereto, or permits issued by, or any final abatement order, other order, or determination made by the commission or the director, or any filing requirement pursuant to sections 644.006 to 644.141 of the Missouri Clean Water Law or any other provision which this state is required to enforce pursuant to any federal water pollution control act, is being, was, or is in imminent danger of being violated, the commission or director may cause to have instituted a civil action in any court of competent jurisdiction for the injunctive relief to prevent any such violation or further violation or for the assessment of a penalty not to exceed \$10,000 per day for each day, or part thereof, the violation occurred and continues to occur, or both, as the court deems proper. Any person who willfully or negligently commits any violation in this paragraph shall, upon conviction, be punished by a fine of not less than \$2,500 nor more than \$25,000 per day of violation, or by imprisonment for not more than one year, or both. Second and successive convictions for violation of the same provision of this paragraph by any person shall be punished by a fine of not more than \$50,000 per day of violation, or by imprisonment for not more than two (2) years, or both.
2. **Duty to Reapply.**
  - a. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit.
  - b. A permittee with a currently effective site-specific permit shall submit an application for renewal at least 180 days before the expiration date of the existing permit, unless permission for a later date has been granted by the Department. (The Department shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)
  - c. A permittees with currently effective general permit shall submit an application for renewal at least 30 days before the existing permit expires, unless the permittee has been notified by the Department that an earlier application must be made. The Department may grant permission for a later submission date. (The Department shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)
3. **Need to Halt or Reduce Activity Not a Defense.** It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
4. **Duty to Mitigate.** The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.
5. **Proper Operation and Maintenance.** The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.
6. **Permit Actions.**
  - 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. Violations 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 or 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.



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7. **Permit Transfer.**
  - a. Subject to 10 CSR 20-6.010, an operating permit may be transferred upon submission to the Department of an application to transfer signed by the existing owner and the new owner, unless prohibited by the terms of the permit. Until such time the permit is officially transferred, the original permittee remains responsible for complying with the terms and conditions of the existing permit.
  - b. The Department may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Missouri Clean Water Law or the Federal Clean Water Act.
  - c. The Department, within 30 days of receipt of the application, shall notify the new permittee of its intent to revoke or reissue or transfer the permit.
8. **Toxic Pollutants.** The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Federal Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the Federal Clean Water Act within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.
9. **Property Rights.** This permit does not convey any property rights of any sort, or any exclusive privilege.
10. **Duty to Provide Information.** The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish to the Department upon request, copies of records required to be kept by this permit.
11. **Inspection and Entry.** The permittee shall allow the Department, or an authorized representative (including an authorized contractor acting as a representative of the Department), upon presentation of credentials and other documents as may be required by law, to:
  - a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of the permit;
  - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
  - c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
  - d. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Federal Clean Water Act or Missouri Clean Water Law, any substances or parameters at any location.
12. **Closure of Treatment Facilities.**
  - a. Persons who cease operation or plan to cease operation of waste, wastewater, and sludge handling and treatment facilities shall close the facilities in accordance with a closure plan approved by the Department.
  - b. Operating Permits under 10 CSR 20-6.010 or under 10 CSR 20-6.015 are required until all waste, wastewater, and sludges have been disposed of in accordance with the closure plan approved by the Department and any disturbed areas have been properly stabilized. Disturbed areas will be considered stabilized when perennial vegetation, pavement, or structures using permanent materials cover all areas that have been disturbed. Vegetative cover, if used, shall be at least 70% plant density over 100% of the disturbed area.
13. **Signatory Requirement.**
  - a. All permit applications, reports required by the permit, or information requested by the Department shall be signed and certified. (See 40 CFR 122.22 and 10 CSR 20-6.010)
  - b. The Federal Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance 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 by both.
14. **Severability.** The provisions of the permit are severable, and if any provision of the permit, or the application of any provision of the permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of the permit, shall not be affected thereby.



STANDARD CONDITIONS FOR NPDES PERMITS  
ISSUED BY  
THE MISSOURI DEPARTMENT OF NATURAL RESOURCES  
MISSOURI CLEAN WATER COMMISSION  
REVISED  
MAY 1, 2013

PART II - SPECIAL CONDITIONS – PUBLICLY OWNED  
TREATMENT WORKS  
SECTION A – INDUSTRIAL USERS

**1. Definitions**

Definitions as set forth in the Missouri Clean Water Laws and approved by the Missouri Clean Water Commission shall apply to terms used herein.

Significant Industrial User (SIU). Except as provided in the *General Pretreatment Regulation* 10 CSR 20-6.100, the term Significant Industrial User means:

1. All Industrial Users subject to Categorical Pretreatment Standards; and
2. Any other Industrial User that: discharges an average of 25,000 gallons per day or more of process wastewater to the Publicly-Owned Treatment Works (POTW) (excluding sanitary, noncontact cooling and boiler blowdown wastewater); contributes a process wastestream which makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority on the basis that the Industrial User has a reasonable potential for adversely affecting the POTW's or for violating any Pretreatment Standard or requirement.

Clean Water Act (CWA) is the the federal Clean Water Act of 1972, 33 U.S.C. § 1251 et seq. (2002).

**2. Identification of Industrial Discharges**

Pursuant to 40 CFR 122.44(j)(1), all POTWs shall identify, in terms of character and volume of pollutants, any Significant Industrial Users discharging to the POTW subject to Pretreatment Standards under section 307(b) of the CWA and 40 CFR 403.

**3. Application Information**

Applications for renewal or modification of this permit must contain the information about industrial discharges to the POTW pursuant to 40 CFR 122.21(j)(6)

**4. Notice to the Department**

Pursuant to 40 CFR 122.42(b), all POTWs must provide adequate notice of the following:

1. Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to section 301 or 306 of CWA if it were directly discharging these pollutants; and
2. Any substantial change into the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.
3. For purposes of this paragraph, adequate notice shall include information on:
  - i. the quality and quantity of effluent introduced into the POTW, and
  - ii. any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

For POTWs without an approved pretreatment program, the notice of industrial discharges which was not included in the permit application shall be made as soon as practicable. For POTWs with an approved pretreatment program, notice is to be included in the annual pretreatment report required in the special conditions of this permit. Notice may be sent to:

Missouri Department of Natural Resources  
Water Protection Program  
Attn: Pretreatment Coordinator  
P.O. Box 176  
Jefferson City, MO 65102

**STANDARD CONDITIONS FOR NPDES PERMITS**  
**ISSUED BY**  
**THE MISSOURI DEPARTMENT OF NATURAL RESOURCES**  
**MISSOURI CLEAN WATER COMMISSION**  
**March 1, 2014**

**PART III – SLUDGE AND BIOSOLIDS FROM DOMESTIC AND INDUSTRIAL WASTEWATER  
TREATMENT FACILITIES**

**SECTION A – GENERAL REQUIREMENTS**

1. This permit pertains to sludge requirements under the Missouri Clean Water Law and regulation for domestic wastewater and industrial process wastewater. This permit also incorporates applicable federal sludge disposal requirements under 40 CFR 503 for domestic wastewater. The Environmental Protection Agency (EPA) has principal authority for permitting and enforcement of the federal sludge regulations under 40 CFR 503 for domestic wastewater. 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 the 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), privately owned facilities and sludge or biosolids generated at industrial facilities.
3. Sludge and Biosolids Use and Disposal Practices:
  - a. The permittee is authorized to operate the sludge and biosolids treatment, storage, use, and disposal facilities listed in the facility description of this permit.
  - b. The 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. The permittee is authorized to operate the storage, treatment or generating sites listed in the Facility Description section of this permit.
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
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 due 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 under Chapter 644 RSMo.
8. In addition to STANDARD CONDITIONS, the department may include sludge limitations in the special conditions portion or other sections of a site specific permit.
9. Alternate Limits in the Site Specific Permit.

Where deemed appropriate, the department may require an individual site specific permit in order to authorize alternate limitations:

  - a. A site specific permit must be obtained for each operating location, including application sites.
  - b. To request a site specific permit, an individual permit application, permit fee, 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 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 owner of the 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.

## **SECTION B – DEFINITIONS**

1. Best Management Practices include agronomic loading rates, soil conservation practices and other site restrictions.
2. Biosolids means organic fertilizer or soil amendment produced by the treatment of domestic wastewater sludge.
3. 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.
4. 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.
5. 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.
6. 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 (POTW) or a privately owned facility.
7. Industrial wastewater means any wastewater, also known as process water, not defined as domestic wastewater. Per 40 CFR Part 122, process water means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.
8. Mechanical treatment plants are wastewater treatment facilities that use mechanical devices to treat wastewater, including septic tanks, sand filters, extended aeration, activated sludge, contact stabilization, trickling filters, rotating biological discs, and other similar facilities. It does not include wastewater treatment lagoons and constructed wetlands for wastewater treatment.
9. 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.
10. Plant Available Nitrogen (PAN) is the nitrogen that will be available to plants during the growing seasons after biosolids application.
11. Public contact site is land with a high potential for contact by the public. This includes, but is not limited to, public parks, ball fields, cemeteries, plant nurseries, turf farms, and golf courses.
12. Sludge is the solid, semisolid, or liquid residue removed during the treatment of wastewater. Sludge includes septage removed from septic tanks or equivalent facilities. Sludge does not include carbon coal byproducts (CCBs)
13. Sludge lagoon is part of a mechanical wastewater treatment facility. A 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.
14. Septage is the material pumped from residential septic tanks and similar treatment works (with a design population of less than 150 people). The standard for biosolids from septage is different from other sludges.

## **SECTION C – MECHANICAL WASTEWATER TREATMENT FACILITIES**

1. Sludge shall be routinely removed from wastewater treatment facilities and handled according to the permit facility description and sludge conditions of this permit.
2. The permittee shall operate the facility so that there is no sludge discharged 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. Haulers who land apply septage must obtain a state permit.
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, unless it is required by the accepting facility.

#### **SECTION E – 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 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 used or disposal method, quantity, and location. Permittee shall also provide the name of the disposal facility and the applicable permit number.

#### **SECTION F – SURFACE DISPOSAL SITES AND SLUDGE LAGOONS**

1. Surface disposal sites of domestic facilities shall comply with the requirements in 40 CFR 503 Subpart C; air pollution control regulations under 10 CSR 10; and solid waste management regulations under 10 CSR 80.
2. Sludge storage lagoons are temporary facilities and are not required to obtain a permit as a solid waste management facility under 10 CSR 80. In order to maintain sludge storage lagoons as storage facilities, accumulated sludge must be removed routinely, but not less than once every two years unless an alternate schedule is approved in the permit. The amount of sludge removed will be dependent on sludge generation and accumulation in the facility. Enough sludge must be removed to maintain adequate storage capacity in the facility.
  - a. 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
  - b. Permittee shall close the lagoon in accordance with Section H.

#### **SECTION G – LAND APPLICATION**

1. The permittee shall not land apply sludge or biosolids unless land application is authorized in the facility description or the special conditions of the issued NPDES permit.
2. Land application sites within a 20 miles 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 otherwise specified in a site specific permit. If the permittee's land application site is greater than a 20 mile radius of the wastewater treatment facility, approval must be granted from the department.
3. Land application shall not adversely affect a threatened or endangered species or its designated critical habitat.
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 domestic sludge except for when sludge meets the definition of biosolids.
  - b. This permit authorizes "Class A or B" biosolids derived from domestic wastewater and/or process water sludge to be land applied onto grass land, crop land, timber 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 after two years of proper operation with acceptable testing documentation that shows the biosolids meet Class A criteria. A shorter length of testing will be allowed with prior approval from the Department. Authorization for land applications must be provided in the special conditions section of this permit or in a separate site specific permit.

- a. After Class B biosolids have been land applied, public access must be restricted for 12 months.
- b. Class B biosolids are only land applied to root crops, home gardens or vegetable crops whose edible parts will not be for human consumption.

6. Agricultural and Silvicultural Sites:

Septage – Based on Water Quality guide 422(WQ422) published by the University of Missouri

- a. Haulers that land apply septage must obtain a state permit
- b. Do not apply more than 30,000 gallons of septage per acre per year.
- c. Septage tanks are designed to retain sludge for one to three years which will allow for a larger reduction in pathogens and vectors, as compared to other mechanical type treatment facilities.
- d. To meet Class B sludge requirements, maintain septage at 12 pH for at least thirty (30) minutes before land application. 50 pounds of hydrated lime shall be added to each 1,000 gallons of septage in order to meet pathogen and vector stabilization for septage biosolids applied to crops, pastures or timberland.
- e. Lime is to be added to the pump truck and not directly to the septic tanks, as lime would harm the beneficial bacteria of the septic tank.

Biosolids - Based on Water Quality guide 423, 424, and 425 (WQ423, WQ424, WQ425) published by the University of Missouri;

- a. Biosolids shall be monitored to determine the quality for regulated pollutants
- b. The number of samples taken is directly related to the amount of sludge produced by the facility (See Section I of these Standard Conditions). Report as dry weight unless otherwise specified in the site specific permit. Samples should be taken only during land application periods. When necessary, it is permissible to mix biosolids with lower concentrations of biosolids as well as other suitable department approved material to reach the maximum concentration of pollutants allowed.
- c. Table 1 gives the maximum concentration allowable to protect water quality standards

**TABLE 1**

Biosolids ceiling concentration <sup>1</sup>	
Pollutant	Milligrams per kilogram dry weight
Arsenic	75
Cadmium	85
Copper	4,300
Lead	840
Mercury	57
Molybdenum	75
Nickel	420
Selenium	100
Zinc	7,500

<sup>1</sup>Land application is not allowed if the sludge concentration exceeds the maximum limits for any of these pollutants

- d. The low metal concentration biosolids has reduced requirements because of its higher quality and can safely be applied for 100 years or longer at typical agronomic loading rates. (See Table 2)

**TABLE 2**

Biosolids Low Metal Concentration <sup>1</sup>	
Pollutant	Milligrams per kilogram dry weight
Arsenic	41
Cadmium	39
Copper	1,500
Lead	300
Mercury	17
Nickel	420
Selenium	36
Zinc	2,800

<sup>1</sup>You may apply low metal biosolids without tracking cumulative metal limits, provided the cumulative application of biosolids does not exceed 500 dry tons per acre.

- e. Each pollutant in Table 3 has an annual and a total cumulative loading limit, based on the allowable pounds per acre for various soil categories.

**TABLE 3**

Pollutant	CEC 15+		CEC 5 to 15		CEC 0 to 5	
	Annual	Total <sup>1</sup>	Annual	Total <sup>1</sup>	Annual	Total <sup>1</sup>
Arsenic	1.8	36.0	1.8	36.0	1.8	36.0
Cadmium	1.7	35.0	0.9	9.0	0.4	4.5
Copper	66.0	1,335.0	25.0	250.0	12.0	125.0
Lead	13.0	267.0	13.0	267.0	13.0	133.0
Mercury	0.7	15.0	0.7	15.0	0.7	15.0
Nickel	19.0	347.0	19.0	250.0	12.0	125.0
Selenium	4.5	89.0	4.5	44.0	1.6	16.0
Zinc	124.0	2,492.0	50.0	500.0	25.0	250.0

<sup>1</sup>Total cumulative loading limits for soils with equal or greater than 6.0 pH (salt based test) or 6.5 pH (water based test)

**TABLE 4 - Guidelines for land application of other trace substances<sup>1</sup>**

Cumulative Loading	
Pollutant	Pounds per acre
Aluminum	4,000 <sup>2</sup>
Beryllium	100
Cobalt	50
Fluoride	800
Manganese	500
Silver	200
Tin	1,000
Dioxin	(10 ppt in soil) <sup>3</sup>
Other	<sup>4</sup>

<sup>1</sup>Design of land treatment systems for Industrial Waste, 1979. Michael Ray Overcash, North Carolina State University and Land Treatment of Municipal Wastewater, EPA 1981.)

<sup>2</sup>This applies for a soil with a pH between 6.0 and 7.0 (salt based test) or a pH between 6.5 to 7.5 (water based test). Case-by-case review is required for higher pH soils.

<sup>3</sup>Total Dioxin Toxicity Equivalents (TEQ) in soils, based on a risk assessment under 40 CFR 744, May 1998.

<sup>4</sup>Case by case review. Concentrations in sludge should not exceed the 95<sup>th</sup> percentile of the National Sewage Sludge Survey, EPA, January 2009.

Best Management Practices – Based on Water Quality guide 426(WQ426) published by the University of Missouri

- a. Use best management practices when applying biosolids.
- b. Biosolids cannot discharge from the land application site
- c. Biosolid application is subject to the Missouri Department of Agriculture State Milk Board concerning grazing restrictions of lactating dairy cattle.
- d. Biosolid application must be in accordance with section 4 of the Endangered Species Act.
- e. Do not apply more than the agronomic rate of nitrogen needed.
- f. The applicator must document the Plant Available Nitrogen (PAN) loadings, available nitrogen in the soil and crop removals unless the nitrogen content of the biosolids does not exceed 50,000 milligrams per kilogram of total nitrogen on a dry weight basis or biosolids application rate is less than two dry tons per acre per year.
  - i. PAN can be determined as follows and is in accordance with WQ426  
(Nitrate + nitrite nitrogen) + (organic nitrogen x 0.2) + (ammonia nitrogen x volatilization factor<sup>1</sup>).
- g. Buffer zones are as follows:
  - i. 300 feet of a water supply well, sinkhole, lake, pond, water supply reservoir or water supply intake in a stream;
  - ii. 300 feet of a losing stream, no discharge stream, stream stretches designated for whole body contact recreation, wild and scenic rivers, Ozark National Scenic Riverways or outstanding state resource waters as listed in the Water Quality Standards, 10 CSR 20-7.031;
  - iii. 150 feet if dwellings;
  - iv. 100 feet of wetlands or permanent flowing streams;
  - v. 50 feet of a property line or other waters of the state, including intermittent flowing streams.
- h. Slope limitation for application sites are as follows;
  - i. A slope 0 to 6 percent has no rate limitation
  - ii. Applied to a slope 7 to 12 percent, the applicator may apply biosolids when soil conservation practices are used to meet the minimum erosion levels
  - iii. Slopes > 12, apply biosolids only when grass is vegetated and maintained with at least 80 percent ground cover at a rate of two dry tons per acre per year or less.
- i. No biosolids may be land applied in an area that it is reasonably certain that pollutants will be transported into waters of the state.
- j. Do not apply biosolids to sites with soil that is snow covered, frozen or saturated with liquid without prior approval by the department.
- k. Biosolids / sludge applicators must keep detailed records up to five years.

## SECTION H – CLOSURE REQUIREMENTS

1. This section applies to all wastewater facilities (mechanical, industrial, and lagoons) and sludge or biosolids storage and treatment facilities and incineration ash ponds. It does not apply to land application sites.
2. Permittees of a domestic wastewater facility 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. Mechanical plants, sludge lagoons, ash ponds and other storage structures must obtain approval of a closure plan from the department. Permittee must maintain this permit until the facility is closed in accordance with the approved closure plan 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 or ash pond 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 without sludge removal, the sludge in the lagoon qualifies as a Class B biosolids with respect to pathogens due to anaerobic digestion, and testing for fecal coliform is not required. For other lagoons, testing for fecal coliform is required to show compliance with Class B biosolids limitations. In order to reach Class B biosolids requirements, fecal coliform must be less than 2,000,000 colony forming units or 2,000,000 most probable number. All fecal samples must be presented as geometric mean per gram.
  - c. The allowable nitrogen loading that may be left in the lagoon shall be based on the plant available nitrogen (PAN) loading. For a grass cover crop, the allowable PAN is 300 pounds/acre.
    - i. PAN can be determined as follows:  
 (Nitrate + nitrite nitrogen) + (organic nitrogen x 0.2) + (ammonia nitrogen x volatilization factor<sup>1</sup>).  
<sup>1</sup> Volatilization factor is 0.7 for surface application and 1 for subsurface application.
4. When closing a domestic 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 Section B of these standard conditions. 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 a 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 100 dry tons/acre or more will be left in the lagoon, test for nitrogen and determine the PAN using the calculation above. Allowable PAN loading is 300 pounds/acre.
5. Residuals left within the domestic lagoon shall be mixed with soil on at least a 1 to 1 ratio, the lagoon berm shall be demolished, and the site shall be graded and contain  $\geq 70\%$  vegetative density over 100% of the site so as to avoid ponding of storm water and provide adequate surface water drainage without creating erosion.
6. Lagoons and/or earthen structure and/or ash pond closure activities shall obtain a storm water permit for land disturbance activities that equal or exceed one acre in accordance with 10 CSR 20-6.200
7. When closing a mechanical wastewater and/or industrial process wastewater plant; all sludge must be cleaned out and disposed of in accordance with the department approved closure plan before the permit for the facility can be terminated.
  - a. Land must be stabilized which includes any grading, alternate use or fate upon approval by the department, remediation, or other work that exposes sediment to stormwater per 10 CSR 20-6.200. The site shall be graded and contain  $\geq 70\%$  vegetative density over 100% of the site, so as to avoid ponding of storm water and provide adequate surface water drainage without creating erosion.
  - b. Per 10 CSR 20-6.015(4)(B)6, Hazardous Waste shall not be land applied or disposed during industrial and mechanical plant closures unless in accordance with Missouri Hazardous Waste Management Law and Regulations under 10 CSR 25.
  - c. After demolition of the mechanical plant / industrial plant, the site must only contain clean fill defined in RSMo 260.200 (5) as uncontaminated soil, rock, sand, gravel, concrete, asphaltic concrete, cinderblocks, brick, minimal amounts of wood and metal, and inert solids as approved by rule or policy of the department for fill or other beneficial use. Other solid wastes must be removed.
8. If sludge from the domestic lagoon or mechanical treatment plant exceeds agricultural rates under Section G and/or H, a landfill permit or solid waste disposal permit must be obtained if the permittee chooses to seek authorization for 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 I – MONITORING FREQUENCY**

- 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. Please see the table below.

**TABLE 5**

Design Sludge Production (dry tons per year)	Monitoring Frequency (See notes 1 and 2)			
	Metals, Pathogens and Vectors	Nitrogen TKN <sup>1</sup>	Nitrogen PAN <sup>2</sup>	Priority Pollutants and TCLP <sup>3</sup>
0 to 100	1 per year	1 per year	1 per month	1 per year
101 to 200	biannual	biannual	1 per month	1 per year
201 to 1,000	quarterly	quarterly	1 per month	1 per year
1,001 to 10,000	1 per month	1 per month	1 per week	-- <sup>4</sup>
10,001 +	1 per week	1 per week	1 per day	-- <sup>4</sup>

<sup>1</sup> Test total Kjeldahl nitrogen, if biosolids application is 2 dry tons per acre per year or less

<sup>2</sup> Calculate plant available nitrogen, nitrogen content of the biosolids is greater than 50,000 milligrams per kilogram of total nitrogen on dry weight basis or if the biosolids application rate is greater than two dry tons per acre per year.

<sup>3</sup> Priority pollutants (40 CFR 122.21, Appendix D, Tables II and III) and toxicity characteristic leaching procedure (40 CFR 261.24) is required only for permit holders that must have a pre-treatment program.

<sup>4</sup> One sample for each 1,000 dry tons of sludge.

Note 1: Total solids: A grab sample of sludge shall be tested one per day during land application periods for percent total solids. This data shall be used to calculate the dry tons of sludge applied per acre.

Note 2: Total Phosphorus: Total phosphorus and total potassium shall be tested at the same monitoring frequency as metals.

- If you own a wastewater treatment lagoon or sludge lagoon that is cleaned out once a year or less, you may choose to sample only when the sludge is removed or the lagoon is closed. Test one composite sample for each 100 dry tons of sludge or biosolids removed from the lagoon during the year within the lagoon at closing. Composite sample must represent various areas at one-foot depth.
- 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.
- At this time, the Department recommends monitoring requirements shall be performed in accordance with, "POTW Sludge Sampling and Analysis Guidance Document," United States Environmental Protection Agency, August 1989, and the subsequent revisions.

**SECTION J – RECORD KEEPING AND REPORTING REQUIREMENTS**

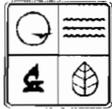
- The permittee shall maintain records on file at the facility for at least five years for the items listed in these standard conditions and any additional items in the Special Conditions section of this permit. This shall include dates when the sludge facility is checked for proper operation, records of maintenance and repairs and other relevant information.
- Reporting period
  - 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.
  - 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.
- Report Forms. The annual report shall be submitted on report forms provided by the department or equivalent forms approved by the department.
- Reports 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)  
ATTN: Sludge Coordinator

EPA Region VII  
Water Compliance Branch (WACM)  
Sludge Coordinator  
11201 Renner Blvd.  
Lenexa, KS 66219

5. Annual report Contents. The annual report shall include the following:
- a. Sludge and biosolids testing performed. Include a copy or summary of all test results, even if not required by the 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 the end of the 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.
    - i. This must include the name, address for the hauler and sludge facility. If hauled to a municipal wastewater treatment facility, sanitary landfill, or other approved treatment facility, give the name of that facility.
    - ii. 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 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 or biosolids use permit.
  - g. Land Application Sites:
    - i. 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 a legal description for nearest ¼, ¼, Section, Township, Range, and county, or UTM coordinates. If nitrogen content of the biosolids is greater than 50,000 milligrams per kilogram of total nitrogen on dry weight basis or if the biosolids application rate is greater than two dry tons per acre per year, report biosolids nitrogen results, PAN in pounds/acre crop nitrogen requirement.
    - ii. If the “Low Metals” criteria are exceeded, report the annual and cumulative pollutant loading rates in pounds per acre for each applicable pollutant, and report the percent of cumulative pollutant loading which has been reached at each site.
    - iii. Report the method used for compliance with pathogen and vector attraction requirements.
    - iv. 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 CONTROL BRANCH  
**FORM B2 – APPLICATION FOR CONSTRUCTION OR OPERATING PERMIT FOR FACILITIES WHICH RECEIVE PRIMARILY DOMESTIC WASTE AND HAVE A DESIGN FLOW MORE THAN 100,000 GALLONS PER DAY**

RECEIVED  
 OCT 06 2015  
 Water Pollution Control Branch

AT 820.3  
 1-2-15  
**FOR AGENCY USE ONLY**  
 CHECK NUMBER  
 4102  
 DATE RECEIVED  
 10/6/15  
 FEE SUBMITTED  
 \$875.00

**PART A – BASIC APPLICATION INFORMATION**

1. This application is for:

- An operating permit and antidegradation review public notice.
- A construction permit following an appropriate operating permit and antidegradation review public notice.
- A construction permit, a concurrent operating permit and antidegradation review public notice.
- A construction permit (submitted before Aug. 30, 2008 or antidegradation review is not required).
- An operating permit for a new or unpermitted facility. Construction Permit # CP0001635
- An operating permit renewal: Permit #MO- \_\_\_\_\_ Expiration Date \_\_\_\_\_
- An operating permit modification: Permit #MO- 0129470 Reason: med after construction

1.1 Is this a Federal/State Funded Project?  Yes  No Funding Agency/Project #: USDA

1.2 Is the appropriate fee included with the application (See instructions for appropriate fee)?  Yes  No

**2. FACILITY**

NAME Box Canyon Watershed WWTP		TELEPHONE NUMBER WITH AREA CODE 417-338-5231	
ADDRESS (PHYSICAL) 118 NOTCH LANE, SUITE 'C'	CITY Branson West	STATE MO	ZIP 65737
2.1 LEGAL DESCRIPTION (Plant Site): NW ¼, SW ¼, NE ¼, Sec. <u>04</u> , T <u>22</u> , R <u>22</u> County Stone			
2.2 UTM Coordinates Easting (X): <u>471416</u> Northing (Y): <u>4054970</u> For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)			

**3. OWNER STONE COUNTY PUBLIC SEWER DISTRICT #1**

NAME Kathy Isaacs	TITLE District Administrator	TELEPHONE NUMBER WITH AREA CODE 417-338-5231	
ADDRESS 118 Notch Lane, Suite C	CITY Branson West	STATE MO	ZIP 65737

3.1 Request review of draft permit prior to Public Notice?  Yes  No

**4. CONTINUING AUTHORITY:** Permanent organization which will serve as the continuing authority for the operation, maintenance and modernization of the facility.

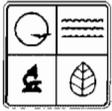
NAME STONE COUNTY PUBLIC SEWER DISTRICT #1	CITY Branson West
ADDRESS 118 Notch Lane, Suite C	CERTIFICATE NUMBER (IF APPLICABLE)
STATE MO	ZIP 65737

**5. OPERATOR**

NAME Roger Mullis, RK Water Operation, LLC	TITLE Owner	TELEPHONE NUMBER WITH AREA CODE 870-577-1566
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**6. FACILITY CONTACT**

NAME Kathy Isaacs,	TITLE District Administrator
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MISSOURI DEPARTMENT OF NATURAL RESOURCES  
 WATER PROTECTION PROGRAM, WATER POLLUTION CONTROL BRANCH  
**FORM B2 – APPLICATION FOR CONSTRUCTION OR OPERATING PERMIT FOR FACILITIES WHICH RECEIVE PRIMARILY DOMESTIC WASTE AND HAVE A DESIGN FLOW MORE THAN 100,000 GALLONS PER DAY**

RECEIVED  
 OCT 06 2005  
 Water Pollution Control Program

FACILITY NAME Box Canyon Watershed WWTP	
PERMIT NO. MO-0129470	COUNTY Stone County, MO

**APPLICATION OVERVIEW**

Form B2 has been developed in a modular format and consists of Parts A, B and C and a Supplemental Application Information (Parts D, E, F and G) packet. All applicants must complete Parts A, B and C. Some applicants must also complete parts of the Supplemental Application Information packet. The following items explain which parts of Form B2 you must complete. Submittal of an incomplete application may result in the application being returned.

**BASIC APPLICATION INFORMATION**

- A. Basic Application Information for all Applicants. All applicants must complete Part A.
- B. Additional Application Information for all Applicants. All applicants must complete Part B.
- C. Certification. All applicants must complete Part C.

**SUPPLEMENTAL APPLICATION INFORMATION**

- D. Expanded Effluent Testing Data. A treatment works that discharges effluent to surface water of the United States and meets one or more of the following criteria must complete *Part D - Expanded Effluent Testing Data*:
  - 1. Has a design flow rate greater than or equal to 1 million gallons per day.
  - 2. Is required to have or currently has a pretreatment program.
  - 3. Is otherwise required by the permitting authority to provide the information.
- E. Toxicity Testing Data. A treatment works that meets one or more of the following criteria must complete *Part E - Toxicity Testing Data*:
  - 1. Has a design flow rate greater than or equal to 1 million gallons per day.
  - 2. Is required to have or currently has a pretreatment program.
  - 3. Is otherwise required by the permitting authority to provide the information.
- F. Industrial User Discharges and Resource Conservation and Recovery Act / Comprehensive Environmental Response, Compensation and Liability Act Wastes. A treatment works that accepts process wastewater from any significant industrial users, also known as SIUs, or receives a Resource Conservation and Recovery Act or CERCLA wastes must complete *Part F - Industrial User Discharges and Resource Conservation and Recovery Act /CERCLA Wastes*.  
 SIUs are defined as:
  - 1. All Categorical Industrial Users, or CIUs, subject to Categorical Pretreatment Standards under 40 Code of Federal Regulations 403.6 and 40 Code of Federal Regulations 403.6 and 40 CFR Chapter 1, Subchapter N.
  - 2. Any other industrial user that meets one or more of the following:
    - i. Discharges an average of 25,000 gallons per day or more of process wastewater to the treatment works (with certain exclusions).
    - ii. Contributes a process waste stream that makes up five percent or more of the average dry weather hydraulic or organic capacity of the treatment plant.
    - iii. Is designated as an SIU by the control authority.
- G. Combined Sewer Systems. A treatment works that has a combined sewer system must complete *Part G - Combined Sewer Systems*.

**ALL APPLICANTS MUST COMPLETE PARTS A, B and C**

FACILITY NAME Box Canyon Watershed WWTP		PERMIT NO. MO- 0129470	OUTFALL NO. 001	
<b>PART A – BASIC APPLICATION INFORMATION</b>				
<b>7. ADDITIONAL FACILITY INFORMATION</b>				
7.1 BRIEF DESCRIPTION OF FACILITIES Influent Bar Rack;influent pump station; sequencing batch reactor; aerated sludge holding & post equalization basin; new filter & electrical building; disk filter unit; UV disinfection channel; effluent flow measurement; associated civil, site, structural, mechanical				
7.2 TOPOGRAPHIC MAP. ATTACH TO THIS APPLICATION A TOPOGRAPHIC MAP OF THE AREA EXTENDING AT LEAST ONE MILE BEYOND FACILITY PROPERTY BOUNDARIES. THIS MAP MUST SHOW THE OUTLINE OF THE FACILITY AND THE FOLLOWING INFORMATION. (YOU MAY SUBMIT MORE THAN ONE MAP IF ONE MAP DOES NOT SHOW THE ENTIRE AREA.) a. The area surrounding the treatment plant, including all unit processes. b. The location of the downstream landowner(s). (See Item 10.) c. The major pipes or other structures through which wastewater enters the treatment works and the pipes or other structures through which treated wastewater is discharged from the treatment plant. Include outfalls from bypass piping, if applicable. d. The actual point of discharge. e. Wells, springs, other surface water bodies and drinking water wells that are: 1) within ¼ mile of the property boundaries of the treatment works, and 2) listed in public record or otherwise known to the applicant. f. Any areas where the sewage sludge produced by the treatment works is stored, treated or disposed. g. If the treatment works receives waste that is classified as hazardous under the Resource Conservation and Recovery Act, or RCRA, by truck, rail or special pipe, show on the map where that hazardous waste enters the treatment works and where it is treated, stored or disposed.				
7.3 PROCESS FLOW DIAGRAM OR SCHEMATIC. PROVIDE A DIAGRAM SHOWING THE PROCESSES OF THE TREATMENT PLANT. ALSO, PROVIDE A WATER BALANCE SHOWING ALL TREATMENT UNITS, INCLUDING DISINFECTION (E.G. CHLORINATION AND DECHLORINATION). THE WATER BALANCE MUST SHOW DAILY AVERAGE FLOW RATES AT INFLUENT AND DISCHARGE POINTS AND APPROXIMATE DAILY FLOW RATES BETWEEN TREATMENT UNITS. INCLUDE A BRIEF NARRATIVE DESCRIPTION OF THE DIAGRAM.				
7.4 FACILITY SIC CODE 4952	DISCHARGE SIC CODE: 4952	FACILITY NAICS CODE: 2213	DISCHARGE NAICS CODE: 2213	
7.5 NUMBER OF SEPARATE DISCHARGE POINTS 001				
7.6 NUMBER OF PEOPLE PRESENTLY CONNECTED OR POPULATION EQUIVALENT 650			DESIGN POPULATION EQUIVALENT	
NUMBER OF UNITS PRESENTLY CONNECTED HOMES _____ APARTMENTS <u>308</u> TRAILERS _____ OTHER _____				
TOTAL DESIGN FLOW (ALL OUTFALLS) 150,000 gpd		ACTUAL FLOW varies: 10,000 - 55,000 gpd		
7.7 DOES ANY BYPASSING OCCUR ANYWHERE IN THE COLLECTION SYSTEM OR AT THE TREATMENT FACILITY? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If Yes, attach an explanation.)				
7.8 LENGTH OF THE SANITARY SEWER COLLECTION SYSTEM IN MILES <u>3.0</u>				
7.9 IS INDUSTRIAL WASTE DISCHARGED TO THE FACILITY IDENTIFIED IN ITEM 2? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
7.10 WILL THE DISCHARGE BE CONTINUOUS THROUGH THE YEAR? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
A. DISCHARGE WILL OCCUR DURING THE FOLLOWING MONTHS 12 months		B. HOW MANY DAYS OF THE WEEK WILL THE DISCHARGE OCCUR? seven		
7.11 IS WASTEWATER LAND APPLIED? (If Yes, Attach Form I) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		7.12 DOES THIS FACILITY DISCHARGE TO A LOSING STREAM OR SINKHOLE? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
7.13 HAS A WASTE LOAD ALLOCATION STUDY BEEN COMPLETED FOR THIS FACILITY? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
7.14 LIST ALL PERMIT VIOLATIONS, INCLUDING EFFLUENT LIMIT EXCEEDANCES IN THE LAST FIVE YEARS. ATTACH A SEPARATE SHEET IF NECESSARY. IF NONE, WRITE NONE.				
<b>8. LABORATORY CONTROL INFORMATION</b>				
8.1 LABORATORY WORK CONDUCTED BY PLANT PERSONNEL				
Lab work conducted outside of plant.		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Push-button or visual methods for simple test such as pH, settleable solids.		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Additional procedures such as Dissolved Oxygen, Chemical Oxygen Demand, Biological Oxygen Demand, titrations, solids, volatile content.		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
More advanced determinations such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc.		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph.		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	

FACILITY NAME Box Canyon Watershed WWTP		PERMIT NO. MO- 0129470	OUTFALL NO. 001	
<b>PART A - BASIC APPLICATION INFORMATION</b>				
<b>9. SLUDGE HANDLING, USE AND DISPOSAL</b>				
9.1 IS THE SLUDGE A HAZARDOUS WASTE AS DEFINED BY 10 CSR 25? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
9.2 SLUDGE PRODUCTION, INCLUDING SLUDGE RECEIVED FROM OTHERS Design Dry Tons/Year <sup>39.5</sup> Actual Dry Tons/Year <sup>n/a</sup>				
9.3 CAPACITY OF SLUDGE HOLDING STRUCTURES				
9.4 SLUDGE STORAGE PROVIDED Cubic Feet <sup>11650</sup> Days of Storage <sup>33</sup> Average Percent Solids of Sludge <sup>1</sup> <input type="checkbox"/> No Sludge Storage is Provided				
9.5 TYPE OF STORAGE <input checked="" type="checkbox"/> Holding Tank <input type="checkbox"/> Basin <input type="checkbox"/> Building <input type="checkbox"/> Concrete Pad <input type="checkbox"/> Other (Describe) _____				
9.6 SLUDGE TREATMENT <input type="checkbox"/> Anaerobic Digester <input checked="" type="checkbox"/> Storage Tank <input type="checkbox"/> Lime Stabilization <input type="checkbox"/> Lagoon <input type="checkbox"/> Aerobic Digester <input type="checkbox"/> Air or Heat Drying <input type="checkbox"/> Composting <input type="checkbox"/> Other (Attach Description)				
9.7 SLUDGE USE OR DISPOSAL <input type="checkbox"/> Land Application <input checked="" type="checkbox"/> Contract Hauler <input checked="" type="checkbox"/> Hauled to Another Treatment Facility <input type="checkbox"/> Solid Waste Landfill <input type="checkbox"/> Surface Disposal (Sludge Disposal Lagoon, Sludge Held For More Than Two Years) <input type="checkbox"/> Incineration <input type="checkbox"/> Other (Attach Explanation Sheet) _____				
9.8 PERSON RESPONSIBLE FOR HAULING SLUDGE TO DISPOSAL FACILITY				
NAME Tillman and Sons Septic Tank Cleaning				
ADDRESS 147 Victory Lane		CITY Branson West	STATE MO	ZIP 65737
CONTACT PERSON Kenny Tillman		TELEPHONE NUMBER WITH AREA CODE 417-739-4780	PERMIT NO. MO- 6910	
9.9 SLUDGE USE OR DISPOSAL FACILITY <input type="checkbox"/> By Applicant <input checked="" type="checkbox"/> By Others (Complete Below)				
NAME Tillman and Sons Septic Tank Cleaning				
ADDRESS P.O. Box 11		CITY Kimberling City	STATE MO	ZIP 65686
CONTACT PERSON Kenny Tillman		TELEPHONE NUMBER WITH AREA CODE 417-739-4780	PERMIT NO. MO- 6910	
9.10 DO THE SLUDGE OR BIOSOLIDS DISPOSAL COMPLY WITH FEDERAL SLUDGE REGULATIONS UNDER 40 CFR 503? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (Attach Explanation)				
<b>10. DOWNSTREAM LANDOWNER(S). (ATTACH ADDITIONAL SHEETS AS NECESSARY.)</b>				
NAME Supermarket Merchandising & Supply, Inc.				
ADDRESS 5200 Virginia Avenue		CITY St. Louis	STATE MO	ZIP 63111
<b>11. DRINKING WATER SUPPLY INFORMATION</b>				
11.1 SOURCE OF YOUR DRINKING WATER SUPPLY				
A. PUBLIC SUPPLY (MUNICIPAL OR WATER DISTRICT WATER) (IF PUBLIC, PLEASE GIVE NAME OF PUBLIC SUPPLY) Stone County Public Water Supply District #2				
B. PRIVATE WELL				
C. SURFACE WATER (LAKE, POND OR STREAM)				
11.2 DOES YOUR DRINKING WATER SOURCE SERVE AT LEAST 25 PEOPLE AT LEAST 60 DAYS PER YEAR (NOT NECESSARILY CONSECUTIVE DAYS)? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
11.3 DOES YOUR SUPPLY SERVE HOUSING THAT IS OCCUPIED YEAR ROUND BY THE SAME PEOPLE? THIS DOES NOT INCLUDE HOUSING THAT IS OCCUPIED SEASONALLY? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
<b>END OF PART A</b>				

MO 790-1805 (09-08)

**MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL**

FACILITY NAME Box Canyon Watershed WWTP	PERMIT NO. MO- 0129470	OUTFALL NO. 001
--	---------------------------	--------------------

**PART B – ADDITIONAL APPLICATION INFORMATION**

**20. INFLOW AND INFILTRATION**

ESTIMATE THE AVERAGE NUMBER OF GALLONS PER DAY THAT FLOW INTO THE TREATMENT WORKS FROM INFLOW AND INFILTRATION.

Gallons Per Day 1500

BRIEFLY EXPLAIN ANY STEPS UNDERWAY OR PLANNED TO MINIMIZE INFLOW AND INFILTRATION.

System mapping, visual inspection of manholes, investigate unauthorized connections,

**20.1 OPERATION AND MAINTENANCE PERFORMED BY CONTRACTOR(S)**

ARE ANY OPERATIONAL OR MAINTENANCE ASPECTS (RELATED TO WASTEWATER TREATMENT AND EFFLUENT QUALITY) OF THE TREATMENT WORKS THE RESPONSIBILITY OF A CONTRACTOR?

Yes  No  If Yes, list the name, address, telephone number and status of each contractor and describe the contractor's responsibilities. (Attach additional pages if necessary.)

NAME  
Roger Mullis, RK Water Operation, LLC

MAILING ADDRESS  
8357 Windrock Lane; Harrison, AR 72601

TELEPHONE NUMBER WITH AREA CODE  
(870) 437-5353

RESPONSIBILITIES OF CONTRACTOR  
Daily system operation, maintenance, repairs

**20.2 SCHEDULED IMPROVEMENTS AND SCHEDULES OF IMPLEMENTATION. PROVIDE INFORMATION ABOUT ANY UNCOMPLETED IMPLEMENTATION SCHEDULE OR UNCOMPLETED PLANS FOR IMPROVEMENTS THAT WILL AFFECT THE WASTEWATER TREATMENT, EFFLUENT QUALITY OR DESIGN CAPACITY OF THE TREATMENT WORKS. IF THE TREATMENT WORKS HAS SEVERAL DIFFERENT IMPLEMENTATION SCHEDULES OR IS PLANNING SEVERAL IMPROVEMENTS, SUBMIT SEPARATE RESPONSES FOR EACH. (IF NONE, GO TO QUESTION B-20.3.)**

A. List the outfall number that is covered by this implementation schedule Outfall No.	B. Indicate whether the planned improvements or implementation schedule are required by local, state or federal agencies. Yes <input type="checkbox"/> No <input type="checkbox"/>
---	---

**20.3 WASTEWATER DISCHARGES:**  
COMPLETE QUESTIONS 20.4 THROUGH 20.7 ONCE FOR EACH OUTFALL (INCLUDING BYPASS POINTS) THROUGH WHICH EFFLUENT IS DISCHARGED. DO NOT INCLUDE INFORMATION ON COMBINED SEWER OVERFLOWS IN THIS SECTION.

**20.4 DESCRIPTION OF OUTFALL**

OUTFALL NUMBER **001**

A. LOCATION  
 ¼ NW ¼ SW ¼ NE Section 04 Township 22 Range 22  E  W  
 UTM Coordinates Easting (X): 471416 Northing (Y): 4054970  
 For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

B. Distance from Shore (If Applicable) _____ ft.	C. Depth Below Surface (If Applicable) _____ ft.	D. Average Daily Flow Rate <u>0.06</u> mgd
---	---	---

E. Does this outfall have either an intermittent or periodic discharge?  
 Yes  No If Yes, Provide the following information:

Number of Days Per Year Discharge Occurs: <b>365</b>	Average Duration of Each Discharge: <b>10-15 minutes</b>	Average Flow Per Discharge: <b>0.0006 mgd</b>	Months in Which Discharge Occurs: <b>12 months</b>
--	--	---	--

Is Outfall Equipped with a Diffuser?  Yes  No

**20.5 DESCRIPTION OF RECEIVING WATER**

B. Name of Receiving Water  
unnamed tributary to Table Rock Lake (U)

B. Name of Watershed (If Known) n / a	U.S. Soil Conservation Service 14-Digit Watershed Code (If Known)
--	---

B. Name of State Management/River Basin (If Known)	U.S. Geological Survey 8-Digit Hydrologic Cataloging Unit Code (If Known) 11010001-170003
--	--

B. Critical Flow of Receiving Stream (If Applicable) Acute _____ cfs Chronic _____ cfs	B. Total Hardness of Receiving Stream at Critical Low Flow (If Applicable) mg/L of CaCO <sub>3</sub>
---	---

FACILITY NAME Box Canyon Watershed WWTP	PERMIT NO. MO- 0129470	OUTFALL NO 001
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**PART B - ADDITIONAL APPLICATION INFORMATION (CONTINUED)**

20.6 DESCRIPTION OF TREATMENT

A. WHAT LEVELS OF TREATMENT ARE PROVIDED? Check All That Apply  
 Primary     Secondary     Advanced     Other (Describe)

B. INDICATE THE FOLLOWING REMOVAL RATES (AS APPLICABLE)  
Design BOD<sub>5</sub> Removal Or Design CBOD<sub>5</sub> Removal      85 %      Design SS Removal      85 %  
Design P Removal      95 %      Design N Removal      %      Other      %

C. What type of disinfection is used for the effluent from this outfall? If disinfection varies by season, please describe:  
UV

If disinfection is by chlorination, is dechlorination used for this outfall?     Yes     No

Does the treatment plant have post aeration?     Yes     No

20.7 EFFLUENT TESTING DATA. ALL APPLICANTS THAT DISCHARGE TO WATERS OF THE U.S. MUST PROVIDE EFFLUENT TESTING DATA FOR THE FOLLOWING PARAMETERS. PROVIDE THE INDICATED EFFLUENT DATA FOR EACH OUTFALL THROUGH WHICH EFFLUENT IS DISCHARGED. DO NOT INCLUDE INFORMATION OF COMBINED SEWER OVERFLOWS IN THIS SECTION. ALL INFORMATION REPORTED MUST BE BASED ON DATA COLLECTED THROUGH ANALYSIS CONDUCTED USING 40 CFR PART 136 METHODS. IN ADDITION, THIS DATA MUST COMPLY WITH QA/QC REQUIREMENTS OF 40 CFR PART 136 AND OTHER APPROPRIATE QA/QC REQUIREMENTS FOR STANDARD METHODS FOR ANALYTES NOT ADDRESSED BY 40 CFR PART 136.

OUTFALL NUMBER    001

PARAMETER	MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE		
	VALUE	UNITS	VALUE	UNITS	NO. OF SAMPLES
pH (Minimum)	7.1	S.U.	7.1	S.U.	2
pH (Maximum)	7.2	S.U.	7.2	S.U.	2
FLOW RATE	0.048764	MGD	.0274	MGD	2
TEMPERATURE (Winter)		°C		°C	
TEMPERATURE (Summer)		°C		°C	

\*For pH report a minimum and a maximum daily value.

POLLUTANT	MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML/MDL
	CONC.	UNITS	CONC.	UNITS	NO. OF SAMPLES		

Conventional and Nonconventional Compounds

BIOCHEMICAL OXYGEN DEMAND (Report One)	BOD <sub>5</sub>	94	mg/L	73.5	mg/L	2		
	CBOD <sub>5</sub>	na	mg/L	na	mg/L			
FECAL COLIFORM	25600	#/100 mL	12802	#/100 mL	2			
TOTAL SUSPENDED SOLIDS (TSS)	28	mg/L	19	mg/L	2			
AMMONIA (AS N)	44.5	mg/L	39	mg/L	2			
CHLORINE (TOTAL RESIDUAL, TRC)	na	mg/L	na	mg/L				
DISSOLVED OXYGEN	7.2	mg/L	6.0	mg/L	2			
TOTAL KJELDAHL NITROGEN (TKN)	na	mg/L	na	mg/L				
NITRATE PLUS NITRITE NITROGEN	na	mg/L	na	mg/L				
OIL AND GREASE	3.4	mg/L	<2.7	mg/L	2			
PHOSPHORUS (TOTAL)	2.1	mg/L	1.8	mg/L	2			
TOTAL DISSOLVE SOLIDS (TDS)	na	mg/L	na	mg/L				
OTHER		mg/L		mg/L				

**END OF PART B**

**PART C - CERTIFICATION**

**30. CERTIFICATION**

All applicants must complete the Certification Section. This certification must be signed by an officer of the company or city official. All applicants must complete all applicable sections as explained in the Application Overview. By signing this certification statement, applicants confirm that they have reviewed the entire form and have completed all sections that apply to the facility for which this application is submitted.

ALL APPLICANTS MUST COMPLETE THE FOLLOWING CERTIFICATION.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

PRINTED NAME AND OFFICIAL TITLE (MUST BE AN OFFICER OF THE COMPANY OR CITY OFFICIAL)

Kathy Isaacs, District Administrator

SIGNATURE

x 

TELEPHONE NUMBER WITH AREA CODE

417-338-5231

DATE SIGNED

9-18-15

Upon request of the permitting authority, you must submit any other information necessary to assess wastewater treatment practices at the treatment works or identify appropriate permitting requirements.

For Design Flows Less than 1 Million Gallons Per Day,  
Send Completed Form to:

**Appropriate Regional Office**

Map of regional offices with addresses and phone numbers is available on the Web at [www.dnr.mo.gov/regions/ro-map.pdf](http://www.dnr.mo.gov/regions/ro-map.pdf).

For Design Flows of 1 Million Gallons Per Day or Greater,  
Send Completed Form to:

Department of Natural Resources  
Water Protection Program  
ATTN: NPDES Permits and Engineering Section  
P.O. Box 176  
Jefferson City, MO 65102

**END OF PART C.**

**REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM B2 YOU MUST COMPLETE.**

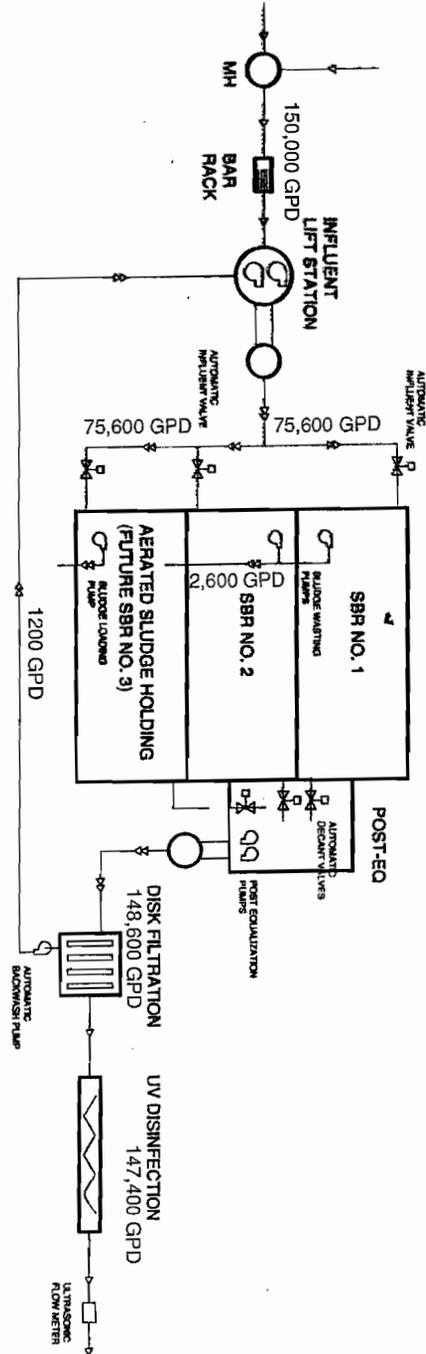
Do not complete the remainder of this application, unless:

1. Your facility design flow is equal to or greater than 1,000,000 gallons per day.
2. Your facility is a pretreatment treatment works.
3. Your facility is a combined sewer system.

Submittal of an incomplete application may result in the application being returned. Permit fees for returned applications shall be forfeited. Permit fees for applications being processed by the department that are withdrawn by the applicant shall be forfeited.

COMPLIANCE HISTORY (continued)

REPORT PERIOD	PARAMETER	MSOP LIMIT	REPORTED RESULT
May 2011	E. Coli	630 #/100 ml weekly Avg 126 #/100 ml Monthly Avg	2103 #/100 ml 985.5 #/100 ml
May 2011	Total Phosphorus	0.5 mg/L Monthly Average	0.8 mg/L
June 2011	E. Coli	630 #/100 ml weekly Avg 126 #/100 ml Monthly Avg	1761 #/100 ml 832.4 #/100 ml
June 2011	Total Phosphorus	0.5 mg/L Monthly Average	0.7 mg/L
July 2011	E. Coli	630 #/100 ml weekly Avg 126 #/100 ml Monthly Avg	345 #/100 ml 226.2 #/100 ml
August 2011	E. Coli	630 #/100 ml weekly Avg 126 #/100 ml Monthly Avg	740 #/100 ml 514.7 #/100 ml
October 2011	E. Coli	630 #/100 ml weekly Avg 126 #/100 ml Monthly Avg	206.6 #/100 ml 147.7 #/100 ml
April 2012	E. Coli	630 #/100 ml weekly Avg 126 #/100 ml Monthly Avg	418.2 #/100 ml 985.5 #/100 ml
May 2012	E. Coli	630 #/100 ml weekly Avg 126 #/100 ml Monthly Avg	415 #/100 ml 415 #/100 ml
July 2012	Missing DMR		
August 2012	E. Coli	630 #/100 ml weekly Avg 126 #/100 ml Monthly Avg	100,000 #/100 ml
August 2012	BOD <sub>5</sub>	30 mg/L Weekly Average 20 mg/L Monthly Average	26 mg/L
August 2012	Total Phosphorus	0.5 mg/L Monthly Average	2.1 mg/L
September 2012	E. Coli	630 #/100 ml weekly Avg 126 #/100 ml Monthly Avg	7400#/100 ml
September 2012	Total Phosphorus	0.5 mg/L Monthly Average	1.3 mg/L
October 2012	E. Coli	630 #/100 ml weekly Avg 126 #/100 ml Monthly Avg	20,800#/100 ml
October 2012	Total Phosphorus	0.5 mg/L Monthly Average	1.4 mg/L
November 2012	Total Phosphorus	0.5 mg/L Monthly Average	0.8 mg/L
December 2012	Total Phosphorus	0.5 mg/L Monthly Average	0.6 mg/L
March 2013	BOD <sub>5</sub>	30 mg/L Weekly Average 20 mg/L Monthly Average	84 mg/L
March 2013	Total Phosphorus	0.5 mg/L Monthly Average	1.5 mg/L
April 2013	BOD <sub>5</sub>	30 mg/L Weekly Average 20 mg/L Monthly Average	81 mg/L



THE NEW BOX CANYON SBR WWTP IS RATED AT AN AVERAGE DAILY FLOW OF 150,000 GPD.

THE INFLUENT FLOW IS COMBINED WITH THE TERTIARY FILTER BACKWASH AND PUMPED INTO SBR BASINS 1 & 2 IN AN ALTERNATING MANNER. EACH SBR BASIN WILL BE FILLED WITH WASTEWATER, TREATED, AND EMPTIED FIVE (5) TIMES A DAY. THE EFFLUENT IS RELEASED FROM THE SBR BASIN MUCH FASTER THAN THE FILL RATE, THEREFORE, AN EQUALIZATION BASIN IS PROVIDED TO REGULATE THE DISCHARGE RATE THROUGH THE DISK FILTER AND THE U.V. DISINFECTION UNIT. THIS REGULATION IS ACCOMPLISHED BY A SUBMERSIBLE EFFLUENT PUMP WITH A FULL TIME BACKUP PUMP. WASTE ACTIVATED SLUDGE IS REMOVED FROM EACH SBR BASIN AT THE END OF EACH TREATMENT CYCLE BY A SUBMERSIBLE PUMP IN EACH BASIN. THE SLUDGE IS STORED UNDER AERATION UNTIL IT CAN BE HAULED TO ANOTHER FACILITY BY A CONTRACT HAULER.



REF: REF  
 PROJECT NO: 13344-01  
 DATE: FEB 25, 2014  
 CAD DWG FILE: SBR.DWG  
 DRAWN BY: JSD  
 CHK'D BY: XXX

SHEET TITLE

PROCESS SCHEMATIC

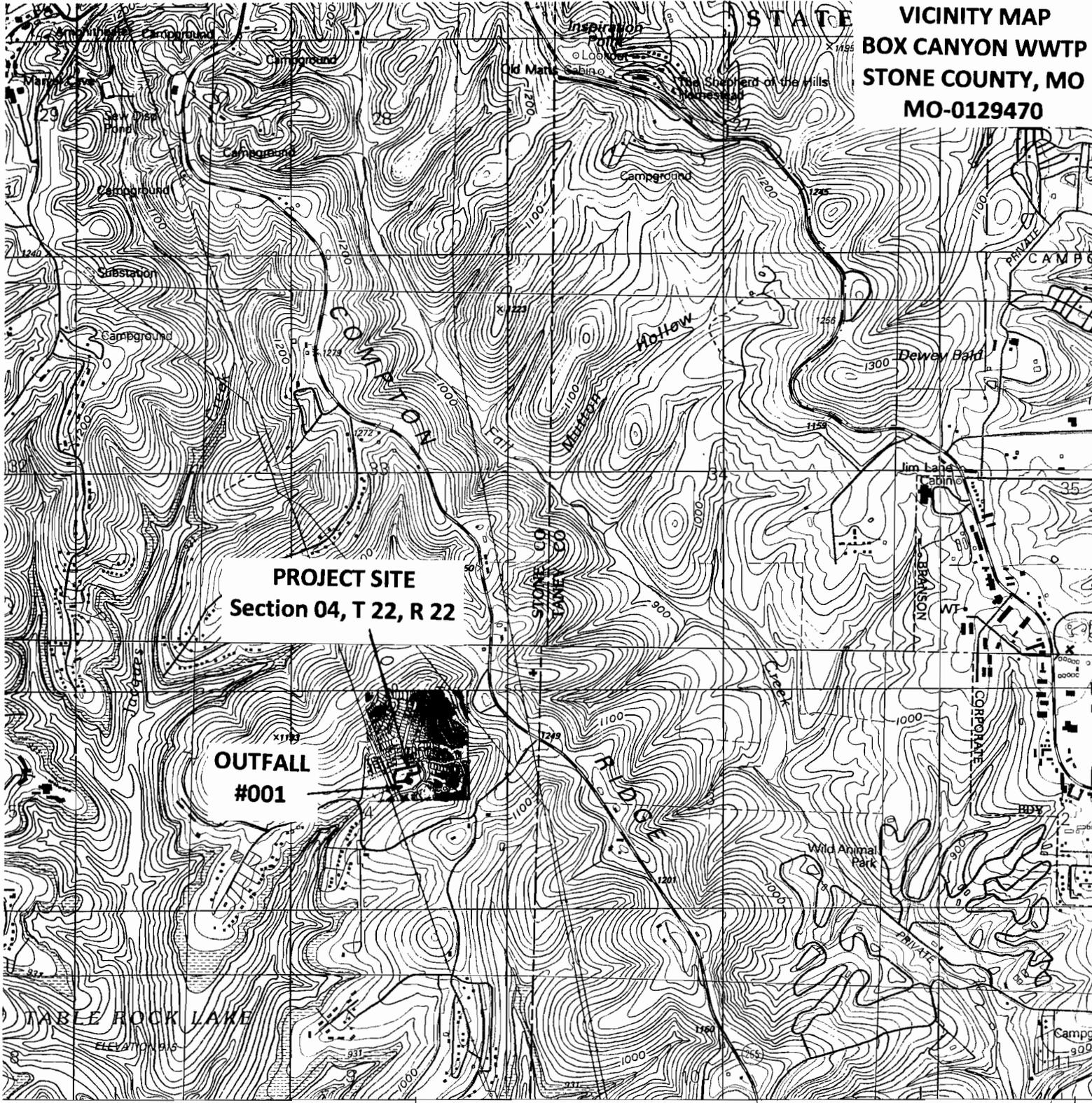
PROJECT

BOX CANYON WWTP

DRAWING

13344-01

**STATE VICINITY MAP**  
**BOX CANYON WWTP**  
**STONE COUNTY, MO**  
**MO-0129470**

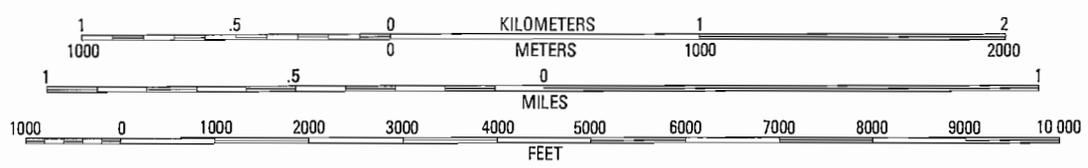


**PROJECT SITE**  
**Section 04, T 22, R 22**

**OUTFALL**  
**#001**

470 20' 471 (TABLE ROCK DAM) 1.3 MI. TO MO. 165 17' 30"

**SCALE 1:24 000**



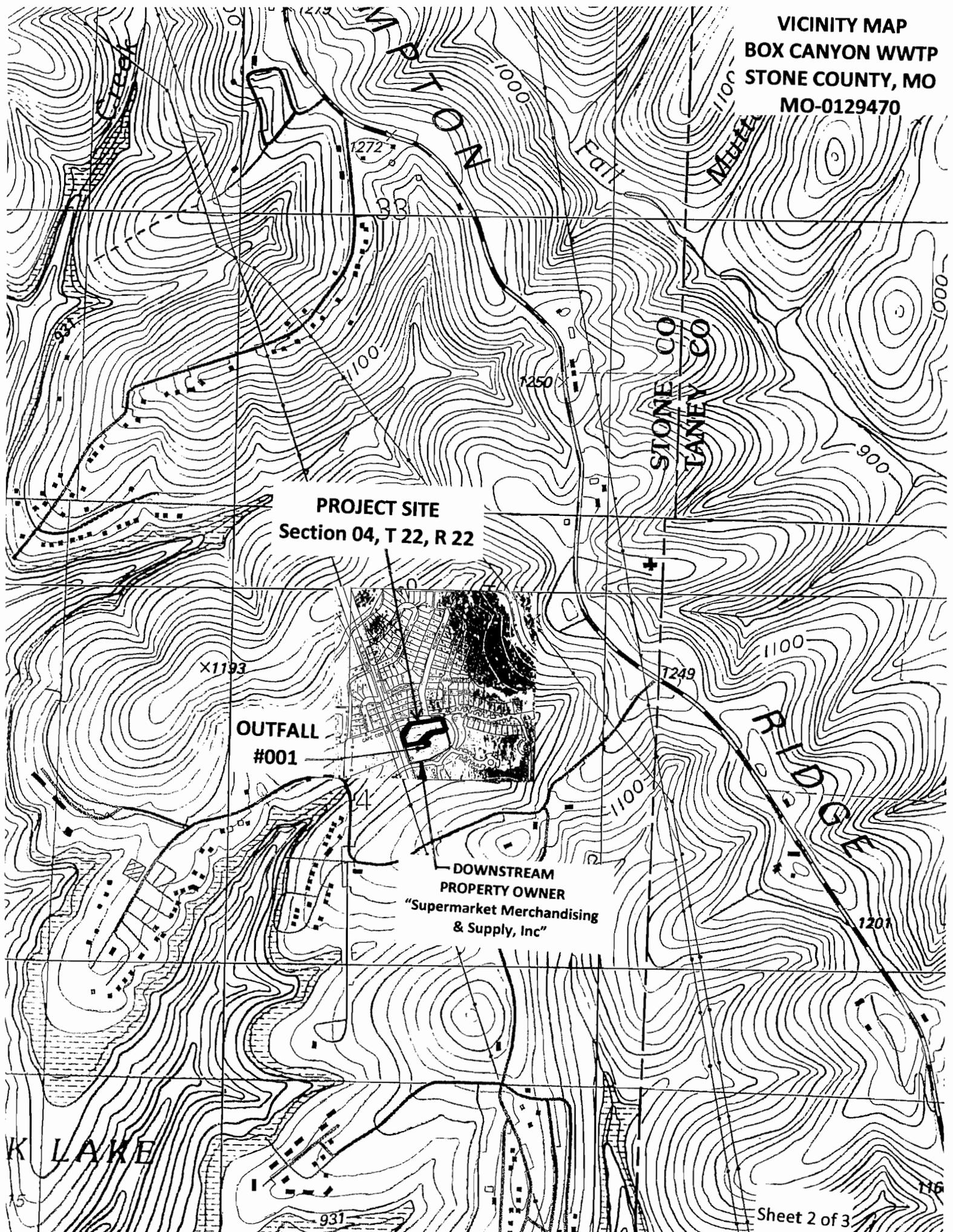
**CONTOUR INTERVAL 20 FEET**  
**NATIONAL GEODETIC VERTICAL DATUM OF 1929**

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS  
 FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092  
 AND DIVISION OF GEOLOGY AND LAND SURVEY  
 MISSOURI DEPARTMENT OF NATURAL RESOURCES, ROLLA, MISSOURI 65401  
 A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



QUADRANGLE

VICINITY MAP  
BOX CANYON WWTP  
STONE COUNTY, MO  
MO-0129470



**PROJECT SITE**  
Section 04, T 22, R 22

**OUTFALL**  
#001

**DOWNSTREAM**  
**PROPERTY OWNER**  
"Supermarket Merchandising  
& Supply, Inc"

**K LAKE**

# PROPOSED TREATMENT PLANT FACILITIES & PIPING

