STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

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

Permit No.	MO-0137294
Owner:	Boone County Regional Sewer District
Address:	1314 North 7th Street, Columbia, MO 65201
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	Rocky Fork WWTF
Facility Address:	North Rock Fork Drive, Columbia, MO 65202
Legal Description:	SE ¼, NE ¼, Sec. 23, T49N, R13W, Boone County
UTM Coordinates:	X= 556996, Y= 4319018
Receiving Stream:	Tributary to Rock Fork Creek (U)
First Classified Stream and ID:	Rocky Fork Creek (C) (1014)
USGS Basin & Sub-watershed No.:	(10300102-0706)

FACILITY DESCRIPTION

Outfall #001 - Facility type (POTW) - SIC #4952
The use or operation of this facility shall be by or under the supervision of a **Certified "C" Operator**
Mechanical bar screen / oxidation ditch / final clarifiers / ultraviolet disinfection / re-aeration / sludge storage / sludge disposal by contract hauler
Design population equivalent is 4,600.
Design flow is 460,000 gallons per day.
Design sludge production is 129 dry tons/year.

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

January 1, 2015
Effective Date

Sara Parker Pauley
Sara Parker Pauley, Director, Department of Natural Resources

December 31, 2019
Expiration Date

John Madras
John Madras, Director, Water Protection Program

OUTFALL #001	TABLE A-1. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS	PAGE NUMBER 2 of 7
		PERMIT NUMBER MO-0137294

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

EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
E. coli (Note 1, Page 2)	#/100 ml		1030	206	once/week	grab
Flow	MGD	*		*	once/month	24 hr. estimate
Biochemical Oxygen Demand$_5$	mg/L		23	15	once/month	composite**
Total Suspended Solids	mg/L		30	20	once/month	composite**
pH – Units	SU	***		***	once/month	grab
Ammonia as N (April 1 – Sept 30) (Oct 1 – March 31)	mg/L	 3.7 7.5		 1.4 2.9	once/month	grab
Oil & Grease	mg/L	15		10	once/month	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE February 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	5.0		5.0	once/month	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE April 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 6.5-9.0 pH units.

Note 1 - Effluent limitations and monitoring requirements for *E. coli* are applicable only during the recreational season from April 1 through October 31. The Monthly Average Limit for *E. coli* is expressed as a geometric mean. 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).

OUTFALL #001	TABLE A-2. WHOLE EFFLUENT TOXICITY FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS	PAGE NUMBER 3 of 7 PERMIT NUMBER MO-0137294

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

EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Acute Whole Effluent Toxicity	TU_a	*			once/permit cycle	composite**

MONITORING REPORTS SHALL BE SUBMITTED ONCE PER PERMIT CYCLE; THE FIRST REPORT IS DUE June 28, 2019.

TABLE B. INFLUENT MONITORING REQUIREMENTS	PERMIT NUMBER MO-0137294

The facility is required to meet a removal efficiency of 85% or more as a monthly average. The monitoring requirements shall become effective upon issuance 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 $Demand_5$	mg/L	once/quarter*****	grab
Total Suspended Solids	mg/L	once/quarter*****	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE April 28, 2015.

***** See table below for quarterly sampling.

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

C. STANDARD CONDITIONS

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

1. This permit may be reopened and modified, or alternatively revoked and reissued, to:
   (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
      (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
      (2) controls any pollutant not limited in the permit.
   (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
   (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

   The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

2. All outfalls must be clearly marked in the field.

3. Permittee will cease discharge by connection to a facility with an area-wide management plan per 10 CSR 20-6.010(3)(B) within 90 days of notice of its availability.

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

5. Changes in Discharges of Toxic Substances

   The permittee shall notify the Director as soon as it knows or has reason to believe:
   (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
      (1) One hundred micrograms per liter (100 µg/L);
      (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
      (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
      (4) The level established in Part A of the permit by the Director.

D. SPECIAL CONDITIONS (continued)

(b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.

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

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

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

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

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

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

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

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

14. An Operation and Maintenance (O & M) manual shall be maintained by the permittee and made available to the operator. The O & M manual shall include key operating procedures and a brief summary of the operation of the facility.

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

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

17. 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_a)	FREQUENCY	SAMPLE TYPE	MONTH
001	100%	*	once/permit cycle	24 hr. composite	Any

* Monitoring requirement only.

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

D. SPECIAL CONDITIONS (continued)

(a) Test Schedule and Follow-Up Requirements

(1) Perform a MULTIPLE-dilution acute WET test in the months and at the frequency specified above. For tests which are successfully passed, submit test results using the Department's WET test report form #MO-780-1899 along with complete copies of the test reports as received from the laboratory, including copies of chain-of-custody forms within 30 calendar days of availability to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102. If the effluent passes the test, do not repeat the test until the next test period.

(i) Chemical and physical analysis of the upstream control 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.

(ii) 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.

(iii) All chemical analyses included in the Missouri Department of Natural Resources WET test report form #MO-780-1899 shall be performed and results shall be recorded in the appropriate field of the report form.

(2) The WET test will be considered a failure if mortality observed in effluent concentrations for either specie, equal to or less than the AEC, is significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the upstream receiving-water control sample. Where upstream receiving water is not available, synthetic laboratory control water may be used.

(3) All failing test results along with complete copies of the test reports as received from the laboratory, INCLUDING THOSE TESTS CONDUCTED UNDER CONDITION (3) BELOW, shall be reported to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the availability of the results.

(4) If the effluent fails the test for BOTH test species, a multiple dilution test shall be performed for BOTH test species within 30 calendar days and biweekly thereafter (for storm water, tests shall be performed on the next and subsequent storm water discharges as they occur, but not less than 7 days apart) until one of the following conditions are met: Note: Written request regarding single species multiple dilution accelerated testing will be address by THE WATER PROTECTION PROGRAM on a case by case basis.

(i) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.

(ii) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.

(5) Follow-up tests do not negate an initial failed test.

(6) The permittee shall submit a summary of all test results for the test series along with complete copies of the test reports as received from the laboratory to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the third failed test.

(7) Additionally, the following shall apply upon failure of the third follow up MULTIPLE DILUTION test The permittee should contact THE WATER PROTECTION PROGRAM within 14 calendar days from availability of the test results to ascertain as to whether a TIE or TRE is appropriate. If the permittee does not contact THE WATER PROTECTION PROGRAM upon the third follow up test failure, a toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE) is automatically triggered. The permittee shall submit a plan for conducting a TIE or TRE to the WATER PROTECTION PROGRAM within 60 calendar days of the date of the automatic trigger or DNR's direction to perform either a TIE or TRE. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.

(8) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.

(9) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in the permit, without the follow-up requirements, will be required during this period.

(10) When WET test sampling is required to run over one DMR period, each DMR report shall contain a copy of the Department's WET test report form that was generated during the reporting period.

(11) Submit a concise summary in tabular format of all WET test results with the annual report.

(b) Test Conditions

(1) Test Type: Acute Static non-renewal

(2) All tests, including repeat tests for previous failures, shall include both test species listed below unless approved by the department on a case by case basis.

(3) Test species: Ceriodaphnia dubia and Pimephales promelas (fathead minnow). Organisms used in WET testing

D. SPECIAL CONDITIONS (continued)

(4) shall come from cultures reared for the purpose of conducting toxicity tests and cultured in a manner consistent with the most current USEPA guidelines. All test animals shall be cultured as described in the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms.
(5) Test period: 48 hours at the "Allowable Effluent Concentration" (AEC) specified above.
(6) Upstream receiving stream water shall be used as dilution water. If upstream water is unavailable or if mortality

(7) in the upstream water exceeds 10%, "reconstituted" water will be used as dilution water. Procedures for generating reconstituted water will be supplied by the MDNR upon request.
(8) Tests will be run with 100% receiving-stream water (if available), collected upstream of the outfall at a point
(9) beyond any influence of the effluent, and reconstituted water.
(10) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.
(11) If upstream control mortality exceeds 10%, the entire test will be rerun using reconstituted water as the dilutant.
(12) Whole-effluent-toxicity test shall be consistent with the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms

MISSOURI DEPARTMENT OF NATURAL RESOURCES
FACT SHEET
FOR THE PURPOSE OF CONSTRUCTION
OF
MO-0137294
ROCKY FORK 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 storm water from certain point sources. All such discharges are unlawful without a permit (Section 301 of the "Clean Water Act"). After a permit is obtained, a discharge not in compliance with all permit terms and conditions is unlawful. Missouri State Operating Permits (MSOPs) are issued by the Director of the Missouri Department of Natural Resources (Department) under an approved program, operating in accordance with federal and state laws (Federal "Clean Water Act" and "Missouri Clean Water Law" Section 644 as amended). MSOPs are issued for a period of five (5) years unless otherwise specified.

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

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

This Factsheet is for a Minor ☒

Part I – Facility Information

Facility Type: POTW - SIC #4952

Facility Description:
mechanical bar screen / oxidation ditch / final clarifiers / ultraviolet disinfection / re-aeration / sludge storage / sludge disposal by contract hauler

Have any changes occurred at this facility or in the receiving water body that effects effluent limit derivation?
☒ - Yes; New Facility

Application Date: 02/14/12
Expiration Date: mm/dd/yy

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE	DISTANCE TO CLASSIFIED SEGMENT (MI)
#001	0.712	Secondary	Domestic	~0.15

Receiving Water Body's Water Quality & Facility Performance History:
New facility; no facility performance history is available. No stream survey data available.

Part II – Operator Certification Requirements

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

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

Check boxes below that are applicable to the facility;

- Owned or operated by or for:
  - Municipalities ☐
  - Public Sewer District: ☒
  - County ☐
  - Public Water Supply Districts: ☐
  - Private sewer company regulated by the Public Service Commission: ☐
  - State or Federal agencies: ☐

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

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

Operator's Name: Dwayne Cooksey
Certification Number: 1249
Certification Level: A

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

Part III– Operational Monitoring

As per [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 1st classified receiving stream's beneficial water uses to be maintained are located in the Receiving Stream Table located below in accordance with [10 CSR 20-7.031(3)].

RECEIVING STREAM(S) TABLE:

WATER-BODY NAME	CLASS	WBID	DESIGNATED USES*	12-DIGIT HUC	EDU**
Unnamed tributary to Rocky Fork	U	--	General Criteria	10300102-0706	Ozark Highlands / Outer Ozark Boarder
Rocky Fork Creek	C	1014	AQL, LWW, WBC (B)		

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

RECEIVING STREAM(S) LOW-FLOW VALUES:

RECEIVING STREAM (U, C, P)	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Unnamed tributary to Rocky Fork (U)	0.0	0.0	0.0

MIXING CONSIDERATIONS

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

RECEIVING STREAM MONITORING REQUIREMENTS:
No receiving water monitoring requirements recommended at this time.

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

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

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

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

☒ - New facility, backsliding does not apply.

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

☒ - New and/or expanded discharge, please see **APPENDIX B 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://dnr.mo.gov/env/wpp/pub/index.html, items WQ422 through WQ449.

☒ - Permittee is not authorized to land apply biosolids. Sludge/biosolids are removed by contract hauler and transported to the Columbia Regional Wastewater Treatment Facility, MO-0097837.

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

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

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

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

Several special conditions pertaining to the permittee's pretreatment program may be included in the permit, and are as follows:
- Implementation and enforcement of the program,
- Annual pretreatment report submittal,
- Submittal of list of industrial users,
- Technical evaluation of need to establish local limitations, and
- Submittal of the results of the evaluation

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

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

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

Not Applicable ☒; A RPA was not conducted for this facility; this is a new facility, no enough data has been collected for calculation of site-specific coefficient of variation. Thus, the limits were determined using the default CV=0.60 recommended by the EPA's technical support document, and the resulting default multipliers. The default limits provide adequate protection for aquatic life without placing unnecessarily restrictive limits on the permittee.

REMOVAL EFFICIENCY:
Removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to Biochemical Oxygen Demand 5-day (BOD_5) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs)/municipals.

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

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

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

SANITARY SEWER OVERFLOWS (SSO) AND INFLOW AND INFILTRATION (I&I):
Sanitary Sewer Overflows (SSOs) are defined as an untreated or partially treated sewage release are considered bypassing under state regulation [10 CSR 20-2.010(11)] and should not be confused with the federal definition of bypass. SSO's have a variety of causes including blockages, line breaks, and sewer defects that allow excess storm water and ground water to (1) enter and overload the collection system, and (2) overload the treatment facility. Additionally, SSO's can be also be caused by lapses in sewer system operation and maintenance, inadequate sewer design and construction, power failures, and vandalism. SSOs also include overflows out of manholes and onto city streets, sidewalks, and other terrestrial locations.

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

☒ - 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.

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

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

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

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

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

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

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

Not Applicable ☒; 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.

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

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

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

Applicable ☒; 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(3)(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 (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_3)
☒ Facility is a municipality or domestic discharger with a Design Flow ≥ 22,500 gpd.
☐ Other – please justify.

40 CFR 122.41(M) - BYPASSES:
The federal Clean Water Act (CWA), Section 402 prohibits wastewater dischargers from "bypassing" untreated or partially treated sewage (wastewater) beyond the headworks. A bypass, is defined as an intentional diversion of waste streams from any portion of a treatment facility, [40 CFR 122.41(m)(1)(i)]. Additionally, Missouri regulation 10 CSR 20-2.010(11) defines a bypass as the diversion of wastewater from any portion of wastewater treatment facility or sewer system to waters of the state. Only under exceptional and specified limitations do the federal regulations allow for a facility to bypass some or all of the flow from its treatment process. Bypasses are prohibited by the CWA unless a permittee can meet all of the criteria listed in 40 CFR 122.41(m)(4)(i)(A), (B), & (C). Any bypasses from this facility are subject to the reporting required in 40 CFR 122.41(l)(6) and per Missouri's Standard Conditions I, Section B, part 2.b. Additionally, Anticipated Bypasses include bypasses from peak flow basins or similar devices designed for peak wet weather flows.

Not Applicable ☒; This facility does not anticipate bypassing.

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

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

Not Applicable ☒; This facility does not discharge to a 303(d) listed stream.

Part VI – Effluent Limits Determination

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

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

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	*		*		NA
BOD_5	mg/L	1		23	15		NA
TSS	mg/L	1		30	20		NA
pH	SU	1	6.5-9.0		6.5-9.0		NA
Ammonia as N (April 1 – Sept 30)	mg/L	3/5	3.7		1.4		NA
Ammonia as N (Oct 1 – March 31)	mg/L	3/5	7.5		2.9		NA
Dissolved Oxygen (DO)**	mg/L	3, 9	5.0		5.0		NA
Escherichia coli	***	1, 3		1030	206***		NA
Oil & Grease (mg/L)	mg/L	1, 3	15		10		NA
Whole Effluent Toxicity (WET) Test	% Survival	11	Please see WET Test in the Derivation and Discussion Section below.				

* - Monitoring requirement only.
** - For DO the Daily Maximum is a Daily Minimum and the Monthly Average is a Monthly Average Minimum.
*** - # of colonies/100mL; the Monthly Average for *E. coli* is a geometric mean.
**** - Parameter not previously established in previous state operating permit.

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

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_5).**

☒ –23 mg/L as a Weekly Average and 15 mg/L as a Monthly Average. Please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information.**

- **Total Suspended Solids (TSS).**

  ☒ –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 **Receiving Stream Information.**

- **pH**. Effluent limitation range is 6.5 – 9.0 Standard pH Units (SU), as per the applicable section of 10 CSR 20-7.015. pH is not to be averaged.

- **Total Ammonia Nitrogen**. Early Life Stages Present Total Ammonia Nitrogen criteria apply [10 CSR 20-7.031(4)(B)7.C. & Table B3] default pH 7.8 SU No mixing considerations allowed; therefore, WLA = appropriate criterion.

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

Summer: April 1 – September 30
Chronic WLA: $C_e = ((.712 + 0.0)1.5 – (0.0 * 0.01))/.712$
$C_e = 1.5$ mg/L

Acute WLA: $C_e = ((.712 + 0.0)12.1 – (0.0 * 0.01))/.712$
$C_e = 12.1$ mg/L

$LTA_c = 1.5$ mg/L (0.780) = 1.2 mg/L [CV = 0.6, 99th Percentile, 30 day avg.]
$LTA_a = 12.1$ mg/L (0.321) = 3.9 mg/L [CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a.

MDL = 1.2 mg/L (3.11) = 3.7 mg/L [CV = 0.6, 99th Percentile]
AML = 1.2 mg/L (1.19) = 1.4 mg/L [CV = 0.6, 95th Percentile, n =30]

Winter: October 1 – March 31
Chronic WLA: $C_e = ((.712 + 0.0)3.1 – (0.0 * 0.01))/.712$
$C_e = 3.1$ mg/L

Acute WLA: $C_e = ((.712 + 0.0)12.1 – (0.0 * 0.01))/.712$
$C_e = 12.1$ mg/L

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

Use most protective number of LTA_c or LTA_a.

MDL = 2.4 mg/L (3.11) = 7.5 mg/L [CV = 0.6, 99th Percentile]
AML = 2.4 mg/L (1.19) = 2.9 mg/L [CV = 0.6, 95th Percentile, n =30]

- **Dissolved Oxygen**. To protect the beneficial uses of Rocky Fork Creek, Streeter Phelps modeling was conducted based on the performance of Clearview Acres and the proposed wastewater treatment plant. For protection of aquatic life, dissolved oxygen must be at least 5.0 mg/L at confluence with Rocky Fork Creek. [10 CSR 20-7.031(4)(J)]. Daily minimum and monthly minim average = 5.0 mg/L.

- ***Escherichia coli (E. coli)***. Monthly average of 206 per 100 ml as a geometric mean and Weekly Average of 1030 during the recreational season (April 1 – October 31), to protect Whole Body Contact Recreation (B) designated use of the receiving stream, as per 10 CSR 20-7.031(4)(C). Weekly Average effluent variability will be evaluated in development of a future effluent limit. 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.

- **WET Test**. 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

  ☒ No less than **ONCE/PERMIT CYCLE:**
  ☒ Municipality or domestic facility with a design flow ≥ 22,500 gpd, but less than 1.0 MGD.
  ☐ Other, please justify.

Minimum Sampling and Reporting Frequency Requirements.

PARAMETER	SAMPLING FREQUENCY	REPORTING FREQUENCY
E. coli	once/week	once/month
Flow	once/month	once/month
BOD_5	once/month	once/month
TSS	once/month	once/month
pH	once/month	once/month
Ammonia as N	once/month	once/month
Dissolved Oxygen	once/month	once/quarter
Oil & Grease	once/month	once/month

Sampling Frequency Justification:
This is a new facility; monthly sampling is required to determine if the facility will be in compliance with the operating permit in accordance with Appendix U of Missouri's Water Pollution Control Permit Manual. Except for *E. coli*, weekly sampling is required per 10 CSR 7.015.

Sampling Type Justification
As per 10 CSR 20-7.015, BOD_5, TSS, and WET test samples collected for mechanical plants shall be a 24 hour composite sample. Grab samples, however, must be collected for pH, Ammonia as N, *E. coli* and Oil & Grease. 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. Oil & Grease samples must be immediately preserved with acid, therefore these samples are to be collected as a grab.

Part VII – Finding of Affordability

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

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

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

Part VIII – Administrative Requirements

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

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

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

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

☒ - The Public Notice period for this operating permit is tentatively scheduled to begin in April 2013.

DATE OF FACT SHEET: FEBRUARY 15, 2013

COMPLETED BY:

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Appendices

APPENDIX A - CLASSIFICATION WORKSHEET:

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
Maximum Population Equivalent (P.E.) served (Max 10 pts.)	1 pt./10,000 PE or major fraction thereof.	
Maximum: 10 pt Design Flow (avg. day) or peak month; use greater (Max 10 pts.)	1 pt. / MGD or major fraction thereof.	
EFFLUENT DISCHARGE RECEIVING WATER SENSITIVITY:		
Missouri or Mississippi River	0	
All other stream discharges except to losing streams and stream reaches supporting whole body contact	1	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	
PRELIMINARY TREATMENT - Headworks		
Screening and/or comminution	3	3
Grit removal	3	
Plant pumping of main flow (lift station at the headworks)	3	3
PRIMARY TREATMENT		
Primary clarifiers	5	
Combined sedimentation/digestion	5	
Chemical addition (except chlorine, enzymes)	4	
REQUIRED LABORATORY CONTROL – performed by plant personnel (highest level only)		
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	
ALTERNATIVE FATE OF EFFLUENT		
Direct reuse or recycle of effluent	6	
Land Disposal – low rate	3	
High rate	5	
Overland flow	4	
Total from page **ONE (1)**	----	10

APPENDIX A- CLASSIFICATION WORKSHEET (CONTINUED):

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
VARIATION IN RAW WASTE (highest level only) (DMR exceedances and Design Flow exceedances)		
Variation do not exceed those normally or typically expected	0	0
Recurring deviations or excessive variations of 100 to 200 % in strength and/or flow	2	
Recurring deviations or excessive variations of more than 200 % in strength and/or flow	4	
Raw wastes subject to toxic waste discharge	6	
SECONDARY TREATMENT		
Trickling filter and other fixed film media with secondary	10	
Activated sludge with secondary clarifiers (including extended	15	15
Stabilization ponds without aeration	5	
Aerated lagoon	8	
Advanced Waste Treatment Polishing Pond	2	
Chemical/physical – without secondary	15	
Chemical/physical	10	
Biological or chemical/biological	12	
Carbon regeneration	4	
DISINFECTION		
Chlorination or comparable	5	
Dechlorination	2	
On-site generation of disinfectant (except UV light)	5	
UV light	4	4
SOLIDS HANDLING - SLUDGE		
Solids Handling Thickening	5	
Anaerobic digestion	10	
Aerobic digestion	6	
Evaporative sludge drying	2	
Mechanical dewatering	8	
Solids reduction (incineration, wet oxidation)	12	
Land application	6	
Total from page **TWO (2)**	----	19
Total from page **ONE (1)**	---	10
Grand Total	---	29

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

APPENDIX B – ANTIDEGRADATION ANALYSIS:

Water Quality and Antidegradation Review

For the Protection of Water Quality and Determination of Effluent Limits for Discharge to Tributary to Rocky Fork

by

BCRSD, Rocky Fork Wastewater Treatment Facility

December 2011

Table of Contents

1. Facility Information

FACILITY NAME: BCRSD, Rocky Fork WWTF NPDES #: NEW FACILITY

FACILITY TYPE/DESCRIPTION: As a result of the submitted alternative analysis, the applicant's preferred alternative is a conventional oxidation ditch with ultraviolet disinfection. The design flow at the end of the Phase 1 is 460,000 gpd (0.46 MGD). The applicant evaluated their alternatives with Phase 1, but also the future Phases to determine which alternative provides the best treatment for the cost over the long term.

EDU*:	Ozark/Moreau/Loutre	UTM COORDINATES:	x = 556996; y= 4319018
COUNTY:	Boone	LEGAL DESCRIPTION:	SE ¼, NE¼, Sec. 23, T49N, R13W
12- DIGIT HUC:	10300102- 0706	ECOREGION:	Ozark Highlands/ Outer Ozark Border

* - Ecological Drainage Unit

2. Water Quality Information

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

2.1. Water Quality History:

New facility to replace nine existing treatment plants. In review of the existing facilities discharge monitoring reports, the facilities appear to be meeting effluent limits consistently. Rocky Fork has an EPA approved TMDL for sedimentation; however the TMDL is for the Rocky Fork Conservation Area and the immediate downstream area. This is approximately 5 miles upstream of the new treatment plant.

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	RECEIVING WATERBODY	DISTANCE TO CLASSIFIED SEGMENT (MI)
001	0.712	Secondary	Tributary to Rocky Fork	~0.15

3. Receiving Waterbody Information

WATERBODY NAME	CLASS	WBID	LOW-FLOW VALUES (CFS)			DESIGNATED USES*
			1Q10	7Q10	30Q10	
Tributary to Rocky Fork	U	--	0.0	0.0	0.0	General Criteria
Rocky Fork Creek†	C	1014	0.1	0.1	1.0	AQL, LWW, WBC (B)**

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

** UAA conducted in July 2005 for Rocky Fork

† Rocky Fork Creek low flow values are based on DNR sampling previously conducted.

RECEIVING WATER BODY SEGMENT #1: Unnamed tributary to Rocky Fork Creek

Upper end segment* UTM coordinates: x = 556996; y= 4319018 (Outfall)

Lower end segment* UTM coordinates: x=556935; y= 4318733 (Confluence with Rocky Fork Creek (classified))

*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

Shafer, Kline & Warren, Inc. prepared, on behalf of Boone County Regional Sewer District (BCRSD), the *Antidegradation Report Proposed Rocky Fork Facility* dated December 23, 2010 and amended December 21, 2011. The proposed discharge is to a gaining segment (Appendix A: Map). Applicant elected to assume that all pollutants of concern (POC) are significantly degrading the receiving stream in the absence of existing water quality. An alternative analysis was conducted to fulfill the requirements of the AIP. Appendix B contains dissolved oxygen modeling performed by the applicant, at Phase1 flows. Staff believes that the results of the model are protective of the water quality standards for dissolved oxygen at Phase 1. The department does not have nutrient stream criteria at this time; however the permittee acknowledges that nutrient and more stringent Water Quality Standards criteria likely will be coming and evaluated alternatives that could be adapted to handle future criteria. A Missouri Department of Conservation Natural Heritage Review was obtained and no endangered species were found to be impacted by the discharge (Appendix C). Information from the Antidegradation Report and the Facility Plan provided by the applicant was used to develop this review document.

Boone County Regional Sewer District (BCRSD) is proposing a three phase approach to handling treatment facilities in the Rocky Fork Creek watershed. The time frame for the three phases is longer than twenty years; however in their evaluation of alternatives, the BCRSD evaluated technologies for 460,000 gpd, upgrading to 568,000 gpd and then an another upgrade to 1,659,160 gpd. In Phase 1, six BCRSD treatment plants will be removed from service, which are Bon Gor Lake Estates (MO0047619); County Downes (MO0096938); Phenora South (MO0100811); Powell Community (MO0087688); Clearview Acres (MO- 0085944) and Wagon Trail Heights (MO0094293). Phase 1 construction will also provide capacity for four private facilities to potentially connect. The four private facilities that potentially could connect during Phase 1 are: Apple Grove MHP (MO0129062); Green Hill MHP (MO0086037); Phenora North (MO0099911); and Wagon Wheel MH (MO0120286).

The addition of Clearview Acres to Phase 1 is an uncertainty. The present worth with having Clearview Acres removed during Phase 1 is significantly lower operating and maintaining costs than maintain the facility till Phase 2. However, there is the higher capital costs associated with removing Clearview Acres from operation during Phase 1. The review below is completed on the basis that Clearview Acres will be removed from operation during Phase 1.

Phase 2 would be removal of two treatment plants and an expansion to 568,000 gpd. The expansion to Phases 2 and 3 will not occur in the near future, thus allowing time to pay off existing debts for Phase 2 and 3 facilities, along with allowing time for populations to develop.

5. Antidegradation Review Information

The following is a review of the *Antidegradation Report* dated December 23, 2010 and amended December 21, 2011.

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.

TABLE 1: POLLUTANTS OF CONCERN AND TIER DETERMINATION

POLLUTANTS OF CONCERN	TIER*	DEGRADATION	COMMENT
BOD_5/DO	2	Significant	
Total Suspended Solids (TSS)	**	Significant	
Ammonia	2	Significant	
pH	***	Significant	Permit limits applied
Escherichia coli (E. coli)	2	Significant	Disinfection required
Oil and Grease	2	Significant	Permit limits applied

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

5.2. EXISTING WATER QUALITY

No existing water quality data was submitted. All POCs were considered to be Tier 2 and significantly degraded in the absence of existing water quality. By removing up to eight lagoons and one small mechanical plant, and building a new treatment plant, loads on the stream will be reduced for biochemical demand and total suspended solids. There is a slight increase in ammonia loading. Table 2 below has the estimated permitted loadings for each treatment plant onto Rocky Fork Creek. In the facility plan, the average discharge concentration was used for facilities with monitoring and 3.7 mg/L was used for facilities without monitoring in the ammonia loading calculations. None of the facilities proposed to be removed from operation under Phase 1 currently has permit limits for ammonia. The table totalizes concentrations and loadings to be compared with the proposed permit limits for the new facility. As the existing treatment plants are on tributaries to or on Rocky Fork Creek and spread along almost five miles of the stream, the permittee elected to perform an alternatives analysis (See Appendix A for Discharge Map Locations).

TABLE 2: CURRENT PERMITTED LOADINGS COMPARED TO PROPOSED LOADING

Treatment Plant	Design Flow	Weekly BOD_5		Weekly TSS		Ammonia*	
	(MGD)	(mg/L)	(lbs/day)	(mg/L)	(lbs/day)	(mg/L)	(lbs/day)
Bon Gor Lake Estates	0.0557	45	20.90	80	37.16	4.15	1.93
County Downes	0.0532	65	28.84	110	48.80	12.8	5.68
Phenora South	0.0075	45	2.81	45	2.81	6.66	0.42
Powell Community	0.0134	65	7.26	110	12.29	2.75	0.3565
Wagon Trail Heights	0.003	65	1.63	120	3.00	20.9	0.52
Apple Grove MHP	0.00405	65	20.23	110	3.72	3.7	0.12
Green Hills MHP	0.01240	65	6.7	120	12.4	15.57	1.61
Phenora North	0.0023	65	1.25	120	2.30	3.7	0.07
Wagon Wheel MHP	0.00675	65	3.66	110	6.19	2.82	0.16
Clearview Acres	0.22830	45	85.68	45	85.68	1.65	3.14
Total	0.3866		178.96		180.35		14.01
New Plant	**0.46**	**23**	**88.24**	**30**	**115.10**	**3.7**	**14.19**
% Change	**+19%**		**-50.69%**		**-36.18%**		**+1.27%**

*Average Ammonia Concentration for Existing Facilities, for new facility it is summer daily maximum

5.3. ALTERNATIVES ANALYSIS DISCUSSION

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

Non-degrading alternatives evaluated included land application and connection to the City of Columbia sewers. Slow-rate land application was eliminated as not practical or economical as the storage basin would need to hold flows for at least 120 days, the land necessary to apply 460,000 gpd is estimated to be about 400 acres, the soils in the area are rocky and could increase the amount of land required, and Boone County Regional Sewer District (BCRSD) would need to buy or lease the land. With the new facility being located on the outskirts of the City of Columbia, land prices are high and land is wanted for residential development. BCRSD also evaluated connecting to the City of Columbia's treatment plant. Columbia is currently undergoing upgrades to increase its capacity to 25.2 MGD, which is to handle flows in the existing sewer area and some new development in the area. Columbia may be able to handle the flows from the existing treatment plants; however the Rocky Fork area is not included in Columbia's Master Plan as it was expected to be served by BCRSD. To connect to the Columbia sewers, BCRSD would still be responsible for the construction of the interceptor lines, any new lift stations, and operation and maintenance costs. Also adding to the issue is that a number of the city sewers to be connected are too small for the flows they would be receiving, which could be a potential issue in the connection agreement. Connection to Columbia was eliminated as not economical or practical at this time.

The first degrading alternative evaluated was to upgrade each of the district's existing facilities. The short term upgrade would be for disinfection or if the land was available convert to a no-discharge facility. The four of the BCRSD facilities in Phase 1 have already passed or will reach their twenty year design life in the next four years. Of the four private facilities, three of them have already passed or will also reach their twenty year design life in the next couple of years. In the planning, BCRSD reviewed recent permits and changes to the Water Quality Standards, and saw that more stringent criteria would become effective during the facility's next 20 year cycles, including more stringent BOD and TSS limits, ammonia limits, disinfection, and the potential for nutrient criteria. This evaluation did not include the four private plants; however those plants are facing the same issues. The conversion to no-discharge would require the district to buy or lease land, thus increasing costs. However the potential for more stringent criteria made the upgrades to the existing plants not economical or practical as a long-term solution.

Alternatives five through ten were for the creation of one treatment plant to replace ten treatment plants during Phase 1 that could be adapted for additional flows as more plants were closed and development occurred during Phases 2 and 3. Alternative five was identified as the base case, and the most degrading alternative. Disinfection and sludge storage would be required for all alternatives.

Alternative five was the building of an extended aeration plant. Extended aeration plants are a proven technology that can meet water quality standards. The design and setup of an extended aeration plant would allow for the doubling and finally tripling of the facility as subsequent phases occur. BCRSD included flow equalization as part of the plan based on the ages of the collection systems. This facility would have the third largest footprint of the six degrading alternatives evaluated. BCRSD has experience operating extended aeration plants, which is a benefit in its operation.

Alternative six was building a sequencing batch reactor (SBR) facility. Flow equalization would be required for this facility also. SBR facilities handle shocks to the system well. SBRs are a proven technology in the State. With the treatment being conducted in one basin, additional basins could be added with a shared wall. The SBR can achieve better effluent than the extended aeration plant. SBRs would have the second largest footprint when the facility was complete with all the phases.

Alternative seven was a vertical loop reactor (VLR) plant. A vertical loop reactor is also called a vertical oxidation ditch and is operated similarly to a conventional oxidation ditch. Flow equalization was not included in designs as the VLR is resistant to the effects of shocks and changes in loadings. The VLR has a smaller footprint than the SBR or a conventional oxidation ditch. The costs are similar to a conventional oxidation ditch and the plants achieve the same levels of treatment.

Alternative eight was a conventional/horizontal oxidation ditch facility. A conventional oxidation ditch is a proven technology in the state that achieves a high quality effluent. Oxidation ditches in the state consistently meet ammonia's of less than 1.0 mg/L and BOD_5/TSS's of less than 10 mg/L. The applicant suggested an oxidation ditch effluent limit for BOD_5 of 15 mg/L and a TSS of 20 mg/L to help account for potential variability, while still protecting the stream. This alternative is the preferred alternative, when evaluating cost and performance over the different phases of the facility. With the first plant expansion the oxidation ditch becomes the most cost effective treatment, and is further confirmed with the second expansion (see Table 3 below). Oxidation ditches are fairly simple to operate and maintain; however they do have a large footprint.

Alternatives nine and ten were membrane bioreactors (MBR) from two different manufactures. However, both alternatives would achieve the highest quality effluent of the options evaluated. MBRs are the most expensive to operate and maintain. MBRs require the most energy to operate on a gallons basis. Also, a MBR system would require a higher operator certification and more training due to the complexity of the system, thus increasing costs. MBRs were not economically efficient.

The conventional oxidation ditch is the proposed treatment facility as it is a proven technology, capable of achieving good effluent limits, and can be adapted to meet potential new effluent limits. Table 3 compares treatment capabilities of the different systems with cost, at both Phase 1 and when all phases are complete. The facility plan submitted to the Financial Assurance Center included diagrams comparing the knee of the curve for treatment and the treatment cost of the degrading alternatives at the different Phases.

TABLE 3: TREATMENT AND COST COMPARISON FOR ROCKY CREEK

	EXTENDED AERATION	SBR	VLR	OXIDATION DITCH	MBR 1	MBR 2
BOD	20	15	10	10	5	5
TSS	20	15	10	10	5	5
AMMONIA	7.5/2.9	7.5/2.9	7.5/2.9	7.5/2.9	7.5/2.9	7.5/2.9
PHASES 1-3 LIFE-CYCLE COST*	$4,913,189	$4,673,609	$4,302,779	$4,080,979	$7,229,009	$7,192,729
RATIO	1.23	1.15	1.05	1.0	1.77	1.76
PRACTICAL	Y	Y	Y	Y	N	N
ECONOMICALLY EFFICIENT	Y	Y	Y	Y	N	N

* 20 YEAR DESIGN LIFE FOR EACH PHASE, 4% ANNUAL INFLATION

Table 3 values were developed based on Clearview Acres connecting to Rocky Fork during Phase 2. The applicant reviewed the costs associated with Clearview Acres if it remained open and in operation, if connection was delayed til Phase 2 of the development or if it connected at this time. Alternative 1, which is keeping Clearview Acres open, has a present worth value of $1,003,466. Alternative 2, which is connecting during Phase 2, has the most expensive Present worth at $2,117,330. Alternative 2 is the highest due to required upgrades in equipment at Clearview Acres and the future costs related to closure and connection. Alternative 3 is the connection to Rocky Fork during Phase 1, which has a present worth value of $850,269. Alternative 3 is the most cost effective and practical for Boone County Regional Sewer District.

5.3.1. SOCIAL AND ECONOMIC ANALYSIS

The Rocky Fork Creek watershed is located near the urban edge of Columbia. This is considered prime development ground for residential, commercial and industrial developments. The affected community includes the residents currently residing in the watershed, those living in the surrounding areas of Boone County and Columbia. Providence Road, which is a main road through Columbia, is platted through the Rocky Fork area, providing a future connection to the City and Highway 63. There are also numerous areas platted for single residence housing in the area to be served. Based on the rapid growth of the Columbia area in recent decades, the creation of the interceptor sewer and regional treatment plant will provide the opportunity to handle more development and provide the opportunity for existing private facilities to connect. The expected development of the watershed has the potential to provide employment as well as tax resources, income, and other revenues to the community.

Replacement of the lagoons along Rocky Fork and its tributaries with one centralized mechanical treatment plant will improve water quality and have a human health benefit. Also, the loading into the stream will be reduced and the effluent will be disinfected before entering the receiving stream. .

5.3.2. 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. The applicant provided discussion of connecting to Columbia's sewers in the Alternatives Analysis. Boone County was granted Level 2 Continuing Authority by the Clean Water Commission in January 2010. The Rocky Fork WWTF will be providing capacity for ten facilities in Phase 1, thus acting as a regional treatment plant. In future phases, more plants will be closed in the area and connected to Rocky Fork.

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

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)**:		Y	Whole Body Contact Use Retained (Y or N):		Y
Wet Test (Y or N):	Y	Frequency:	Once/Permit Cycle	AEC:	100%	Method:	Multiple

** UAA conducted in July 2005 for Rocky Fork, whole body contact retained

Table 4: Effluent Limits

Parameter	Units	Daily Maximum	Weekly Average	Monthly Average	Basis for Limit (Note 2)	Monitoring Frequency
Flow	MGD	*		*	FSR	once/month
BOD_5***	mg/L		23	15	PEL	once/month
TSS***	mg/L		30	20	PEL	once/month
Dissolved Oxygen	mg/L	5.0 minimum		5.0 minimum	FSR	once/month
Oil and Grease	mg/L	15		10	FSR	once/month
pH	SU	6.5 – 9.0		6.5 – 9.0	FSR	once/month
Ammonia as N (Apr 1 – Sept 30)	mg/L	3.7		1.4	WQBEL	once/month
Ammonia as N (Oct 1 – Mar 30)	mg/L	7.5		2.9	WQBEL	once/month
Escherichia coliform (E. coli)	Note 1		1,030	206**	FSR	once/week

* - Monitoring requirements only.
** - The Monthly Average for E. coli shall be reported as a Geometric Mean.
***This facility is required to meet a removal efficiency of 85% or more for BOD_5 and TSS. Influent BOD_5 and TSS data should be reported to ensure removal efficiency requirements are met.
Note 1 – Colonies/100 mL
Note 2– Water Quality-based Effluent Limitation --WQBEL; or Minimally Degrading Effluent Limit--MDEL; or Preferred Alternative Effluent Limit-PEL; Technology-based Effluent Limit-TBEL;or No Degradation Effluent Limit--NDEL; or FSR --Federal/State Regulation; or N/A--Not Applicable. Also, please see the **General Assumptions of the WQAR #4 & #5.**

9. Receiving Water Monitoring Requirements

No receiving water monitoring requirements recommended at this time.

10. Derivation and Discussion of Limits

Wasteload allocations and limits were calculated using two methods:

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

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

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

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

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

2) Alternative Analysis-based – Using the preferred alternative's treatment capacity for conventional pollutants such as BOD_5 and TSS that are provided by the consultant as the WLA, the significantly-degrading effluent average monthly and average weekly limits are determined by applying the WLA as the average monthly (AML) and multiplying the AML by 1.5 to derive the average weekly limit (AWL). For toxic and nonconventional pollutant such as ammonia, the treatment capacity is applied as the significantly-degrading effluent monthly average (AML). A maximum daily can be derived by dividing the AML by 1.19 to determine the long-term average (LTA). The LTA is then multiplied by 3.11 to obtain the maximum daily limitation. This is an accepted procedure that is defined in USEPA's "Technical Support Document For Water Quality-based Toxics Control" (EPA/505/2-90-001).

Note: Significantly-degrading effluent limits have been based on the authority included in Section III. Permit Consideration of the AIP. Also under 40 CFR 133.105, permitting authorities shall require more stringent limitations than equivalent to secondary treatment limitations for 1) existing facilities if the permitting authority determines that the 30-day average and 7-day average BOD_5 and SS effluent values that could be achievable through proper operation and maintenance of the treatment works, and 2) new facilities if the permitting authority determines that the 30-day average and 7-day average BOD_5 and SS effluent values that could be achievable through proper operation and maintenance of the treatment works, considering the design capability of the treatment process.

10.1. OUTFALL #001 – MAIN FACILITY OUTFALL LIMIT DERIVATION

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

- **Biochemical Oxygen Demand (BOD_5).** BOD_5 limits of 15 mg/L monthly average were proposed for summer and 30 mg/L for winter. It is not the department's policy to set seasonal BOD limits. To calculate weekly average limits, the proposed BOD limit was multiplied by 1.5. The proposed effluent limits are more stringent than the Water Quality Standards. Influent monitoring may be required for this facility in its Missouri State Operating Permit. Weekly average = 23 mg/L; monthly average = 15 mg/L.

- **Total Suspended Solids (TSS).** TSS limits of 20 mg/L monthly average were proposed. To calculate weekly average limits, the proposed TSS limit were multiplied by 1.5.The proposed effluent limits are more stringent than the Water Quality Standards. Influent monitoring may be required for this facility in its Missouri State Operating Permit. Weekly average = 30 mg/L; monthly average = 20 mg/L.

- **Dissolved Oxygen (DO).** To protect the beneficial uses of Rocky Fork Creek, Streeter Phelps modeling was conducted based on the performance of Clearview Acres and the proposed wastewater treatment plant. For protection of aquatic life, dissolved oxygen must be at least 5.0 mg/l at confluence with Rocky Fork Creek. [10 CSR20-7.031(4)(J)]. Daily minimum and monthly minimum average = 5.0 mg/L.

- **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 in the range from six and half to nine (6.5– 9.0) standard units [10 CSR 20-7.015(8)(A)2.].

- **Total Ammonia Nitrogen**. Applicant supplied water quality based effluent limits for a discharge to Rocky Fork Creek directly. The facility discharges to a tributary of Rocky Fork, thus no mixing considerations are allowed. The effluent limits are above Water Quality Standards for an unclassified stream, thus the department applied water quality based effluent limits with no mixing or decay considerations. Based on review of existing oxidation ditches, the facility should be able to meet these limits consistently. Early Life Stages Present Total Ammonia Nitrogen criteria apply [10 CSR 20-7.031(4)(B)7.C. & Table B3]. Background total ammonia nitrogen = 0.01 mg/L

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

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

Summer

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

Chronic WLA: $C_e = ((0.712 + 0.0)1.5 – (0.0 * 0.01))/0.712$
$C_e = 1.5$ mg/L

Acute WLA: $C_e = ((0.712 + 0.0)12.1 – (0.0 * 0.01))/0.3712$
$C_e = 12.1$ mg/L

LTA_c = 1.5 mg/L (0.780) = **1.2 mg/L** [CV = 0.6, 99th Percentile, 30 day avg.]
LTA_a = 12.1 mg/L (0.321) = 3.88 mg/L [CV = 6000, 99th Percentile]
MDL = 1.2 mg/L (3.11) = 3.7 mg/L [CV = 0.6, 99th Percentile]
AML = 1.2 mg/L (1.19) = 1.4 mg/L [CV = 0.6, 95th Percentile, n = 30]

Winter

Chronic WLA: $C_e = ((0.712 + 0.0)3.1 – (0.0 * 0.01))/0.712$
$C_e = 3.1$ mg/L

Acute WLA: $C_e = ((0.712 + 0.0)12.1 – (0.0025 * 0.01))/0.712$
$C_e = 12.1$ mg/L

LTA_c = 3.1 mg/L (0.780) = **2.4 mg/L** [CV = 0.6, 99th Percentile, 30 day avg.]
LTA_a = 12.1 mg/L (0.321) = 3.9 mg/L [CV = 0.6, 99th Percentile]
MDL = 2.4 mg/L (3.11) = 7.5 mg/L [CV = 0.6, 99th Percentile]
AML = 2.4 mg/L (1.19) = 2.9 mg/L [CV = 0.6, 95th Percentile, n = 30]

Season	Maximum Daily Limit (mg/l)	Average Monthly Limit (mg/l)
Summer	3.7	1.4
Winter	7.5	2.9

- **E. coli.** Effluent limitations for WBC(B) are 206 colonies per 100 ml monthly average and 1030 colonies per 100 ml weekly average [10 CSR 20-7.015 (8)(A)4.] and [10 CSR 20-7.031(4)(C), Table A]. At a minimum, weekly monitoring is required during the recreational season (April 1 – October 31), with compliance to be determined by calculating the geometric mean of all samples collected during the reporting period (samples collected during the calendar week for the weekly average, and samples collected during the calendar month for the monthly average). The weekly average requirement is consistent with EPA federal regulation 40 CFR 122.45(d). Further, the limit may change depending on the outcome of future state effluent regulation revision. Please see **GENERAL ASSUMPTIONS OF THE WQAR #7.**

- **Whole Effluent Toxicity Test.** 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. WET Testing should be acute test no less than once per permit cycle, as the proposed facility is a municipality with a design flow >22,500 gpd but less than 1.0 MGD.

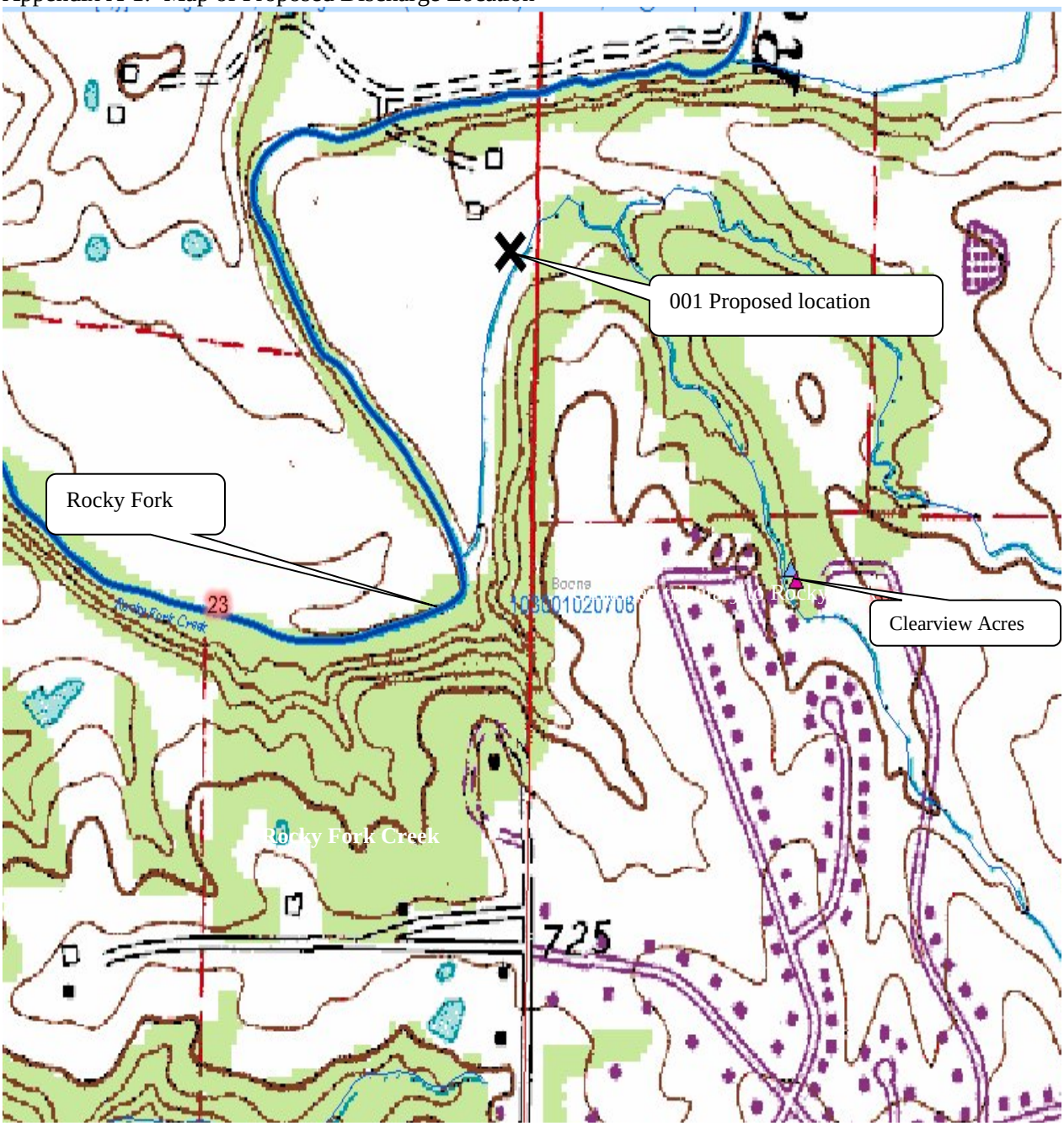
11. ANTIDEGRADATION REVIEW PRELIMINARY DETERMINATION

The proposed new facility discharge, 0.46 MGD Rocky Fork WWTF, will result in significant degradation of the segment identified in Rocky Fork Creek. Extended Aeration was determined to be the base case technology (lowest cost alternative that meets technology and water quality based effluent limitations. The cost effectiveness of the other technologies were evaluated, and the oxidation ditch was found to be cost effective and was determined to be the preferred alternative. The oxidation ditch option is expected to cost about $25,000 (1.0%) more than the base case treatment plant for the 20 year design life. The oxidation ditch technology provides a superior effluent, one that has lower effluent concentrations of BOD and TSS with similar ammonia concentrations to extended aeration. This oxidation ditch alternative also provides better flexibility to address expected nutrient limits in the future.

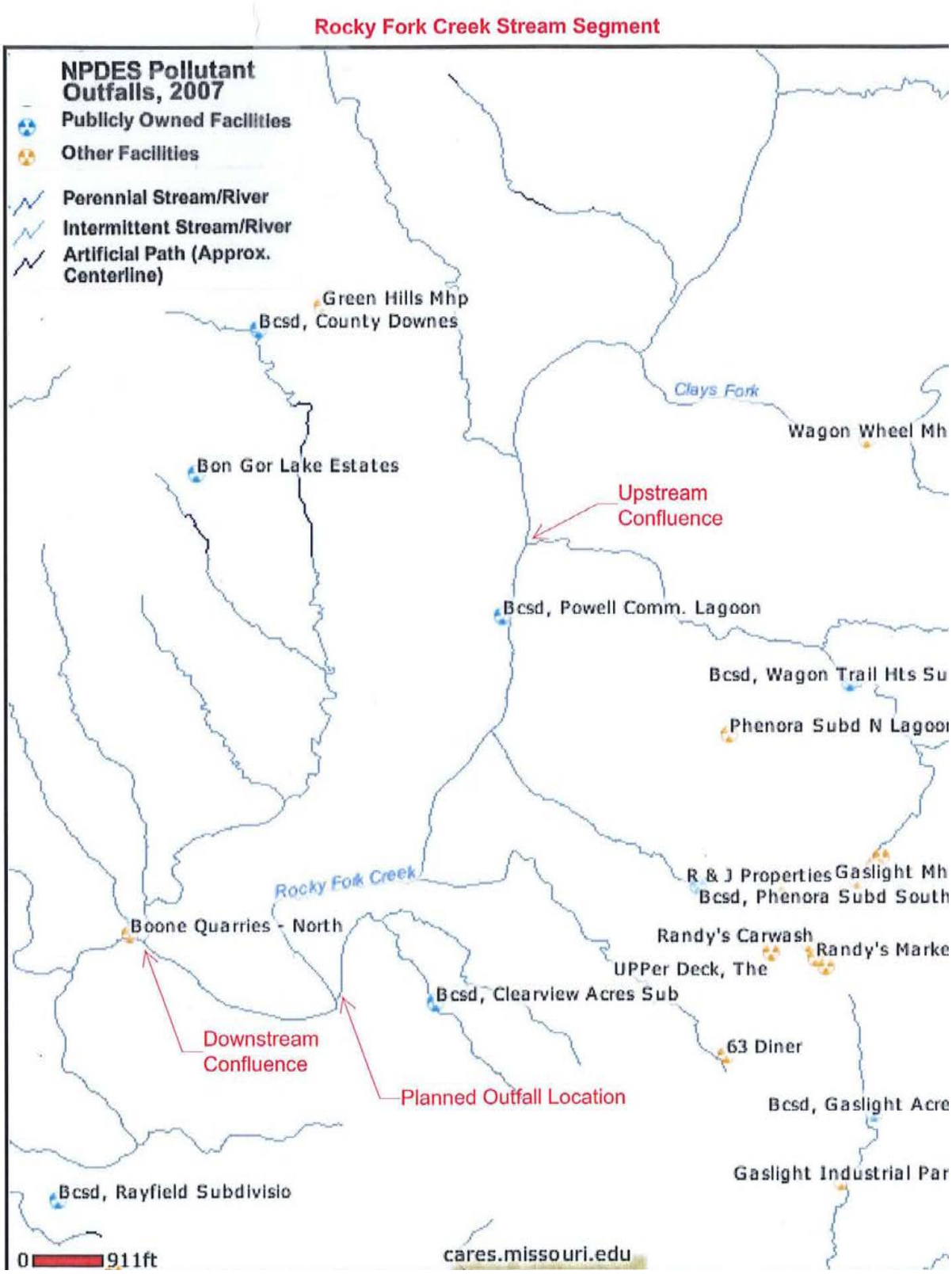
Per the requirements of the AIP, the effluent limits in this review were developed to be protective of beneficial uses and to attain the highest statutory and regulatory requirements. MDNR has determined that the submitted review is sufficient and meets the requirements of the AIP. No further analysis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

Reviewer: Leasue Meyers
Date: 04/22/2011; 08/25/2011; 12/29/2011
Unit Chief: John Rustige, P.E.

Appendix A-1: Map of Proposed Discharge Location



Appendix A-2: Map of Existing Treatment Plants



Appendix B-1: Streeter Phelps Model Results

The modeling on the next two pages was completed by the consultant at confluence with Rocky Fork Creek.

Project Number:	106363-03R	Date:	4/7/2011
Project Name:	BCRSD - Rocky Fork WWTP		Winter
Subject:	Minimum Effluent DO/ Max BOD_5	Page:	1

Assumptions:

Q_s =	stream flow without effluent	646,317	gpd =	449	gpm =	1.00	ft^3/s
Q_e =	effluent flow	460,000	gpd =	319	gpm =	0.71	ft^3/s

T_s =	temperature of stream	Winter	2.0	°C	Summer:	15.0	°C
T_e =	temperature of effluent	Winter	12.0	°C	Summer:	23.0	°C

DO_{sat} =	dissolved oxygen saturation concentration in stream at T_s for winter:	13.8	mg/l
DO_s =	stream dissolved oxygen	9.7	mg/l
DO_e =	effluent dissolved oxygen	5.0	mg/l
BOD_{5e} =	effluent BOD_5	30.0	mg/l

Streeter-Phelps equation:

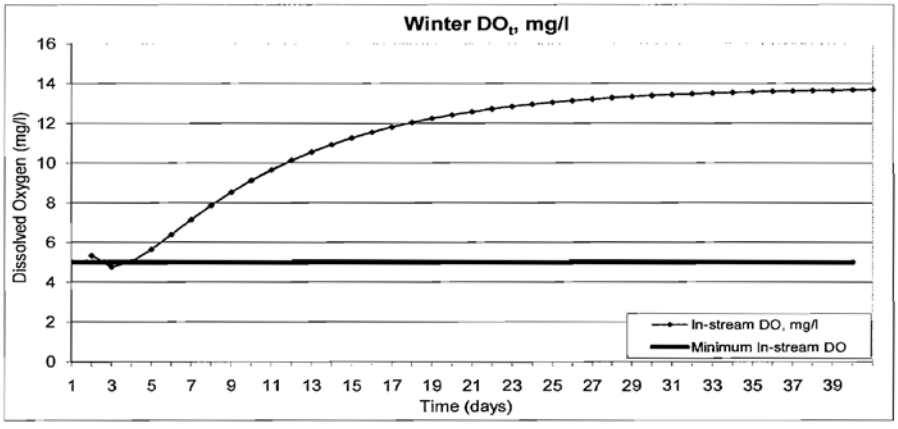
Mixed flow dissolved oxygen concentration at time t, $\mathbf{DO_t = DO_{sat} - D_t}$

DO_{sat} =	dissolved oxygen saturation concentration in stream at T_s:	13.8	mg/l

Dissolved-oxygen deficit at time t, $\mathbf{D_t = k_1\ UBOD\ /\ (k_2 - k_1) * (e^{-k1t} - e^{-k_2t}) + D_o\ e^{-k_2t}}$ mg/l

t =	time, days		
k_1 =	deoxygenation rate constant, d^{-1}		
UBOD =	ultimate carbonaceous BOD at the point of discharge, mg/l		
k_2 =	reaeration rate, for Swift streams here	0.69	/d
e =	mathematical constant	2.7182818	
D_o =	initial dissolved-oxygen deficit, mg/l		

	Ultimate biochemical oxygen demand, $\mathbf{UBOD = BOD_t\ /\ (1 - e^{-k1t})}$ mg/l	65.5	mg/l
BOD_t =	Biochemical oxygen demand remaining at time t		
t =	time, days	5	d
k_{1t} =	first-order reaction rate constant, d^{-1}	0.12	/d
	Deoxygenation coefficient at temperature T, $\mathbf{k_{1T} = k_{1(20)} * \Theta^{T-20}}$	0.12	/d
$k_{1(20)}$ =	deoxygenation rate const., for bio treatment eff at 20°C = 0.12 to 0.23/d, here:	0.17	/d
Θ =	temperature correction factor, for oxygen, here:	1.024	
T =	temperature of total flow	6.2	°C
	Mixed flow temperature, $\mathbf{T = (Q_s * T_s + Q_e * T_e) / (Q_s + Q_e)}$ =	6.2	°C
	Mixed flow initial dissolved-oxygen deficit, $\mathbf{D_O = DO_{sat} - (Q_e * DO_e + Q_s * DO_s) / (Q_e + Q_s)}$	6.05	mg/l



Project Number:	106363-03R	Date:	4/7/2011
Project Name:	BCRSD - Rocky Fork WWTP		Summer
Subject:	Minimum Effluent DO/ Max BOD_5	Page:	1

Assumptions:

Q_s =	stream flow without effluent		646,317	gpd =	449	gpm =	1.00	ft^3/s
Q_e =	effluent flow		460,000	gpd =	319	gpm =	0.71	ft^3/s
T_s =	temperature of stream	Winter	2.0	°C	Summer:		15.0	°C
T_e =	temperature of effluent	Winter	12.0	°C	Summer:		23.0	°C

DO_{sat} =	dissolved oxygen saturation concentration in stream at T_s for summer:	10.1	mg/l
DO_s =	stream dissolved oxygen	6.0	mg/l
DO_e =	effluent dissolved oxygen	5.0	mg/l
BOD_{5e} =	effluent BOD_5	15.0	mg/l

Streeter-Phelps equation:

Mixed flow dissolved oxygen concentration at time t, $DO_t = DO_{sat} - D_t$

DO_{sat} = dissolved oxygen saturation concentration in stream at T_s: 10.1 mg/l

Dissolved-oxygen deficit at time t, $D_t = k_1\ UBOD / (k_2 - k_1) * (e^{-k1t} - e^{-k_2t}) + D_o\ e^{-k_2t}$ mg/l

t =	time, days		
k_1 =	deoxygenation rate constant, d^{-1}		
UBOD =	ultimate carbonaceous BOD at the point of discharge, mg/l		
k_2 =	reaeration rate, for Swift streams here	0.69	/d
e =	mathematical constant	2.7182818	
D_o =	initial dissolved-oxygen deficit, mg/l		

Ultimate biochemical oxygen demand, $UBOD = BOD_t / (1 - e^{-k1t})$ mg/l 26.9 mg/l

BOD_t =	Biochemical oxygen demand remaining at time t		
t =	time, days	5	d
k_{1t} =	first-order reaction rate constant, d^{-1}	0.16	/d

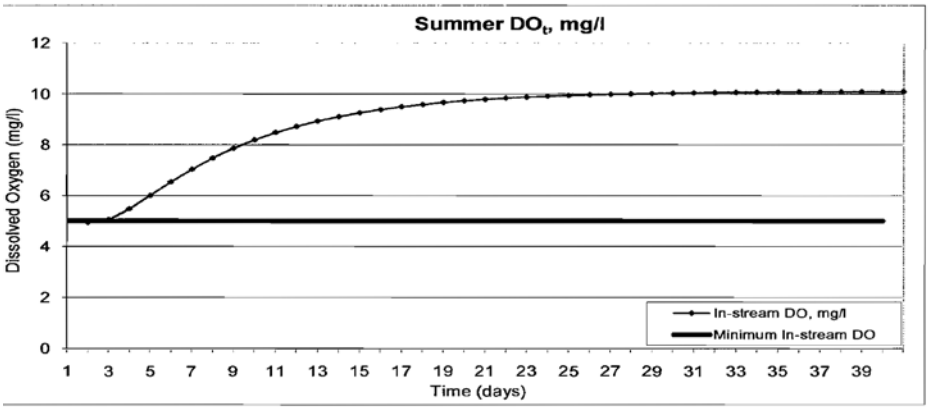
Deoxygenation coefficient at temperature T, $k_{1T} = k_{1(20)} * \Theta^{T-20}$ 0.16 /d

$k_{1(20)}$ =	deoxygenation rate const., for bio treatment eff at 20°C = 0.12 to 0.23/d, here:	0.17	/d
Θ =	temperature correction factor, for oxygen, here:	1.024	
T =	temperature of total flow	18.3	°C

Mixed flow temperature, $T = (Q_s * T_s + Q_e * T_e) / (Q_s + Q_e)$ = 18.3 °C

Mixed flow initial dissolved-oxygen deficit, $D_O = DO_{sat} - (Q_e * DO_e + Q_s * DO_s) / (Q_e + Q_s)$

4.52 mg/l



Natural Heritage Review
On-line LEVEL 1 REPORT

Print this page and use/attach as documentation that your project has consulted with the Missouri Department of Conservation and the U.S. Fish and Wildlife Service about species of conservation concern. No further consultation about this project is necessary.

November 16, 2010

Your login and project information below:

User ID: 1031
First Name: Elke
Last Name: Boyd
Email Address: eboyd@skw-inc.com
Business: SKW
Project: Wastewater

Your query information below:

1031						36.17	-92.34			0	0		11/16/2010 12:26:22 PM

Wastewater

Wastewater – storm sewer, sanitary sewer, treatment plant, discharge

Clean Water Act permits issued by other agencies regulate both construction and operation of wastewater and storm water systems, and provide many important protections for fish and wildlife resources throughout the project area and at some distance downstream.

Fish and wildlife almost always benefit when unnatural pollutants are removed from water, and concerns are minimal if (a) the project area includes no protected species or restricted habitat identified in this report, and (b) construction is managed to minimize erosion and sedimentation/runoff to nearby streams and lakes, including adherence to any "Clean Water Permit" conditions.

Revegetation of disturbed areas is recommended to minimize erosion, as is restoration with of native plant species compatible with the local landscape and for wildlife needs. Annual ryegrass may be combined with native perennials for quicker green-up. Avoid aggressive exotic perennials such as crown vetch and sericea lespedeza.

Management Recommendations for Construction Projects Affecting Missouri Streams and Rivers is a Conservation Department publication available at http://www.mdc.mo.gov/documents/nathis/endangered/streams.pdf

Cautions related to species/habitats of concern or project type. Please reflect these concerns and recommendations in your plans :

• Even if records of species/habitats of concern do not exist, there is a possibility that your project will encounter a species of concern that is not on record. In Missouri, 93% of the land is in private ownership, and most of that has never been checked for endangered species. Animals move over varying ranges, and in time both animal and plant populations can move.

• If your project encounters and potentially affects a federally-listed species, immediately report it to the U.S. Fish and Wildlife Service or Missouri Department of Conservation.

No further consultation with the U.S. Fish and Wildlife Service or the Missouri Department of Conservation is necessary. Print this document to establish compliance with requirements to consult with U.S. Fish and Wildlife Service and the Missouri Department of Conservation about this project.

If you need additional information, please contact:

MDC Natural Heritage Review
Policy Coordination Unit
P.O. Box 180
Jefferson City , MO 65102-0180
(Phone 573-522-4115 ext. 3250)
www.mdc.mo.gov

or

U.S. Fish and Wildlife Service Ecological Services
101 Park Deville Drive , Suite A
Columbia , Missouri 65203-0007
(Phone 573-234-2132)

A HERITAGE REVIEW provides information about species and habitats of concern that could be affected by the project. Heritage records note things that were positively identified at some date and time, marked at a location that may be more or less precise. Animals move quickly but plant communities can move also. 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. Because of this, reports include information about records near but not necessarily on the project site. Three different kinds of information are provided.

• FEDERAL Concerns are species/habitats protected under the Federal Endangered Species Act and that have been known near enough to the project site to warrant consideration. For these, project managers must contact the U.S. Fish and Wildlife Service Ecological Services (101 Park Deville Drive Suite A, Columbia , Missouri 65203-0007 ; Phone 573-234-2132; Fax 573-234-2181) for consultation.

• STATE Concerns are species/habitats known to exist near enough to the project site to warrant concern and protected under the Wildlife Code of Missouri (RSMo 3 CSR 10). "State Endangered Status" is determined by the Missouri Conservation Commission under constitutional authority, with requirements expressed in the Missouri Wildlife Code, rule 3CSR10-4.111. "State Rank" is numeric rank of relative rarity, protected under general provisions of the Wildlife Code but not endangered.

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

1) Water Quality Review Request Form: No changes need.

2) Attachment A: No changes needed.

3) Tier Determination & Effluent Limits: BOD, TSS, and Ammonia effluent limits were adjusted.

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

APR 11 2011
WATER PROTECTION PROGRAM

TYPE OF PROJECT
☐ Grant ☒ SRF Loan ☐ All Other Projects

REQUESTER	TELEPHONE NUMBER WITH AREA CODE
MS. ELKE BOYD	573-234-2648
PERMITTEE	TELEPHONE NUMBER WITH AREA CODE
Mr. Thomas Ratermann	573-443-2774

REASON FOR REQUEST

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

DESCRIPTION OF PROPOSED ACTIVITY:
ELIMINATE 5 LAGOONS AND CONSOLIDATE FLOW IN ONE REGIONAL WWTP SIZED FOR FUTURE ELIMINATION OF A MECHANICAL PLANT AND GROWTH.

FACILITY INFORMATION

FACILITY NAME	MSOP NUMBER (IF APPLICABLE)
ROCKY FORK WASTEWATER TREATMENT PLANT	N/A
COUNTY	SIC / NAICS CODE
BOONE	4952

METHOD OF BACTERIA COMPLIANCE
☐ Chlorine Disinfection ☒ Ultraviolet Disinfection ☐ Ozone ☐ Not Applicable

WATER QUALITY ISSUES
None

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

OUTFALL	LOCATION (LAT/LONG OR LEGAL DESCRIPTION)	MAPPED[1] (CHECK)	RECEIVING WATER BODY[2]
1	W92D20'30", N39D00'58"	☒	Unnamed Trib to Rocky Fork Ck
		☐	
		☐	

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

OUTFALL	NEW DESIGN FLOW ** (MGD)	TREATMENT TYPE	EFFLUENT TYPES*
1	460,000	OXIDATION DITCH	Domestic Wastewater

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

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

ANTIDEGRADATION REVIEW SUBMISSION:

See attached Antidegradation instructions. Applicant supplied a summary within:
☒ Tier Determination and Effluent Limit Summary
☒ Attachment A – Significant Degradation
☐ Attachment B – Minimal Degradation
☐ Attachment C – Temporary degradation
☐ Attachment D – Tier 1 Review
☐ No Degradation Evaluation – Conclusion of Antidegradation Review

MO 780-1693 (03-09)

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

SIGNATURE	DATE
Tom Ratermann	4/7/11
PRINT NAME	
Tom Ratermann	
E-MAIL ADDRESS	
eboyd@skw-inc.com tratermann@bcrsd.com	

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

ANTIDEGRADATION REVIEW SUMMARY
ATTACHMENT A: TIER 2 – SIGNIFICANT DEGRADATION

1. FACILITY

NAME		TELEPHONE NUMBER WITH AREA CODE	
ROCKY FORK WASTEWATER TREATMENT PLANT		573-443-2774	
ADDRESS (PHYSICAL)	CITY	STATE	ZIP CODE
NORTH ROCKY FORK DRIVE	COLUMBIA	MO	65202

2. RECEIVING WATER BODY SEGMENT #1

NAME
UNNAMED TRIBUTARY TO ROCKY FORK CREEK

3. WATER BODY SEGMENT #2 (IF APPLICABLE)

NAME
Rocky Fork Creek

4. IDENTIFYING ALTERNATIVES

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

Non-degrading alternatives: Land Application - see Facility Plan for analyses

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

Alternatives	Level of Treatment Attainable for each Pollutant of Concern					
	BOD	TSS	Ammonia as N	Bacteria (E. Coli)		
	(mg/L)	(mg/L)	(mg/L)	(#/100mL)		
MBR 2	5	5	1.5	15		
MBR 1	5	5	1.5	15		
CONVENT. O2 DITCH	10	10	1.5	206		
VERT. LOOP REACTOR	10	10	1.5	206		
FLOW-THROUGH SBR	15	15	1.5	206		
EXTENDED AERATION	20	20	1.5	206		

Identifying Alternatives Summary: MBR 1 & MBR 2 ARE MEMBRANE BIOREACTORS BY TWO MANUFACTURERS, BOTH TOO COSTLY. THE CONVENTIONAL O2 DITCH AND VERTICAL LOOP REACTOR ARE SIMILAR, BUT TMR MAKES O2 DITCH A BETTER FIT. BOTH COST LESS THAN SBR. THE EXTENDED AERATION INCURS THE BASE COST.

5. DETERMINATION OF THE REASONABLE ALTERNATIVE

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

Practicability Summary:

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

THE PREFERRED ALTERNATIVE IS THE BEST FIT FOR THE TMR CABAILITIES OF THE SEWER DISTRICT AND IS PROTECTIVE OF WATER QUALITY. O2 DITCHES ARE EASY TO OPERATE, FORGIVING TO SHOCK LOADS, AND EXPANDABLE FOR GROWTH.

Economic Efficiency Summary:

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

A DIRECT COST COMPARRISON REVEALED THAT PRESENT WORTH COST FOR THE CHOSEN ALTERNATIVE IS ABOUT 124% OF THE BASE COST.

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."

THE COST FOR THE PREFERRED ALTERNATIVE IS CONSIDERED AFFORDABLE BASED ON THE SEWERSHED MEDIAN HOUSEHOLD INCOME AND SEWER REVENUES OF THE DISTRICT.

Preferred Chosen Alternative:

THE PREFERRED CHOSEN ALTERNATIVE IS THE CONVENTIONAL OXIDATION DITCH.

Reasons for Rejecting the other Evaluated Alternatives:

THE NON- AND LESS DEGRADING ALTERNATIVES WERE NOT PRACTICABLE, ECONMOICALLY EFFICIENT AND/OR AFFORDABLE.

Comments/Discussion:

THE CHOSEN ALTERNATIVE IS A GOOD FIT FOR THE SEWER DISTRICT AND WILL ELIMINATE SEVERAL LESS EFFECTIVE WASTEWATER TREATMENT SYSTEMS. GROWTH IN THE SEWERSHED WILL OCCUR AND THIS OPTION WILL ACCOMMODATE THIS. OVERALL STREAM LOADINGS WILL BE REDUCED.

6. SOCIAL AND ECONOMIC IMPORTANCE OF THE PREFERRED ALTERNATIVE

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

Identify the affected community:

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

THE COST FOR THE PREFERRED ALTERNATIVE IS CONSIDERED AFFORDABLE BASED ON MHI AND SEWER REVENUES. THE LESS DEGRADING ALTERNATIVES WOULD CAUSE USER CHARGES WELL ABOVE 2% OF MHI.

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.

MANY LOW-INCOME SEWER USERS.

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

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

THE NEW WWTP IS IN A GROWTH AREA NEAR THE CITY OF COLUMBIA. SEWERS ARE VITAL FOR ORGANIZED AND EFFICIENT DEVELOPMENT OF THE AREA AND INCREASE PROPERTY VALUES.

PROPOSED PROJECT SUMMARY:

ELIMINATE 5 LAGOONS, FUTURE ELIMINATION OF AN AGING MECHANICAL PLANT, SIZED TO ACCOMMODATE GROWTH.

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 in consistent with the Antidegradation Implementation Procedure and current state and federal regulations.

SIGNATURE	DATE
Elke Boyd	4/7/11

PRINT NAME	LICENSE # :
ELKE Boyd	2005022082

TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS:
573-234-2648	eboyd@skw-inc.com

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

SIGNATURE	DATE
Tom Patterson	4/7/11

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

SIGNATURE	DATE
Tom Patterson	4/7/11

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

ANTIDEGRADATION REVIEW SUMMARY
TIER DETERMINATION AND EFFLUENT LIMIT SUMMARY

1. FACILITY

NAME			TELEPHONE NUMBER WITH AREA CODE
ROCKY FORK WASTEWATER TREATMENT PLANT			573-443-2774
ADDRESS (PHYSICAL)	CITY	STATE	ZIP CODE
NORTH ROCKY FORK DRIVE	COLUMBIA	MO	65202

2. RECEIVING WATER BODY SEGMENT #1

NAME
UNNAMED TRIBUTARY TO ROCKY FORK CREEK

2.1 UPPER END OF SEGMENT (Location of discharge)
UTM _____ OR Lat W92D20'30", Long N39D00'58"
2.2 LOWER END OF SEGMENT
UTM _____ OR Lat W92D20'32", Long N39D00'57"

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

3. WATER BODY SEGMENT #2 (IF APPLICABLE)

NAME
ROCKY FORK CREEK

3.1 UPPER END OF SEGMENT
UTM _____ OR Lat W92D20'32", Long N39D00'57"
3.2 LOWER END OF SEGMENT
UTM _____ OR Lat W92D21'47", Long N39D00'45"

4. WATER BODY SEGMENT #3 (IF APPLICABLE)

NAME
N/A

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

5. PROJECT INFORMATION

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

☐ Yes ☒ No

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

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

☐ Yes ☒ No

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

Will the discharge result in temporary degradation?

☐ Yes ☒ No

If yes, complete Attachment C.

Has the project been determined as non-degrading?

☐ Yes ☒ No

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

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

6. EXISTING WATER QUALITY DATA OR MODEL SUMMARY

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

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

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

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

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

Comments/Discussion:

NO EWQ DATA WAS EXISTING OR GENERATED. SEGNIFICANT DEGRADATION OF A TIER II WATER IS ASSUMED.

7. POLLUTANTS OF CONCERN AND TIER DETERMINATION(S)

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

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

Tier 1	Tier 2 with Minimal Degradation	Tier 2 with Significant Degradation
		BOD5*
		TSS*
		DO*
		NH3*
		E. COLI*

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

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

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

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

8. WET WEATHER ANTICIPATIONS

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

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

Wet Weather Design Summary:

9. SUMMARY OF THE PROPOSED ANTIDEGRADATION REVIEW EFFLUENT LIMITS

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

Pollutant of Concern	Units	Wasteload Allocation	Average Monthly Limit	Daily Maximum Limit
BOD5	MG/L	N/A	30 WIN, 15 SUMMER	45 WEEKLY AVE
TSS	MG/L	N/A	20	45
Dissolved Oxygen	MG/L		5.0 MIN	5.0 MIN
Ammonia				
Bacteria (E. Coli)	MPN	N/A	206 SUMMER	1030 summer
NH3 - SUMMER	MG/L	N/A	1.9	5.0
NH3 - WINTER	MG/L	N/A	3.9	10.3
OIL & GREASE	MG/L	N/A	10	15
PH			6.5 - 9.0	6.5 - 9.0

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

Attach the Antidegradation Review report and all supporting documentation.

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

SIGNATURE | DATE

NAME AND OFFICIAL TITLES
MS. ELKE BOYD, P.E.

COMPANY NAME
SHAFER, KLINE AND WARREN, INC.

ADDRESS	CITY	STATE	ZIP CODE
3200 PENN TERRACE, SUITE 100	COLUMBIA	MO	65202

TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS
573-234-2648	EBOYD@SKW-INC.COM

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

SIGNATURE: same as continuing authority | DATE

NAME AND OFFICIAL TITLES
MR. THOMAS RATERMANN, P.E.

ADDRESS	CITY	STATE	ZIP CODE
1314 N. 7th STREET	COLUMBIA	MO	65201

TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS
573-443-2774	TRATERMANN@BCRSD.COM

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

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

SIGNATURE: Thomas Ratermann | DATE: 4/7/11

NAME AND OFFICIAL TITLES
MR. THOMAS RATERMANN, P.E

ADDRESS	CITY	STATE	ZIP CODE
1314N. 7th STREET	COLUMBIA	MO	65201

TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS
573-443-2774	TRATERMANN@BCRSD.COM

Missouri Department Of Natural Resources

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

Project ID Number
LWE12028

County
BOONE

Geohydrologic Evaluation of Liquid-Waste Treatment Site

Project **Rocky Fork WWTP** Quadrangle **BROWNS**

Location **SW1/4,SW1/4,NW1/4** Section **24** Township **49 N** Range **13 W**

Additional Location Information

Latitude **39** Deg **0** Min **59** Sec Longitude **92** Deg **20** Min **27** Sec

Owner Boone County Sewer District (573) 443-2774
1314 North Seventh Street Columbia MO 65201

Requestor SKW
Elke Boyd (573) 234-2648
3200 Penn Terrace, Suite 100 Columbia MO 65202

Previous Report ☑ Not Applicable
Date
Identification Number
Fiscal Year

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

Type of Waste
- ○ Animal
- ◉ Human
- ○ Process or industrial
- ○ Leachate
- ○ Other waste type

Funding Source
- ◉ PPG
- ○ WWLF-SRF
- ○ Non-Point Source

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

Date of Field Visit 11/02/2011

Stream Classification ◉ Gaining ○ Losing ○ No discharge

Overall Geologic Limitations
- ◉ Slight
- ○ Moderate
- ○ Severe

Collapse Potential
- ◉ Not applicable
- ○ Slight
- ○ Moderate
- ○ Severe

Topography
- ○ < 4%
- ◉ 4% to 8%
- ◉ 8% to 15%
- ○ > 15%

Landscape Position
- ○ Broad uplands
- ◉ Ridgetop
- ◉ Hillslope
- ○ Narrow ravine
- ○ Floodplain
- ○ Alluvial plain
- ○ Terrace
- ○ Sinkhole

Bedrock The uppermost bedrock is the Mississippian-age Burlington-Keokuk Limestone.

Surficial Materials The surficial materials are composed of approximately 20 feet of silty clay to clay and cotain about 35% lithics.

Project ID Number **LWE12028**

Recommended Construction Procedures

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

Required Geologic Exploration

(Missouri Clean Water Commission - 10 CSR 20 - 8.200 Wastewater Treatment Ponds)

Determine Overburden Properties

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

Determine Hydrologic Conditions

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

Notify Geologist

- ○ Before exploration
- ○ During constructio
- ○ After construction
- ◉ Not necessary

Remarks

On November 2, 2011, a geohydrologic evaluation was conducted by Christopher Vierrether of the Missouri Geological Survey Program per the request of Ms. Elke Boyd of Shafer, Kline and Warren, Inc. for the proposed mechanical treatment plant at the Rocky Fork waste water treatment plant. The goal of such an evaluation is to determine the geologic and hydrologic elements of the site as they relate to the facility's construction and the potential for groundwater contamination in the event that treatment failure occurs. The proposed facility is located on the Browns 7.5' quadrangle in the SW¼, SW¼, NW¼, section 24, T. 24 N., R. 13 W., Boone County, Missouri.

The uppermost bedrock is the Mississippian-age Burlington-Keokuk Limestone. This unit has an estimated thickness of 190 feet and is composed of a light-brown, coarse-crystalline crinoidal limestone. The Burlington-Keokuk Limestone typically exhibits a high degree of solution-enlarged fractures and weathering that commonly results in a high permeability.

The surficial materials are approximately 20 feet thick and composed of light-brown silty clay to clay and contain approximately 35% lithics predominantly composed of chert gravel, but range from sand to cobble. The surficial materials appear to have a low to moderate permeability.

The site is located on a ridge top in an upland recharge area of a gaining setting. Discharge from the facility will migrate to an unnamed tributary of Rocky Fork. The unnamed drainage and Rocky Fork display gaining conditions.

Based on the geologic and hydrologic characteristics observed during the site visit, specifically the gaining setting, this site receives a slight geologic rating. If treatment of the waste should fail, the effluent would likely impact the surficial materials and receiving streams.

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

Report By: Chris Vierrether

Report Date: 11/28/2011

CC WPP; NERO

APPENDIX C – AFFORDABILITY ANALYSIS:

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

Boone County Regional Sewer District is proposing construction of Rocky Fork Creek WWTP and closure of six BCRSD treatment plants.

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

Description:

The Boone County Regional Sewer District (BCRSD) has authority and is responsible for providing sewage collection and/or treatment services for ninety-two collection systems that receive treatment by one of the District's forty-six (46) wastewater treatment facilities or by the Columbia Regional Wastewater Treatment Facility (WWTF). BCRSD currently serves nearly 6,500 units or a population of approximately 24,000 customers.

The Rocky Fork Creek watershed is located near the urban edge of Columbia. This is considered prime development ground for residential, commercial and industrial developments. The affected community includes the residents currently residing in the watershed, those living in the surrounding areas of Boone County and Columbia. Providence Road, which is a main road through Columbia, is platted through the Rocky Fork area, providing a future connection to the City and Highway 63. There are also numerous areas platted for single residence housing in the area to be served. Based on the rapid growth of the Columbia area in recent decades, the creation of the interceptor sewer and regional treatment plant will provide the opportunity to handle more development and provide the opportunity for existing private facilities to connect. The expected development of the watershed has the potential to provide employment as well as tax resources, income, and other revenues to the community. Replacement of the lagoons along Rocky Fork and its tributaries with one centralized mechanical treatment plant will improve water quality and have a human health benefit. Also, the loading into the stream will be reduced and the effluent will be disinfected before entering the receiving stream. Boone County evaluated their alternatives with Phase 1, but also the future Phases to determine which alternative provides the best treatment for the cost over the long term and the decision was the conventional oxidation ditch with ultraviolet disinfection. As a result of the Antidegradation alternative analysis, the applicant's selected the construction of a conventional oxidation ditch with ultraviolet disinfection. The design flow at the end of the Phase 1 is 460,000 gpd (0.46 MGD).

Residential Connections: ~6,500[1]
Commercial Connections:
Total Connections: ~6,500

New Permit Requirements or Requirements Now Being Enforced:

Boone County Regional Sewer District (BCRSD) is proposing a three phase approach to handling treatment facilities in the Rocky Fork Creek watershed. The time frame for the three phases is longer than twenty years; however in their evaluation of alternatives, the BCRSD evaluated technologies for 460,000 gpd, upgrading to 568,000 gpd and then an another upgrade to 1,659,160 gpd. In Phase 1, six BCRSD treatment plants will be removed from service, which are Bon Gor Lake Estates (MO0047619); County Downes (MO0096938); Phenora South (MO0100811); Powell Community (MO0087688); Clearview Acres (MO0085944) and Wagon Trail Heights (MO0094293). Phase 1 construction will also provide capacity for four private facilities to potentially connect. The four private facilities that potentially could connect during Phase 1 are: Apple Grove MHP (MO0129062); Green Hill MHP (MO0086037); Phenora North (MO0099911); and Wagon Wheel MH (MO0120286).

Phase 2 would be removal of two treatment plants and an expansion to 568,000 gpd. The expansion to Phases 2 and 3 will not occur in the near future, thus allowing time to pay off existing debts for Phase 2 and 3 facilities, along with allowing time for populations to develop.

[1] BCRSD website http://bcrsd.com/site/index.php?option=com_content&view=article&id=28&Itemid=6

The Department of Natural Resources (Department) and BCRSD are currently negotiating Abatement Order on Consent (AOC) that will require BCRSD to connect 18 separate WWTFs to centralized WWTFs. The AOC is a result of multiple Missouri Clean Water Law violations documented at BCRSD facilities and because BCRSD failed to comply with the Schedule of Compliance for final disinfection limitations at fourteen (14) facilities The AOC will also address Missouri State Operating Permits (permits) that BCRSD are appealing and permits that are up for renewal. The BCRSD has submitted a proposed schedule and budget for the project to the Department for review and approval.

Range of Anticipated Costs Associated with Complying with Requirements:
According to the Rocky Fork Creek Facility Plan BCRSD estimates the cost of constructing the treatment plant and closure of the existing treatment plants to be almost twelve million dollars for Phase 1 (Page 7-1 of the facility plan). The BCRSD has proposed the total cost of connecting the 18 facilities to a centralized sewer district will cost $22,680,233.45[2]

(1) ***A community's financial capability and ability to raise or secure necessary funding*** *(examine key indicators of the communities ability to raise funds)***;**

BCRSD is planning on increasing rates, along with State Revolving Funds to construct the new treatment plant and to perform work on the collection system. Rocky Fork Creek is on the 2013 Intended Use Plan under the fundable contingency list. BCRSD has passed a $20,262,300 bond issue in April 2008[3]. The BCRSD anticipates receiving $22,680,233.45 from Department's State Revolving Fund (SRF) loans for Fiscal Years 2012 and 2013.

Current User Rates[4]
BCRSD has a tiered approach on existing user rates based on the type of sewer system and effluent being received. All tiers have a base rate of $18.45 currently and a cost of $5.45 per 1,000 gallons. The table below shows the tiered approach for monthly sewer rates in Boone County.

Boone County Regional Sewer District Rates				
Plan	Plan Description	Cost per 1000 Gallons	Base Rate per Month	Surcharge per Month
A	Gravity	$5.45	$18.45	None
B	Septic	$5.45	$18.45	$15.95
C	Pressurized Septic	$5.45	$18.45	None
D	Small Diameter Variable Grade	$5.45	$18.45	$8.70
E	Septic Tank Effluent Pump	$5.45	$18.45	$18.95
F	Pressurized System With Grit Pump	$5.45	$18.45	$17.45
G	Pressurized System with Grit Pump with No Maintenance	$5.45	$18.45	None

Municipal Bond Rating (if applicable)[5]: N/A
Bonding Capacity:[6] N/A
(General Obligation Bond capacity allowed by constitution: sewer districts=up to 5% of taxable tangible property)
Current outstanding debt (based on 2011 reports): BCRSD = $170,877; Boone County = $1,968,336
Projected outstanding debt (based on 2013 budgets): BCRSD = $177,490; Boone County = Unknown

Other indicators:
Since the BCRSD has passed almost 21 million dollar bond issue and made a net income of $177,896[7] in 2011, BCRSD is capable of completing the connections contingent on receiving SRF financing.

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

[2] Schedule and Budget submitted by BCRSD for Abatement Order of Consent
[3] DNR SRF Kirby Finders
[4] BCRSD Website http://bcrsd.com/site/index.php?option=com_content&view=article&id=15&Itemid=15
[5] Boone County Treasurer http://www.showmeboone.com/treasurer/
[6] Boone County Missouri Bonding Capacity from Boone County Missouri proposed 2012 budget: http://www.showmeboone.com/Budget%202012/Default.htm pg. 31
[7] BCRSD webpage: http://bcrsd.com/site/images/pdfs/rates/fy_budget_2012.pdf

The BCRSD raised the 2012 sewage rates to address the need for capital investment. The BCRSD has proposed annual rate increases for every year up to 2016.

Current annual operating costs (exclude depreciation): $2,694,515
Current per year user rate: *(($5.45*5) + $18.45)*12 = $548.4* $548.40
Estimated capital cost of pollution control options: $22,680,233.45
Annual cost of additional[7] *(operating costs and debt service)*: $25,700
Estimated resulting user rate per year: *(estimate made by BCRSD)* $726.60
Median Household Income: $44,128[8]
Usage Rates as a percent of Median Household Income[9]: 1.65%
*(Rate/MHI= ($726.6/$44,128)*100)=1.65)))*

	Financial Impact	**Residential Indicator** (Usage Rate as a percent of Median Household Income)
☐	Low	Less than 1% MHI
☒	Medium	Between 1% and 2% MHI
☐	High	Greater than 2% MHI, Unknown

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

BCRSD evaluated multiple options for handling the existing treatment plants and construction of the new Rocky Fork Creek WWTP to determine which alternatives were practical and cost effective. The Antidegradation Report completed for Rocky Fork Creek provides a detailed discussion of the alternatives evaluated. . Alternatives ranged from making upgrades to the existing treatment plants, connection to City of Columbia, and a regional plant. The regional plant was decided to be the cost effective option. Rather than connect and build out a million gallon per day facility immediately, Boone County elected to phase the development of the Rocky Fork Creek treatment plant. BCRSD evaluated which treatment technology would meet current water quality standards but also future water quality standards.

A conventional oxidation ditch is a proven technology in the state that achieves a high quality effluent. Oxidation ditches in the state consistently meet ammonia's of less than 1.0 mg/L and BOD_5/TSS's of less than 10 mg/L. The applicant suggested an oxidation ditch effluent limit for BOD_5 of 15 mg/L and a TSS of 20 mg/L to help account for potential variability, while still protecting the stream. This alternative is the preferred alternative, when evaluating cost and performance over the different phases of the facility. With the first plant expansion the oxidation ditch becomes the most cost effective treatment, and is further confirmed with the second expansion (see Antidegradation Report).

By removing six existing facilities that do not currently disinfect or are lagoons, this will reduce the number of facilities discharging into Rocky Fork Creek watershed and provide enhanced protection of public health, the environment, and multiple receiving streams in Boone County.

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

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

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

The new treatment plant is being undertaken by BCRSD as a result of permit requirements for the addition of disinfection and meeting of ammonia effluent limits. By building a new treatment plant, BCRSD will be able to consolidate operations and maintenance costs, and provide better treatment.

[8] Median Household Income data is from the American Community Survey – median income in the past 12 months – http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t.
Note: The median household income is adjusted for inflation according to the method suggested in the EPA CSO guidance for financial capability assessment and schedule development, which can be found online at: http://www.epa.gov/npdes/pubs/csofc.pdf
[9] User rate as percentage of Median Household Income = (($726.6/$44,128)*100) = 1.65%

Potentially Distressed Populations	
Unemployment for Boone County 2010[10]	5.3%
Median Household Income for Boone County	$44,128
Percent Population Growth/Decline (1990-2010)[11]	+44.7%
Percent of Households in Poverty[12]	21.6%

Opportunity for cost savings or cost avoidance:

BCRSD has applied for State Revolving Funds for Rocky Fork Creek WWTP and is on the 2013 Construction of the new treatment plant presents a savings to BCRSD by eliminating the necessary operation and maintenance, sampling and upgrades of six treatment plants to meet existing permit effluent limits.

Opportunity for changes to implementation/compliance schedule:

The AOC includes a Force Majeure provision that allows BCRSD to submit an extension request for any events that may constitute force majeure and delay completion of milestones contained in the AOC. Additionally, the AOC allows BCRSD to submit a request for modification of the AOC, and/or additional time to complete any affected obligations, due to financial constraints that may arise after the AOC becomes fully effective and enforceable.

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

For Rocky Fork Creek WWTP, BCRSD is proposing to spend over 11 million dollars to build a new treatment plant and close six existing treatment plants. Overall, BCRSD is proposing to spend approximately 22 million dollars to connect 18 separate facilities to centralized wastewater treatment facilities. The facilities would be connected by December 31, 2016.

(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;

See Section (2) of this analysis for the residential indicator as outlined in the above-referenced EPA guidance.

Secondary indicators for consideration

Socioeconomic, Debt and Financial Indicators

Indicators	Strong (3 points)	Mid-Range (2 points)	Weak (1 point)	Score
Bond rating indicator[13]	Above BBB or Baa Aa2	BBB or Baa	Below BBB or Baa	3
Overall net debt as a % of full market property value[14]	Below 2% (*Overall net debt is* 7,323,336.16[15]*/ Full market value is 2,375,004,201) *100%= 0.31%*	2% - 5%	Above 5%	3
Unemployment Rate[10]	>1% below Missouri average *(State unemployment rate* is 8.4% - 5.3% *Boone County unemployment rate is*) = 3.10%	± 1% of Missouri average	>1% above Missouri average	3
Median household income	More than 25% above Missouri MHI	± 25% of Missouri MHI ((*Boone County MHI is*	More than 25% below Missouri	2

[10] Unemployment data from Missouri Department of Economic Development for February 2012 – http://www.missourieconomy.org/pdfs/urel1202.pdf

[11] 2010 Census Population Data - http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t
2000 Census Population Data - http://www.census.gov/popest/data/cities/totals/2009/tables/SUB-EST2009-04-29.xls
1990 Census Population Data – http://www.census.gov/prod/cen1990/cp1/cp-1-27.pdf

[12] Poverty data – American Community Survey -http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t

[13] http://www.showmeboone.com/treasurer/

[14] Page 420 of Boone County Budget: http://www.showmeboone.com/Budget%202012/Default.htm

[15] Page 75 of Boone County Budget: http://www.showmeboone.com/Budget%202012/Default.htm

		44128- *MO MHI is* 44306) / *MO MHI is* 44306))*100= -0.4%	average	
Property tax revenues as a % of full market property value[16]	Below 2% (*Property tax revenues is* 4,455,814 [17]/ *Full market property value of Boone County is* 2,375,004,201)*100=0.19%	2% - 4%	Above 4%	3
Property tax collection rate[18]	Above 98%	94% - 98% *95%*	Below 94%	2

(3+3+3+2+3+2) / 6 = 2.67

Average Score for Financial Capability Matrix: 2.67
Residential Indicator (from Criteria #2 above): medium

Financial Capability Matrix

Financial Capability Indicators Score from above ↓	**Residential Indicator (User rate as a % of MHI)**		
	Low (below 1.0%)	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: Low

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

Boone County's population grew 44.7% from 1990-2010. In terms of economic strength, Boone County is above average when compared to other counties in the State. The percentage of labor force is 10% above the State average, the per capita wealth[19] is 9% below the State average and the per capita income is the same as the State's average.

In terms of retail Sales, Boone County gains retail customers from surrounding counties and the County residents spend more than the state average on retail goods and services. The buying power index of Boone County residents is above average compared to the rest of the regional economy[20].

Conclusion and Finding

BCRSD has evaluated a number of options to resolve existing issues at treatment plants and to plan for future growth and new water quality standards. Growth in BCRSD exceeded the state average over the last ten years. By removing six existing facilities that do not currently disinfect or are lagoons, this will reduce the number of facilities discharging into Rocky Fork Creek watershed and provide enhanced protection of public health, the environment, and multiple receiving streams in Boone County. The BCRSD has already acquired funding for this project. This will fund the majority of the project, thus reducing the burden on the community/customers, supporting a determination of "low" burden.

As a result of reviewing the above criteria, the Department hereby finds that the action described above will result in a low burden with regard to the community's overall financial capability and a medium financial impact for most individual customers/households

[16] Page 79 of Boone County Budget: http://www.showmeboone.com/Budget%202012/Default.htm
[17] Page 79 of Boone County Budget: http://www.showmeboone.com/Budget%202012/Default.htm
[18] Personal Communication with Pat Lensmeyer, Boone County Missouri Collector
[19] Per capita wealth is calculated by taking a sum of appraised value of residential property, mobile homes and motor vehicles and this sum is then divided by County population.

[20] Source: http://www.missourieconomy.org/pdfs/central_wia_retail_trade_analysis.pdf

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

PART I - GENERAL CONDITIONS
SECTION A - MONITORING AND REPORTING

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

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

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

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

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

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

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

SECTION B - MANAGEMENT REQUIREMENTS

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

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

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

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

a. Any bypass or shut down of a wastewater treatment facility and tributary sewer system or any part of such a facility and sewer system that results in a violation of permit limits or conditions is prohibited except:
   (i) where unavoidable to prevent loss of life, personal injury, or severe property damages; and
   (ii) where unavoidable excessive storm drainage or runoff would catastrophically damage any facilities or processes necessary for compliance with the effluent limitations and conditions of this permit;
   (iii) where maintenance is necessaryto ensure efficient operation and alternative measures have been taken to maintain effluent quality during the period of maintenance.

b. The permittee shall notify the Department in writing of all bypasses or shut down that result in a violation of permit limits or conditions. This section does not excuse any person from liability, unless such relief is otherwise provided by the statute.

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

7. **Power Failures**
In order to maintain compliance with the effluent limitations and other provisions of this permit, the permittee shall either:
a. in accordance with the "Schedule of Compliance", provide an alternative power source sufficient to operate the wastewater control facilities; or,
b. if such alternative power source is not in existence, and no date for its implementation appears in the Compliance Schedule, halt or otherwise control production and all discharges upon the reduction, loss, or failure of the primary source of power to the wastewater control facilities.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

PART II - SPECIAL CONDITIONS - PUBLICLY OWNED TREATMENT WORKS
SECTION A - MAJOR CONTRIBUTING INDUSTRY

1. **Definitions**
   Definitions as set forth in the Missouri Clean Water Laws and Missouri Clean Water Commission Definition Regulation 10 CSR 20-2.010 shall apply to terms used herein, in addition to the following:
   a. A "major contributing industry" to a publicly owned treatment facility is a wastewater source that meets any one of the following criteria:
      (1) has a flow of 50,000 gallons or more per average workday;
      (2) has an average daily flow greater than five percent (5%) of the flow carried by the system receiving the waste;
      (3) has in its waste a toxic pollutant in toxic amounts as defined in standards issued under Section 307(a) of the Federal Water Pollution Control Act (hereinafter the Act), or
      (4) has significant impact, either singly or in combination with other contributing industries, on the treatment works or in the quality of its effluent.
   b. "Compatible pollutants" are biochemical oxygen demand, suspended solids, pH, and fecal coliform bacteria, plus additional pollutants, e.g., nitrogen or phosphorus, identified in the NPDES permit, if the publicly owned treatment facility was designed to treat such pollutants, approved by the Department and in fact does remove such pollutants to design specifications.
   c. An "incompatible pollutant" is any pollutant which is not a compatible pollutant as defined above.

2. **Industrial Effluent Monitoring**
   The permittee shall establish and implement a procedure to periodically or regularly obtain monitoring data on the quality and quantity of all effluents introduced by each major contributing industry. Frequency of monitoring shall be subject to approval by the Department.

3. **Industrial Users Report**
   Each permittee which has a major contributing industry shall also submit to the permit-issuing authority semi-annual reports summarizing all major contributing industries subject to the pretreatment requirements of the Missouri Clean Water Law and Regulations (hereinafter the Law and Regulations), or Section 307 of the Act. These reports must be filed with the Department of Natural Resources, PO Box 176, 205 Jefferson Street, Jefferson City, Missouri 65102 by January 1 and July 1 of each year. Such a report shall include at least the following information:
   a. name and number of major contributing industries using the treatment works and the waste type, raw materials usage (lbs/day or kg/day), and average daily flow for each industry;
   b. summary of monitoring data obtained in accordance with Standard Conditions Part II, Section A.2 above, detailing the quality and quantity of all effluents introduced by each major contributing industry, and the frequency of monitoring performed;
   c. number of major contributing industries in full compliance with the requirements of the Law and Regulations and Section 307 of the Act or not subject to these requirements (e.g., discharge only compatible pollutants), and
   d. a list identifying by name those major contributing industries presently in violation of the requirements of the Law and Regulations and Section 307 of the Act (e.g., discharges pollutant which interferes with, passes through or is incompatible with the municipal treatment works).

4. **Report on Pollutant Introduction**
   The permittee shall give notice to the department of any new introduction of pollutants or any substantial change in the character or volume of pollutants already being introduced. Such notice shall include:
   a. the origin, quality, and quantity of pollutants to be introduced into the publicly owned treatment works; and
   b. any anticipated impact on the quality and quantity of the effluent to be discharged by such treatment works:
   c. any anticipated impact on the quality of sludge produced by such treatment works causing the sludge to be hazardous under Federal and State Law.

5. **Industrial Users Compliance Schedules**
   The permittee shall identify any introduction of pollutants into the facility subject to pretreatment standards under Section 307(b) of the Federal Clean Water Act. In addition, the permittee shall require any industrial user of such treatment works to comply with the requirements of Section 204(b), 307, and 308 of the Federal Clean Water Act. As a means of compliance from each industrial user, subject to the requirements of Section 307 of the Federal Clean Water Act and shall forward to the Department a copy of periodic notice, over intervals not to exceed nine (9) months, of progress towards full compliance with Section 307 requirements.

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

PART III – SLUDGE & BIOSOLIDS FROM DOMESTIC WASTEWATER TREATMENT FACILITIES

SECTION A – GENERAL REQUIREMENTS

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

SECTION B – DEFINITIONS

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

SECTION C – MECHANICAL WASTEWATER TREATMENT FACILITIES

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

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

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

SECTION E – WASTEWATER TREATMENT LAGOONS AND STORMWATER RETENTION BASINS

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

SECTION F – INCINERATION OF SLUDGE

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

SECTION G – SURFACE DISPOSAL SITES AND SLUDGE LAGOONS

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

SECTION H – LAND APPLICATION

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

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

SECTION I – CLOSURE REQUIREMENTS

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

SECTION J – MONITORING FREQUENCY

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

SECTION K – RECORD KEEPING AND REPORTING REQUIREMENTS

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

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

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

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

NO FEE required AT This TIME, Per Curt G. 2/14/12 (P) AP10089

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

FOR AGENCY USE ONLY	
CHECK NUMBER: NONE Sent	
DATE RECEIVED: 2/14/12	FEE SUBMITTED: 0 (P)

PART A – BASIC APPLICATION INFORMATION

1. This application is for:

- [redacted] 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 # _____
- ☐ An operating permit renewal: Permit #MO- _____ Expiration Date _____
- ☐ An operating permit modification: Permit #MO-_____ Reason: _____

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

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

2. FACILITY

NAME		TELEPHONE NUMBER WITH AREA CODE	
ROCKY FORK WWTP		(573) 443-2774	
ADDRESS (PHYSICAL)	CITY	STATE	ZIP
Rocky Fork Drive	COLUMBIA	MO	65202

2.1 **LEGAL DESCRIPTION** (Plant Site): ¼, SE ¼, NE ¼, Sec. 23, T 49N, R 13W Boone County

2.2 UTM Coordinates Easting (X): 556996 Northing (Y): 4319018
For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

3. OWNER

NAME	TITLE	TELEPHONE NUMBER WITH AREA CODE	
BCRSD, TOM RATERMANN	GENERAL MANAGER	(573) 443-2774	
ADDRESS	CITY	STATE	ZIP
1314 NORTH 7TH STREET	COLUMBIA	MO	65201

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		CITY	
BOONE COUNTY REGIONAL SEWER DISTRICT		COLUMBIA	
ADDRESS	CERTIFICATE NUMBER (IF APPLICABLE)	STATE	ZIP
1314 NORTH 7TH STREET	1249	MO	65201

5. OPERATOR

NAME	TITLE	TELEPHONE NUMBER WITH AREA CODE
DWAYNE COOKSEY	CHIEF OPERATOR	(573) 443-2774

6. FACILITY CONTACT

NAME	TITLE
TOM RATERMANN	General Manager

MO 780-1805 (09-08)

FACILITY NAME	PERMIT NO.	OUTFALL NO.
ROCKY FORK WWTP	MO- 0	1

PART A – BASIC APPLICATION INFORMATION

7. ADDITIONAL FACILITY INFORMATION

7.1 BRIEF DESCRIPTION OF FACILITIES

Headworks, oxidation ditch, final clarifiers, UV disinfection, re-aeration, sludge storage.

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	DISCHARGE SIC CODE:	FACILITY NAICS CODE:	DISCHARGE NAICS CODE:
4952.	4952.	221320.	221320.

7.5 NUMBER OF SEPARATE DISCHARGE POINTS

1

7.6 NUMBER OF PEOPLE PRESENTLY CONNECTED OR POPULATION EQUIVALENT	DESIGN POPULATION EQUIVILENT
2500	4,600

NUMBER OF UNITS PRESENTLY CONNECTED

HOMES _____ APARTMENTS _____ TRAILERS _____ OTHER 1,000

TOTAL DESIGN FLOW (ALL OUTFALLS)	ACTUAL FLOW
460,000	PENDING

7.7 DOES ANY BYPASSING OCCUR ANYWHERE IN THE COLLECTION SYSTEM OR AT THE TREATMENT FACILITY?

Yes ☐ No ☒ (If Yes, attach an explanation.)

7.8 LENGTH OF THE SANITARY SEWER COLLECTION SYSTEM IN MILES

33

7.9 IS INDUSTRIAL WASTE DISCHARGED TO THE FACILITY IDENTIFIED IN ITEM 2? Yes ☐ No ☒

7.10 WILL THE DISCHARGE BE CONTINUOUS THROUGH THE YEAR? Yes ☒ No ☐

A. DISCHARGE WILL OCCUR DURING THE FOLLOWING MONTHS	B. HOW MANY DAYS OF THE WEEK WILL THE DISCHARGE OCCUR?
ALL	7

7.11 IS WASTEWATER LAND APPLIED? (If Yes, Attach Form I)	7.12 DOES THIS FACILITY DISCHARGE TO A LOSING STREAM OR SINKHOLE?
Yes ☐ No ☒	Yes ☐ No ☒

7.13 HAS A WASTE LOAD ALLOCATION STUDY BEEN COMPLETED FOR THIS FACILITY?

Yes ☐ No ☒

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. none

8. LABORATORY CONTROL INFORMATION

8.1 LABORATORY WORK CONDUCTED BY PLANT PERSONNEL

Lab work conducted outside of plant.	Yes ☒	No ☐
Push–button or visual methods for simple test such as pH, settleable solids.	Yes ☒	No ☐
Additional procedures such as Dissolved Oxygen, Chemical Oxygen Demand, Biological Oxygen Demand, titrations, solids, volatile content.	Yes ☐	No ☒
More advanced determinations such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc.	Yes ☐	No ☒
Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph.	Yes ☐	No ☒

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME	PERMIT NO.	OUTFALL NO.
ROCKY FORK WWTP	MO- PENDING	1

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.

53,000 Gallons Per Day

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

THE BCRSD HAS AN ONGOING MAINTENANCE PROGRAM.

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

MAILING ADDRESS

TELEPHONE NUMBER WITH AREA CODE

RESPONSIBILITIES OF CONTRACTOR

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 ☐ No ☐

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 1

A. LOCATION

¼ ___ ¼ SE ¼ NE Section 23 Township 49N Range 13 ☐ E ☒ W

UTM Coordinates Easting (X): 556996 Northing (Y): 4319018

For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

B. Distance from Shore (If Applicable)	C. Depth Below Surface (If Applicable)	D. Average Daily Flow Rate
N/A ft.	N/A ft.	460,000 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:	Average Duration of Each Discharge:	Average Flow Per Discharge: mgd	Months in Which Discharge Occurs:

Is Outfall Equipped with a Diffuser? ☐ Yes ☒ No

20.5 DESCRIPTION OF RECEIVING WATER

B. Name of Receiving Water

Trib to Rocky Fork C

B. Name of Watershed (If Known)	U.S. Soil Conservation Service 14-Digit Watershed Code (If Known)
	10300102110005
B. Name of State Management/River Basin (If Known) LOWER MISSOURI-MOREAU	U.S. Geological Survey 8-Digit Hydrologic Cataloging Unit Code (If Known) 10300102
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 $CaCO_3$

MO 780-1805 (09-08)

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)

Tom Ratermann

SIGNATURE

Tom Ratermann

TELEPHONE NUMBER WITH AREA CODE

(573 443-2774

DATE SIGNED

2/8/12

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.

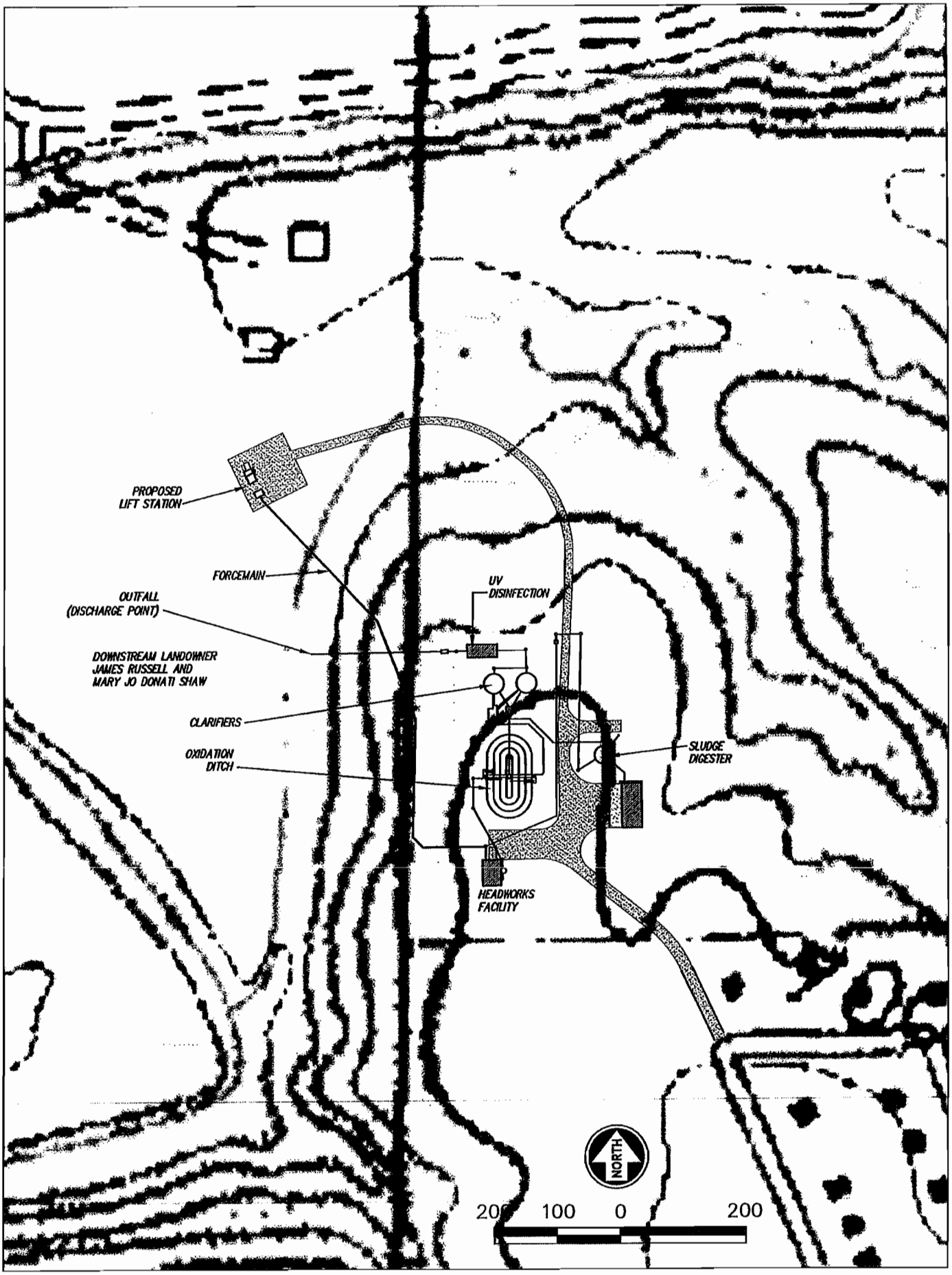
For Design Flows Less than 1 Million Gallons Per Day, Send Completed Form to:	For Design Flows of 1 Million Gallons Per Day or Greater, Send Completed Form to:
Appropriate Regional Office Map of regional offices with addresses and phone numbers is available on the Web at www.dnr.mo.gov/regions/ro-map.pdf.	Department of Natural Resources Water Protection Program ATTN: NPDES Permits and Engineering Section P.O. Box 176 Jefferson City, MO 65102

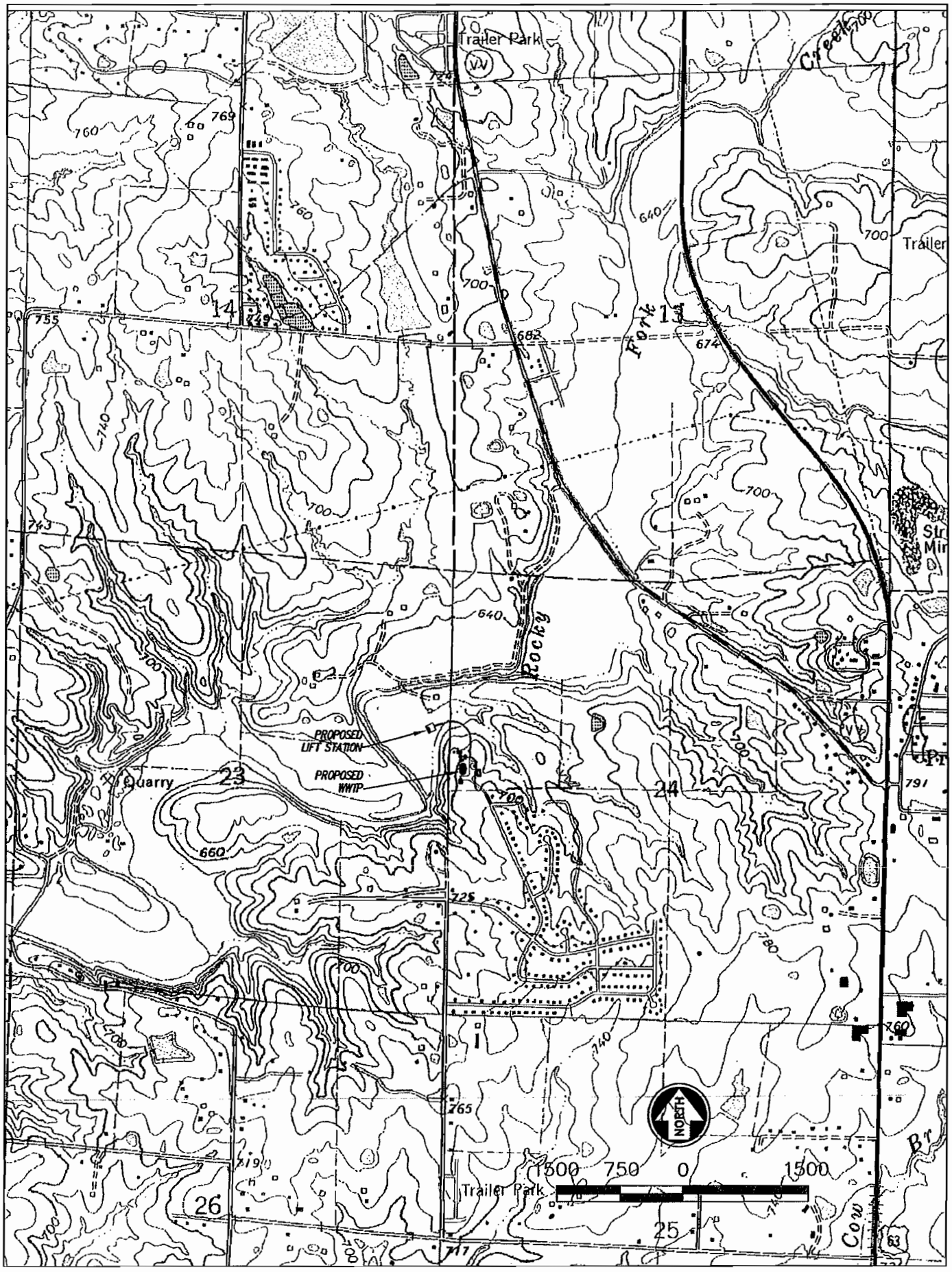
END OF PART C.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM B2 YOU MUST COMPLETE.

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.


PROPOSED
LIFT STATION
FORCEMAIN
OUTFALL
(DISCHARGE POINT)
DOWNSTREAM LANDOWNER
JAMES RUSSELL AND
MARY JO DONATI SHAW
CLARIFIERS
OXIDATION
DITCH
UV
DISINFECTION
SLUDGE
DIGESTER
HEADWORKS
FACILITY
NORTH
200
100
0
200


Trailer Park
Creek
Fork
Rocky
PROPOSED LIFT STATION
PROPOSED WWTP
Quarry
14
23
24
26
25
1
NORTH
1500 750 0 1500
Trailer Park
Trailer
Cow

BOONE COUNTY REGIONAL SEWER DISTRICT
ROCKY FORK WWTP
FLOW SCHEMATIC