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-0117935
Owner:	Boone County Regional Sewer District (BCRSD)
Address:	1314 North Seventh Street, Columbia, MO 65201
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	BCRSD, Eagle Knoll Subdivision WWTF
Facility Address:	21445 Mount Pleasant Road, Hartsburg, MO 65039
Legal Description:	SE¼, NW¼, NE¼, Sec. 10, T45N, R12W, Boone
UTM Coordinates:	X= 564261, Y= 4283608
Receiving Stream:	Unnamed tributary to Slate Creek (U) (losing)
First Classified Stream and ID:	Missouri River (P) (0701)
USGS Basin & Sub-watershed No.:	(10300102-1302)

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

FACILITY DESCRIPTION

Outfall #001 – POTW – SIC #4952
The use or operation of this facility shall be by or under the supervision of a **Certified C Operator**.
Extended aeration / sock filter / ultraviolet disinfection / sludge hauled to Columbia Regional WWTP by owner or contract hauler.
Design population equivalent is 350.
Design flow is 35,000 gallons per day.
Actual flow is 4,212 gallons per day.
Design sludge production is 6.3 dry tons/year.

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 621.250 RSMo, Section 640.013 RSMo and Section 644.051.6 of the Law.

September 1, 2013
Effective Date

Sara Parker Pauley, Director, Department of Natural Resources

December 31, 2014
Expiration Date

John Madras, Director, Water Protection Program

OUTFALL #001	TABLE A-1. INTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS	PAGE NUMBER 2 of 6 PERMIT NUMBER MO-0117935

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The interim effluent limitations shall become effective upon issuance and remain in effect through **August 31, 2019**. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Flow	MGD	*		*	once/quarter ****	24 hr. estimate
Biochemical Oxygen Demand$_5$	mg/L		15	10	once/quarter ****	composite**
Total Suspended Solids	mg/L		20	15	once/quarter ****	composite**
E. coli (Note 1, Page 3)	#/100 ml	126		126	once/quarter ****	grab
pH – Units	SU	***		***	once/quarter ****	grab
Ammonia as N (April 1 – Sept 30) (Oct 1 – March 31)	mg/L	 * *		 * *	once/quarter ****	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE JANUARY 28, 2014. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

* Monitoring requirement only.
** A composite sample made up from a minimum of four grab samples collected within a 24 hour period with a minimum of two hours between each grab sample.
*** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.5-9.0 pH units.
**** See table below for quarterly sampling.

Minimum Sampling Requirements			
Quarter	**Months**	**Effluent Parameters**	**Report is Due**
First	January, February, March	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	July 28th
Third	July, August, September	Sample at least once during any month of the quarter	October 28th
Fourth	October, November, December	Sample at least once during any month of the quarter	January 28th

OUTFALL #001	TABLE A-2. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS	PAGE NUMBER 3 of 6
		PERMIT NUMBER MO-0117935

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective on **September 1, 2019**, and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Flow	MGD	*		*	once/quarter ****	24 hr. estimate
Biochemical Oxygen Demand$_5$	mg/L		15	10	once/quarter ****	composite**
Total Suspended Solids	mg/L		20	15	once/quarter ****	composite**
E. coli (Note 1, Page 3)	#/100 ml	126		126	once/quarter ****	grab
pH – Units	SU	***		***	once/quarter ****	grab
Ammonia as N (April 1 – Sept 30) (Oct 1 – March 31)	mg/L	 3.6 7.5		 1.4 2.9	once/quarter ****	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE JANUARY 28, 2020. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

* Monitoring requirement only.
** A composite sample made up from a minimum of four grab samples collected within a 24 hour period with a minimum of two hours between each grab sample.
*** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.5-9.0 pH units.
**** See table below for quarterly sampling.

Minimum Sampling Requirements			
Quarter	**Months**	**Effluent Parameters**	**Report is Due**
First	January, February, March	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	July 28th
Third	July, August, September	Sample at least once during any month of the quarter	October 28th
Fourth	October, November, December	Sample at least once during any month of the quarter	January 28th

Note 1 –Effluent limits of 126 cfu per 100 ml daily maximum and monthly average for *E. coli* are applicable year round due to losing stream designation.

TABLE B. INFLUENT MONITORING REQUIREMENTS	PAGE NUMBER 4 of 6 PERMIT NUMBER MO-0117935

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 JANUARY 28, 2014.

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

Minimum Sampling Requirements			
Quarter	**Months**	**Influent Parameters**	**Report is Due**
First	January, February, March	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	July 28th
Third	July, August, September	Sample at least once during any month of the quarter	October 28th
Fourth	October, November, 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, May 1, 2013, and August 15, 1994, and hereby incorporated as though fully set forth herein.

D. SPECIAL CONDITIONS

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

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

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

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

4. Water Quality Standards
   (a) Discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.
   (b) General Criteria. The following general water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
      (1) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;

D. SPECIAL CONDITIONS (continued)

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

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

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

8. The permittee shall perform operational monitoring for this facility once per week. The Department has granted the permittee's request for alternative monitoring frequencies in accordance with 10 CSR 9.010(3). The permittee shall comply with any other 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.

9. 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 closed except when temporarily opened by; the permittee to access the facility, perform operational monitoring, sampling, maintenance, mowing, or for inspections by the Department. The gate shall be closed and locked when the facility is not staffed.

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.

D. SPECIAL CONDITIONS (continued)

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.

E. SCHEDULE OF COMPLIANCE

The facility shall attain compliance with final effluent limitations for Ammonia as N as soon as reasonably achievable or no later than **six (6) years** of the effective date of this permit.

1. Within six months of the effective date of this permit, the permittee shall report progress made in attaining compliance with the final effluent limits.

2. The permittee shall submit interim progress reports detailing progress made in attaining compliance with the final effluent limits every 12 months from issuance date.

3. Within **6 years** of the effective date of this permit, the permittee shall attain compliance with the final effluent limits for Ammonia as N.

Please submit progress reports to the Missouri Department of Natural Resources, Northeast Regional Office, 1709 Prospect Drive, Missouri, 63552.

MISSOURI DEPARTMENT OF NATURAL RESOURCES
FACT SHEET
FOR THE PURPOSE OF RENEWAL
OF
MO-0117935
BOONE COUNTY REGIONAL SEWER DISTRICT – EAGLE KNOLL WASTEWATER TREATMENT FACILITY

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:
Outfall #001 – POTW – SIC #4952
The use or operation of this facility shall be by or under the supervision of a Certified C Operator.
Extended aeration / sock filter / ultraviolet disinfection / sludge hauled to Columbia Regional WWTP by owner or contract hauler.
Design population equivalent is 350.
Design flow is 35,000 gallons per day.
Actual flow is 4,212 gallons per day.
Design sludge production is 6.3 dry tons/year.

Have any changes occurred at this facility or in the receiving water body that effects effluent limit derivation?
☒ - No.

Application Date: 04/10/2012
Expiration Date: 04/05/2012

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE	DISTANCE TO CLASSIFIED SEGMENT (MI)
#001	0.05	Secondary	Domestic (Sanitary) Wastewater	to losing = 0.03 to classified = 4.27

Receiving Water Body's Water Quality & Facility Performance History:
The BCRSD, Eagle Knoll WWTF discharges domestic (sanitary) wastewater into an unnamed tributary to Slate Creek (U), which flows approximately 4.27 miles into the Missouri River (P). The unnamed tributary to Slate Creek (U) has been designated a losing stream. The Missouri River (P) has been issued a Total Maximum Daily Load (TMDL) for Chlordane and Polychlorinated Biphenyls (PCBs). Since the TMDL clearly acknowledges the minimal levels of these two parameters left in the State, noting that all remaining levels are declining, and since the facility discharges at a point approximately 4.27 miles upstream of a tributary to the Missouri River, this TMDL will not be considered in this permit.

The last routine site-inspection was conducted on September 27, 2008 in order to determine if the facility was in compliance with Missouri State Operating Permit (MSOP) #MO-0117935. The facility was found to be in compliance during the time of the inspection. However, one unsatisfactory feature was noted in the report. The facility failed to provide proper warning signs on all sides of the perimeter fence, in accordance with 10 CSR 20-8.020(11)(C)11.G. This did not result in a violation of the permit or a Letter of Warning (LOW).

Comments:
Please see **Part V** of this factsheet for further explanation of the Schedule of Compliance (SOC) granted in the permit and final effluent limitations for Ammonia as N.

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.

- Department required: ☒
  The Department requires this facility to retain the services of a certified operator due to: status as POTW and PE greater than 200 requirement as listed above.

This facility currently requires an operator with a C Certification Level. Please see **Appendix - 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 Slate Creek	U	N/A	General Criteria, Losing Stream Criteria	10300102-1302	Ozark/Moreau/Loutre
Missouri River	P	0701	AQL, DWS, GEN, IND, IRR, LWW, SCR, 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 Slate Creek (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.

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

ANTIDEGRADATION:
In accordance with Missouri's Water Quality Standard [10 CSR 20-7.031(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.

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

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 and hauled to City of Columbia WWTP.

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 given pollutant has the reasonable potential to cause, or contribute to an in-stream excursion above the WQS, the permit must contain effluent limits for that pollutant.

Applicable ☒; A RPA was conducted on appropriate parameters. Please see **APPENDIX – RPA RESULTS.**

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)].

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.

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

Applicable ☒; The time given for effluent limitations of this permit listed under Interim Effluent Limitation and Final Effluent Limitations were established in accordance with [10 CSR 20-7.031(10)]. The facility has been given a schedule of compliance to meet final effluent limits for Ammonia as N. The six (6) year schedule of compliance allowed for Ammonia as N for this facility should provide adequate time to evaluate operations, obtain an engineering report and, if necessary raise funding, obtain a construction permit and implement upgrades required to meet effluent limits.

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.

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

$$Ce = \frac{(Qe + Qs)C - (Cs \times Qs)}{(Qe)}$$ (EPA/505/2-90-001, Section 4.5.5)

Where C = downstream concentration
Cs = upstream concentration
Qs = upstream flow
Ce = effluent concentration
Qe = effluent flow

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

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

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

WLA MODELING:
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.

Not Applicable ☒; At this time, the permittee is not required to conduct WET test for this facility. Although the facility has a design flow of greater than 22,500 gpd, it serves domestic wastewater only and is included in the ongoing BCRSD CIP. Ammonia has already been accounted for, which is currently the only other toxic pollutant of concern in domestic wastewater.

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	*		*	No	*/*
BOD_5	mg/L	1		15	10	No	15/10
TSS	mg/L	1		20	15	No	20/15
pH	SU	1	6.5-9.0		6.5-9.0	Yes	6.0-9.0
Ammonia as N (April 1 – Sept 30)	mg/L	2, 3, 5	3.6		1.4	Yes	*/*
Ammonia as N (Oct 1 – March 31)	mg/L	2, 3, 5	7.5		2.9	Yes	*/*
Escherichia coli	**	1, 3	126		126	Yes	Fecal Coliform 1000/400

* - Monitoring requirement only.
** - # 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).**
  ☒ – Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information.**
  ☒ – 15 mg/L Weekly Average and 10 mg/L Monthly Average effluent limitations, as per [10 CSR 20-7.015].

- **Total Suspended Solids (TSS).**
  ☒ – Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information.**
  ☒ – 20 mg/L Weekly Average and 15 mg/L Monthly Average effluent limitations, as per [10 CSR 20-7.015].

- **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 Background total ammonia nitrogen = 0.01 mg/L. 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: $C_e = ((0.05 + 0.0)1.5 – (0.0 * 0.01))/0.05$
$C_e = 1.5$ mg/L

Acute WLA: $C_e = ((0.05 + 0.0)12.1 – (0.0 * 0.01))/0.05$
$C_e = 12.1$ mg/L

LTA_c = 1.5 mg/L (0.780) = 1.17 mg/L [CV = 0.6, 99th Percentile, 30 day avg.]
LTA_a = 12.1 mg/L (0.321) = 3.89 mg/L [CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a.

MDL = 1.17 mg/L (3.11) = 3.6 mg/L [CV = 0.6, 99th Percentile]
AML = 1.17 mg/L (1.19) = 1.4 mg/L [CV = 0.6, 95th Percentile, n =30]

Winter: October 1 – March 31

Chronic WLA: $C_e = ((0.05 + 0.0)3.1 – (0.0 * 0.01))/0.05$
$C_e = 3.1$ mg/L

Acute WLA: $C_e = ((0.05 + 0.0)12.1 – (0.0 * 0.01))/0.05$
$C_e = 12.1$ mg/L

LTA_c = 3.1 mg/L (0.780) = 2.42 mg/L [CV = 0.6, 99th Percentile, 30 day avg.]
LTA_a = 12.1 mg/L (0.321) = 3.89 mg/L [CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a.

MDL = 2.42 mg/L (3.11) = 7.5 mg/L [CV = 0.6, 99th Percentile]
AML = 2.42 mg/L (1.19) = 2.9 mg/L [CV = 0.6, 95th Percentile, n =30]

- ***Escherichia coli (E. coli)***. Discharges to losing streams shall not exceed 126 per 100 ml as a Daily Maximum and Monthly Average at any time, as per 10 CSR 20-7.031(4)(C).

Minimum Sampling and Reporting Frequency Requirements.

PARAMETER	SAMPLING FREQUENCY	REPORTING FREQUENCY
Flow	once/quarter	once/quarter
BOD_5	once/quarter	once/quarter
TSS	once/quarter	once/quarter
pH	once/quarter	once/quarter
Ammonia as N	once/quarter	once/quarter
E. coli	once/quarter	once/quarter

Sampling Frequency Justification:
Sampling and Reporting Frequency was retained from the previous permit. As per 10 CSR 20-7.015 and the facility's performance history consistently having flows well below the design flow, the Sampling and Reporting Frequency for flow was reduced to once per quarter.

For flows less than or equal to 100,000 gpd use:
The Clean Water Commission has directed the Department to proceed with amending 10 CSR 20-7.015 to reduce the sampling frequency required for E. coli to a lesser frequency, still protective of water quality standards, for smaller facilities, including those with discharges of 100,000 gallons per day or less.

Sampling Type Justification
Sampling Type was retained from the previous permit. As per 10 CSR 20-7.015, samples collected for BOD and TSS shall be 24 hour modified composite samples. All other parameter Sampling Types shall be grab samples.

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 – 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.

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

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

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

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

☒ - The Public Notice period for this operating permit began on May 24, 2013 and ended on June 24, 2013. The applicant submitted the following Public Notice comments of the draft permit:

1. The permittee requested additional time in the extended schedule of compliance. In accordance with the Department's "Schedule of Compliance, Policy for Staff Drafting Operating Permits," the Affordability Analysis has been taken in to consideration for determining the length of the SOC granted in the permit. The SOC has been extended in accordance with the finding. A facility must achieve compliance as soon as practicable, per statutory requirements.
2. The permittee requested citation to regulatory basis for composite sampling. The Department provided the citations listed in the factsheet which address the requirement for composite sampling.
3. The permittee requested citation to regulatory basis for influent monitoring. The Department provided the citations listed in the factsheet which address the requirement for influent monitoring.
4. The permittee requested an extended schedule to meet final effluent limitations for ammonia. In accordance with the Department's "Schedule of Compliance, Policy for Staff Drafting Operating Permits," the Affordability Analysis has been taken in to consideration for determining the length of the SOC granted in the permit. The SOC has been extended in accordance with the finding.
5. The permittee requested the Affordability Analysis be updated with Revenue bonding capacity in place of General Obligation bonding capacity. The request was granted.
6. The permittee requested insertion of permit shield language. The request was not granted, as the statute the permittee referenced is self-implementing, and does not require the Department to insert said language.

No other comments were received during the Public Notice period.

DATE OF FACT SHEET: DECEMBER 17, 2012

COMPLETED BY:

LOGAN COLE, ENVIRONMENTAL SPECIALIST
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WATER PROTECTION PROGRAM
OPERATING PERMITS SECTION - DOMESTIC WASTEWATER UNIT
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Appendices

APPENDIX - 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	
Discharge to lake or reservoir outside of designated whole body contact recreational area	2	
Discharge to losing stream, or stream, lake or reservoir area supporting whole body contact recreation	3	3
PRELIMINARY TREATMENT - Headworks		
Screening and/or comminution	3	
Grit removal	3	
Plant pumping of main flow (lift station at the headworks)	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	
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	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 - 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 clarifiers	10	
Activated sludge with secondary clarifiers (including extended aeration and oxidation ditches)	15	15
Stabilization ponds without aeration	5	
Aerated lagoon	8	
Advanced Waste Treatment Polishing Pond	2	
Chemical/physical – without secondary	15	
Chemical/physical – following secondary	10	10
Biological or chemical/biological	12	
Carbon regeneration	4	
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)**	----	29
Total from page **ONE (1)**	---	10
Grand Total	---	39

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

APPENDIX – RPA RESULTS:

Symbol	Parameter	Units	CMC	RWC Acute	CCC	RWC Chronic	n*	Range Max	Range Min	CV**	MF	Reasonable Potential Acute	Reasonable Potential Chronic
NH3	Ammonia as Nitrogen (Winter)	mg/L	12.1	41.10	3.1	41.10	10.00	13.70	0.30	0.60	3.00	YES	YES
NH3	Ammonia as Nitrogen (Summer)	mg/L	12.1	9.30	1.5	9.30	10.00	3.10	0.03	0.60	3.00	NO	YES

N/A – Not Applicable
* - Units are (µg/L) unless otherwise noted.
** - If the number of samples is 10 or greater, then the CV value must be used in the WQBEL for the applicable constituent. If the number of samples is < 10, then the default CV value must be used in the WQBEL for the applicable constituent.
*** - Coefficient of Variation (CV) is calculated by dividing the Standard Deviation of the sample set by the Mean of the same sample set.
RWC – Receiving Water Concentration. It is the concentration of a toxicant or the parameter toxicity in the receiving water after mixing (if applicable).
n – Is the number of samples.
MF – Multiplying Factor. 99% Confidence Level and 99% Probability Basis.
RP – Reasonable Potential. It is where an effluent is projected or calculated to cause an excursion above a water quality standard based on a number of factors including, as a minimum, the four factors listed in 40 CFR 122.44(d)(1)(ii).

Reasonable Potential Analysis is conducted as per (TSD, EPA/505/2-90-001, Section 3.3.2). A more detailed version including calculations of this RPA is available upon request.

APPENDIX – 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 (BCRSD)
Missouri State Operating Permit Renewal or Operating Permit Modification

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."

PART I - INTRODUCTION

The following Affordability Determination and Finding will serve for all Boone County Regional Sewer District (BCRSD) facilities, not otherwise explicitly excluded from this analysis. The information that has been compiled in this analysis encompasses statistical and financial data for Boone County and the BCRSD. The following list of BCRSD facilities will be included in this analysis:

BCRSD Facility	Missouri State Operating Permit (MSOP) Number	BCRSD Facility	MSOP Number
BON GOR LAKE ESTATES	MO-0047619	PRAIRIE MEADOWS WWTP	MO-0083542
CEDAR GATE SUBD	MO-0096415	QUARTER MILE HILLS	MO-0126446
CLEARVIEW ACRES SUB	MO-0085944	RICHARDSON ACRES	MO-0115185
COUNTY DOWNES	MO-0096938	ROCHEPORT WWTF	MO-0095222
EAGLE KNOLL SUBD	MO-0117935	ROLLINGWOOD PLAT #1	MO-0038792
EL REY HEIGHTS	MO-0091766	SHARIDAN HILLS SUBD	MO-0085952
FALL CREEK SUBD	MO-0123072	SOUTH ROUTE K WWTF	MO-0087173
HIGHFIELD ACRES	MO-0053376	SPRINGPARK SUBD	MO-0100463
HILLVIEW ACRES SUBD	MO-0088668	SUN VALLEY ESTATES	MO-0049913
LAKE CAPRI SUBDIVIS	MO-0114782	SUNNYSLOPE WWTF	MO-0095354
LEE HEIGHTS	MO-0102113	SUNRISE ESTATES NE	MO-0090816
MEADOW VILLAGE	MO-0098442	SUNRISE ESTATES NW	MO-0090824
MIDWAY ARMS INC.	MO-0108421	TRAILS WEST SUBD	MO-0092002
MIDWAY CROSSINGS	MO-0132705	TWIN LAKES SUBD	MO-0101885
OBERLIN VALLEY	MO-0117323	WAGON TRAIL HTS WWTF	MO-0094293
PHENORA SOUTH SUBD	MO-0100811	WESTWOOD MEADOWS	MO-0053171
POWELL COMM. LAGOON	MO-0087688		

During the permit renewal process, many of the facilities listed above will have new permit requirements in accordance with 10 CSR 20-7 and the Clean Water Act. The Missouri Department of Natural Resources Water Protection Program (Department) intends to use this compiled data to determine the level of financial burden that may be placed onto all of the BCRSD customers. The Department understands that the base user rates are the same for all customers and are not variable based on individual treatment facility. For this reason, the Department will devote the following finding to all of the facilities listed above.

Please note that each section of this analysis will address the entire range of possible costs for upgrades for all facilities included in this finding. Due to the high number of facilities, not every cost estimate particular to each design flow will be provided. Therefore, the analysis will be based on a certain range of cost estimates that will incorporate every estimate from the lowest to the highest values.

PART II – NEW PERMIT REQUIREMENTS AND COST ESTIMATES

DESCRIPTION:

The BCRSD has been approved as a Level II Continuing Authority (CA) by the Clean Water Commission (CWC) for operation and maintenance of WWTF's in Boone County, Missouri. The BCRSD currently provides collection and treatment of wastewater for approximately 99 subdivisions in Boone County[1]. They also maintain approximately 76 miles of sewer main and 30 miles of force main, with approximately 1,620 manholes and 20 lift stations. All of the wastewater being collection in these systems is treated by either one of the facilities listed above (both the included and excluded facilities) or by one of the City of Columbia's WWTF's. For the purposes of this analysis, focus will remain on the BCRSD facilities.

Residential Connections:	~ 6,500
Commercial Connections:	0
Total Connections:	~ 6,500

NEW PERMIT REQUIREMENTS OR REQUIREMENTS NOW BEING ENFORCED:

This is an operating permit renewal or operating permit modification with new permit requirements for Ammonia as N, *Escherichia coli* (*E. coli*), Whole Effluent Toxicity (WET) testing or any other condition in accordance with 10 CSR 20-7 and the Clean Water Act.

RANGE OF ANTICIPATED COSTS ASSOCIATED WITH COMPLYING WITH REQUIREMENTS:

The Department has completed a study in order to estimate costs for different treatment types based on known costs from several facilities around the State of Missouri. The following cost ranges have been projected from this study to provide potential expenditures to the Boone County Regional Sewer District (BCRSD) in order to meet final effluent limitations for either Ammonia as N or *E. coli*. Note that these tables contain cost estimates only for Ammonia as N and *E. coli* and are estimates for upgrades at only one facility. Other parameters or conditions that are new to the permit may require additional costs that are not factored into these estimates. The Department does not have the knowledge or resources to provide further costs estimates on potential necessary upgrades to treatment systems.

Treatment Type: ***BOD/TSS/AMMONIA***

Flow (mgd)*	**Capital Cost**		**Annual O&M**		**Total Present Worth**		**Cost per User (5,000 gpd/month)**	
	Low	High	Low	High	Low	High	Low	High
0.01**		$623,000		$84,270		$1,673,190		$277
0.011 - 0.05	$350,700	$1,100,000	$53,507	$104,390	$1,130,015	$2,370,930	$53	$256
0.056 – 0.1	$551,280	$1,550,000	$72,184	$136,074	$1,699,252	$3,195,783	$31	$78
0.11 - 0.55	$726,000	$4,278,000	$85,165	$219,450	$1,946,881	$7,012,832	$13	$54

*11 facilities have design flows of 0.01MGD or smaller. 15 facilities have design flows between 0.011 MGD and 0.05 MGD. 4 facilities have a design flow between 0.051 MGD and 0.1 MGD. 3 facilities have design flows between 0.11 MGD and 0.55 MGD.

**The Department's study did not estimate costs for design flows below 0.01 MGD. 11 facilities have design flows of 0.01MGD or smaller, therefore costs may be lower for some facilities than the values shown.

[1] BCRSD Facilities - http://www.bcrsd.com/site/index.php?option=com_content&view=article&id=37&Itemid=39

Treatment Type: ***DISINFECTION***

Flow (mgd)*	Mechanism	Capital Cost		Annual O&M		Total Present Worth		Cost per User (5,000 gpd/month)	
		Low	High	Low	High	Low	High	Low	High
0.01**	UV	———	$132,000	———	$4,089	———	$182,958	———	$40
	Chlorine	———	$592,000	———	$54,027	———	$1,265,296	———	$227
0.011 - 0.05	UV	$132,000	$132,000	$4,089	$4,089	$182,958	$182,958	$8	$38
	Chlorine	$600,200	$858,000	$54,286	$61,439	$1,276,727	$1,623,666	$61	$217
0.056 – 0.1	UV	$132,000	$132,000	$4,089	$4,089	$182,958	$182,958	$4	$7
	Chlorine	$858,840	$1,090,000	$62,052	$66,550	$1,659,149	$1,919,360	$37	$58
0.11 - 0.55	UV	$104,733	$578,400	$4,365	$18,179	$195,126	$804,951	$3	$4
	Chlorine	$1,126,000	$2,453,000	$67,237	$91,472	$1,963,923	$3,592,938	$14	$36

*11 facilities have design flows of 0.01MGD or smaller. 15 facilities have design flows between 0.011 MGD and 0.05 MGD. 4 facility has a design flow between 0.051 MGD and 0.1 MGD. 3 facilities have design flows between 0.11 MGD and 0.55 MGD.

**The study did not estimate costs for design flows below 0.01 MGD. 8 facilities have design flows of 0.01MGD or smaller, therefore costs may be lower for some facilities than the values shown.

The following cost estimates have been gathered from stakeholders during rulemaking meetings held by the Department during the 2012 calendar year. These are projected costs for conducting a single WET test for both acute and chronic toxicities.

Treatment Type: ***WHOLE EFFLUENT TOXICITY (WET) TESTING***

Toxicity Testing Type	Cost per Test
Acute	$400
Chronic	$1,200

The BCRSD will be submitting an updated Capital Improvements Plan (CIP) with more accurate financial data and timeframes for specific projects to the Department within 2013. This not only provides the Department with a better understanding of the intended timelines for these projects but also educates the Department on the actual costs of implementing the CIP. These values will be more accurate than the estimates listed above for each treatment type. The following is an excerpt highlighting the tables detailing the more accurate information.

Table 7-1 2013 Capital Improvements Plan

Activity	Total Cost	Existing Bonding Capacity		Proposed Bonding Capacity	
		SRF Eligible	SRF Ineligible	SRF Eligible	SRF Ineligible
Lee Heights-Design	$ 24,000			$ 24,000	
Oberlin Valley-Design	$ 44,000			$ 44,000	
South Route K-Design	$ 347,000			$ 347,000	
Twin Lakes Subdivision Phase 1-Design	$ 108,000	$ 108,000			
Twin Lakes Subdivision Phase 1-Land Acquisition	$ 77,000		$ 77,000		
Clearview Acres Subdivision-Construction	$ 1,146,000	$ 1,146,000			
HH Corridor-Construction	$ 2,507,000	$ 2,507,000			
Rocky Fork-Construction	$ 11,432,000	$ 11,432,000			
Springpark Subdivision-Construction	$ 417,000	$ 417,000			
Sunrise Estates NE and NW-Construction	$ 653,000	$ 653,000			
Miscellaneous Projects-Design	$ 50,000			$ 50,000	
Miscellaneous Projects-Easement Acquisition	$ 50,000				$ 50,000
Miscellaneous Projects-Construction	$ 400,000			$ 400,000	
Total, in 2012 dollars	**$ 17,255,000**	**$ 16,263,000**	**$ 77,000**	**$ 865,000**	**$ 50,000**
Total, in 2013 dollars	**$ 17,772,650**	**$ 16,750,890**	**$ 79,310**	**$ 890,656**	**$ 51,500**

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Table 7-2 2014 Capital Improvements Plan

Activity	Total Cost	Existing Bonding Capacity		Proposed Bonding Capacity	
		SRF Eligible	SRF Ineligible	SRF Eligible	SRF Ineligible
Brown Station-Design	$ 43,000			$ 43,000	
Cedar Gate Subdivision-Design	$ 30,000			$ 30,000	
Highfield Acres-Design	$ 19,000			$ 19,000	
Quarter Mile Hills Subdivision-Design	$ 27,000			$ 27,000	
Richardson Acres-Design	$ 50,000			$ 50,000	
Sunnyslope-Design	$ 12,000			$ 12,000	
Lee Heights-Easement Acquisition	$ 19,000				$ 19,000
Oberlin Valley-Easement Acquisition	$ 35,000				$ 35,000
South Route K-Construction	$ 3,318,000			$ 3,318,000	
Trails West Subdivision-Construction	$ 1,016,000			$ 1,016,000	
Twin Lakes Subdivision Phase 1-Construction	$ 984,000	$ 984,000			
Westwood Meadows-Construction	$ 386,000	$ 386,000			
Miscellaneous Projects-Design	$ 50,000			$ 50,000	
Miscellaneous Projects-Easement Acquisition	$ 50,000				$ 50,000
Miscellaneous Projects-Construction	$ 400,000			$ 400,000	
Total, in 2012 dollars	**$ 6,439,000**	**$ 1,370,000**	**$**	**$ 4,965,000**	**$ 104,000**
Total, in 2014 dollars	**$ 6,831,135**	**$ 1,453,433**	**$**	**$ 5,267,369**	**$ 110,334**

Table 7-3 2015 Capital Improvements Plan

Activity	Total Cost	Existing Bonding Capacity		Proposed Bonding Capacity	
		SRF Eligible	SRF Ineligible	SRF Eligible	SRF Ineligible
Midway Arms-Design	$ 60,000			$ 60,000	
Rollingwood Plat #1-Design	$ 26,000			$ 26,000	
Brown Station-Easement Acquisition	$ 42,000				$ 42,000
Cedar Gate Subdivision-Easement Acquisition	$ 29,000				$ 29,000
Highfield Acres-Easement Acquisition	$ 13,000				$ 13,000
Quarter Mile Hills Subdivision-Easement Acquisition	$ 33,000				$ 33,000
Richardson Acres-Easement Acquisition	$ 43,000				$ 43,000
Sunnyslope-Easement Acquisition	$ 8,000				$ 8,000
El Rey Heights-Construction	$ 203,000	$ 203,000			
Lee Heights-Construction	$ 256,000			$ 256,000	
Oberlin Valley-Construction	$ 467,000			$ 467,000	
Miscellaneous Projects-Design	$ 50,000			$ 50,000	
Miscellaneous Projects-Easement Acquisition	$ 50,000				$ 50,000
Miscellaneous Projects-Construction	$ 400,000	-	-	$ 400,000	-
Total, in 2012 dollars	**$ 1,594,000**	**$ 203,000**	**$ -**	**$ 1,173,000**	**$ 218,000**
Total, in 2015 dollars	**$ 1,741,807**	**$ 221,824**	**$ -**	**$ 1,281,769**	**$ 238,214**

Table 7-4 2016 Capital Improvements Plan

Activity	Total Cost	Existing Bonding Capacity		Proposed Bonding Capacity	
		SRF Eligible	SRF Ineligible	SRF Eligible	SRF Ineligible
Midway Arms-Easement Acquisition	$ 52,000				$ 52,000
Rollingwood Plat #1-Easement Acquisition	$ 16,000				$ 16,000
Brown Station-Construction	$ 463,000			$ 463,000	
Cedar Gate Subdivision-Construction	$ 318,000			$ 318,000	
Highfield Acres-Construction	$ 206,000			$ 206,000	
Quarter Mile Hills Subdivision-Construction	$ 285,000			$ 285,000	
Richardson Acres-Construction	$ 538,000			$ 538,000	
Sunnyslope-Construction	$ 125,000			$ 125,000	
Miscellaneous Projects-Design	$ 50,000			$ 50,000	
Miscellaneous Projects-Easement Acquisition	$ 50,000				$ 50,000
Miscellaneous Projects-Construction	$ 400,000	-	-	$ 400,000	-
Total, in 2012 dollars	**$ 2,503,000**	**$ -**	**$ -**	**$ 2,385,000**	**$ 118,000**
Total, in 2016 dollars	**$ 2,817,149**	**$ -**	**$ -**	**$ 2,684,339**	**$ 132,810**

Table 7-5 2017 Capital Improvements Plan

Activity	Total Cost	Existing Bonding Capacity		Proposed Bonding Capacity	
		SRF Eligible	SRF Ineligible	SRF Eligible	SRF Ineligible
Midway Arms-Construction	$ 646,000			$ 646,000	
Rollingwood Plat #1-Construction	$ 274,000			$ 274,000	
Miscellaneous Projects-Design	$ 50,000			$ 50,000	
Miscellaneous Projects-Easement Acquisition	$ 50,000				$ 50,000
Miscellaneous Projects-Construction	$ 400,000	-	-	$ 400,000	-
Total, in 2012 dollars	**$ 1,420,000**	**$ -**	**$ -**	**$ 1,370,000**	**$ 50,000**
Total, in 2017 dollars	**$ 1,646,169**	**$ -**	**$ -**	**$ 1,588,205**	**$ 57,964**

Table 7-6 Capital Improvements after 2017

Activity	Total Cost
Other Projects After 2017	
Brookfield Estates	$ 670,000
Eagle Knoll Subdivision	$ 343,000
Kinkade Crossing	$ 509,000
Meadow Village	$ 620,000
Midway Crossing	$ 5,843,000
Prairie Meadows	$ 3,057,000
Twin Lakes Subdivision-Phase 2	$ 198,000
Total, in 2012 dollars	**$ 11,240,000**

The following table summarizes funding for the CIP over the next several years.

Table 7-7 Summary of Capital Improvements Funding

Description	Existing Funding		Proposed Funding		Total		Inflation Factor
	2012 Dollars	Future Dollars	2012 Dollars	Future Dollars	2012 Dollars	Future Dollars	3% Annual
2013 Funding	$ 16,340,000	$ 16,830,000	$ 915,000	$ 942,000	$ 17,255,000	$ 17,773,000	103%
2014 Funding	$ 1,370,000	$ 1,453,000	$ 5,069,000	$ 5,378,000	$ 6,439,000	$ 6,831,000	106%
2015 Funding	$ 203,000	$ 222,000	$ 1,391,000	$ 1,520,000	$ 1,594,000	$ 1,742,000	109%
2016 Funding	$ -	$ -	$ 2,503,000	$ 2,817,000	$ 2,503,000	$ 2,817,000	113%
2017 Funding	$ -	$ -	$ 1,420,000	$ 1,646,000	$ 1,420,000	$ 1,646,000	116%
Total Projects Through 2017	**$ 17,913,000**	**$ 18,505,000**	**$ 11,298,000**	**$ 12,303,000**	**$ 29,211,000**	**$ 30,809,000**	
Total-Other Projects After 2017	$ -	$ -	$ 11,240,000	$ 15,106,000	$ 11,240,000	$ 15,106,000	134%
Combined Total-All Projects	**$ 17,913,000**	**$ 18,505,000**	**$ 22,538,000**	**$ 27,409,761**	**$ 40,451,000**	**$ 45,915,000**	

PUBLIC FINANCIAL INFORMATION:

The following information was collected from the BCRSD's website[2].

This table specifies the rate structure and the current user rates for all facilities owned and operated by the BCRSD.

Current User Rates:

Boone County Regional Sewer District Rates				
Rate Schedule	**Description**	**Base Rate per Month**	**Cost per 1000 Gallons**	**Surcharge per Month**
A	Gravity System	$18.45	$5.45	None
B	Septic Tank Effluent Pump (STEP), < 50 feet from road or driveway	$18.45	$5.45	$15.95
C	STEP, No Additional Maintenance	$18.45	$5.45	None
D	Small Diameter Variable Grade (SDVG)	$18.45	$5.45	$8.70
E	STEP, > 50 feet from road or driveway	$18.45	$5.45	$18.15
F	Pressurized System with Grinder Pumps	$18.45	$5.45	$19.95
G	Pressurized System with Grinder Pumps, No Additional Maintenance	$18.45	$5.45	None

PART III – FINANCIAL ANALYSIS

(1) A COMMUNITY'S FINANCIAL CAPABILITY AND ABILITY TO RAISE OR SECURE NECESSARY FUNDING:

According to the Department's Wastewater Financial Assistance Fiscal Year 2013 Intended Use Plan Amendment B[3], which was adopted September 5, 2012, the BCRSD is eligible for $16,333,326 on the Fundable Projects list. The BCRSD is also eligible for $3,952,533 on the Fundable Contingency Projects list. This totals $20,285,859 that will potentially fund projects for the BCRSD, including construction of the Rocky Fork Creek Wastewater Reclamation Facility (WRF). This WRF has been addressed in the AOC and the associated affordability finding.

The BCRSD also acquired funding from the American Recovery and Reinvestment Act (ARRA) of 2009 via Transform Missouri[4]. The amount of $1,006,192 was awarded as an ARRA Grant to fund improvement projects planned by BCRSD.

Current User Rates:	See *Current User Rates* table above
Rate Capacity or Pay as You Go Option:	Rate Schedule
Municipal Bond Rating (if applicable):	N/A (the District does not have a rating)
Bonding Capacity: *(Revenue Bonding Authority)*	$7,243,730[5]
Current outstanding debt:	$6,942,595[6]
Projected outstanding debt:	$23,594,719[7]
Other indicators:	No other indicators have been identified, except those discussed in section (6).

[2] BCRSD - http://www.bcrsd.com/site/
[3] Clean Water State Revolving Fund Intended Use Plan and Priority List - http://dnr.mo.gov/env/wpp/srf/IUP-amendment-090512-fund-transfer.pdf
[4] Transform Missouri, American Recovery and Reinvestment Act of 2009 - http://dnr.mo.gov/transform/documents/amended_arra_cwiup_12-02-09.pdf
[5] BCRSD provided the Revenue Bonding Authority amount. BCRSD does not have a GO Bonding Capacity.
[6] BCRSD FY 2012 Audit plus activity in the first quarter of 2013 - http://www.bcrsd.com/site/images/pdfs/rates/audit2012.pdf
[7] BCRSD FY 2012 Audit plus FY 2013 Capital Improvements Budget - http://www.bcrsd.com/site/index.php?option=com_content&view=article&id=17&Itemid=17

(2) AFFORDABILITY OF POLLUTION CONTROL OPTIONS FOR THE INDIVIDUALS OR HOUSEHOLDS OF THE COMMUNITY:

The BCRSD updated a 2007 User Rate Study in 2010, which projects rate increases for each rate schedule based on capital expenditures for the Capital Improvements Plan (CIP) adopted in 2007. These projections assume a two percent (2%) growth rate in customers, a state mandated 1.10 debt service coverage ratio, adjustable debt from year to year, expenses inflation rate increase of 3.38% based on historical data from 1914-2009, among other variables that can be reviewed on the BCRSD website. Please note that these are projected rate changes from 2010 and rates for 2012 have already been altered to the values listed in the *Current User Rates* table above. The Department presumes that the values for future years will also be altered from these 2010 projections. However, for the purpose of this analysis the Department will include this data in order to provide a more comprehensive evaluation of financial capabilities.

Projected Rate Increases per Rate Schedule:

Rate Schedule A				
Year	**Base Rate per Month**	**Percent Increase**	**Cost per 1000 Gallons**	**Percent Increase**
2012	$18.45		$5.45	
2013	$20.95	13.6 %	$5.85	7.3 %
2014	$22.95	9.5 %	$6.27	7.2 %
2015	$23.95	4.4 %	$6.72	7.2 %
2016	$24.95	4.2 %	$7.12	6.0 %

Rate Schedule B				
Year	**Base Rate per Month**	**Percent Increase**	**Cost per 1000 Gallons**	**Percent Increase**
2012	$28.95		$5.45	
2013	$31.45	8.6 %	$5.85	7.3 %
2014	$33.45	6.4 %	$6.25	6.8 %
2015	$34.45	3.0 %	$6.65	6.4 %
2016	$35.45	2.9 %	$7.05	6.0 %

Rate Schedule C				
Year	**Base Rate per Month**	**Percent Increase**	**Cost per 1000 Gallons**	**Percent Increase**
2012	$18.45		$5.45	
2013	$20.95	13.6 %	$5.85	7.3 %
2014	$22.95	9.5 %	$6.25	6.8 %
2015	$23.95	4.4 %	$6.65	6.4 %
2016	$24.95	4.2 %	$7.05	6.0 %

Rate Schedule D				
Year	**Base Rate per Month**	**Percent Increase**	**Cost per 1000 Gallons**	**Percent Increase**
2012	$27.15		$5.45	
2013	$29.65	9.2 %	$5.85	7.3 %
2014	$31.65	6.7 %	$6.25	6.8 %
2015	$32.65	3.2 %	$6.65	6.4 %
2016	$33.65	3.1 %	$7.05	6.0 %

Rate Schedule E				
Year	**Base Rate per Month**	**Percent Increase**	**Cost per 1000 Gallons**	**Percent Increase**
2012	$30.05		$5.45	
2013	$32.55	8.3 %	$5.85	7.3 %
2014	$34.55	6.1 %	$6.25	6.8 %
2015	$35.55	2.9 %	$6.65	6.4 %
2016	$36.55	2.8 %	$7.05	6.0 %

Rate Schedule F				
Year	**Base Rate per Month**	**Percent Increase**	**Cost per 1000 Gallons**	**Percent Increase**
2012	$29.80		$5.45	
2013	$32.30	8.4 %	$5.85	7.3 %
2014	$34.30	6.2 %	$6.25	6.8 %
2015	$35.30	2.9 %	$6.65	6.4 %
2016	$36.30	2.8 %	$7.05	6.0 %

Rate Schedule G				
Year	**Base Rate per Month**	**Percent Increase**	**Cost per 1000 Gallons**	**Percent Increase**
2012	$18.45		$5.45	
2013	$20.95	13.6 %	$5.85	7.3 %
2014	$22.95	9.5 %	$6.25	6.8 %
2015	$23.95	4.4 %	$6.65	6.4 %
2016	$24.95	4.2 %	$7.05	6.0 %

In addition to the rate increases found on the BCRSD's website, the BCRSD did provide the Department with a draft version of the rate increase projections in the 2013 User Rate Study. This takes into account current projected costs for operations and maintenance and anticipated upgrades or centralizations of systems. Again, please note that these are projections provided by the BCRSD and are subject to change. These projections assumed the projects would be funded by the SRF Program. However, since SRF funds are not assured, the next draft of the URS will include non-SRF (market) financing costs to and pay-go to finance some projects which will result in higher user rates.

Table of Rate Estimates Established by BCRSD

	Rate A and C and G				Rate B			Rate D			Rate E			Rate F		
Year	Monthly	Annually	MHI[8]	% of MHI	Monthly	Annually	% of MHI	Monthly	Annually	% of MHI	Monthly	Annually	% of MHI	Monthly	Annually	% of MHI
2013	45.70	548.40	44,089.00	1.24%	61.65	739.80	1.68%	54.40	652.80	1.48%	63.85	766.20	1.74%	65.65	811.80	1.92%
2014	51.95	623.40	44,089.00	1.41%	67.90	814.80	1.85%	60.65	727.80	1.65%	70.10	841.20	1.91%	71.90	861.00	2.04%
2015	58.45	701.40	44,089.00	1.59%	74.40	892.80	2.02%	67.15	805.80	1.83%	76.60	919.20	2.08%	78.40	900.00	2.13%
2016	63.95	767.40	44,089.00	1.74%	79.90	958.80	2.17%	72.65	871.80	1.98%	82.10	985.20	2.23%	83.90	936.00	2.22%
2017	67.95	815.40	44,089.00	1.85%	83.90	1,006.80	2.28%	76.65	919.80	2.09%	86.10	1,033.20	2.34%	87.90	936.00	2.22%

For the purpose of this study, the values analyzed in the paragraph below are from the construction cost estimates evaluated by the Department. The rate increase appraisal submitted by the BCRSD spreads the projected capital costs over a five year period. The study in the paragraph below provides a one-time annual rate increase based on capital costs.

The following values are based on the data collection from the BCRSD website (*Current User Rates* table in Part II) and the assumption that the average customer discharges 5,000 gallons of wastewater per month. The Department has also made the assumption that the Base Rate and the Cost per 1000 gallons will be the only rates affected by potential pollution control options. The surcharge established for Rate Schedule B, D, E and F are not factored into this section of the analysis. The following formula was used to determine current user rates:

(Cost per 1000 gallons x 5) + Base Rate per month = current user rate per month

Current annual operating costs (exclude depreciation):	$2,914,495[9]
Current user rate:	$45.70-$65.65
Estimated capital cost of pollution control options*:	$482,700 - $6,731,000
Annual cost of additional *(operating costs and debt service)**:	$57,596 - $310,922
Estimated resulting annual user rate:	$192.00 - $6,048.00
Median Household Income[10]:	$44,089
Usage Rates as a percent of Median Household Income[11]: *(Rate/MHI)*	0.04% - 13.7%

*Range of values are based on the construction costs estimate study completed by the Department in Part II. The specific CIP plan developed by BCRSD may have variances from these values and may contain more precise cost estimates for improvements.

Please note that the range for Estimated Resulting Annual User Rate found in the above assessment may be considered extreme. The construction cost estimates calculated by the department are based on specific design flows, which simulate specific population equivalencies. Because it is understood that the user rates are dispersed evenly to all BCRSD customers, these population equivalencies will increase, causing the values to decrease. This inverse relationship could not be reasonably calculated by the Department, thus the range has been displayed but only considered an approximation. The Department has concluded that the prospective user rate increase will be on the lower end of the range shown above; however, for the purposes of this study, the larger values will be used to determine the severest burden possible.

Check Appropriate Box	Financial Impact	Residential Indicatory (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

[8] The MHI is for all of Boone County not specific to BCRSD customers. BCRSD believes the MHI for its customers is lower than the county-wide average. The BCRSD intends to determine the MHI specific to its customer base.
[9] BCRSD FY 2013 Budget - http://www.bcrsd.com/site/images/pdfs/rates/fy_budget_2013.pdf
[10] Median Household Income in the Past 12 Months, 2006-2010 American Community Survey 5-Year Estimates, U.S. Census Bureau - http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_10_5YR_S1903&prodType=table
[11] The usage rate is a percentage of MHI for all Boone County not specific to BCRSD customers.

Based on the information above and the assumption customary to the BCRSD, the Department finds that any necessary construction upgrades to install more protective technology and pollution control options will create a high financial impact on the community and individual customers/households being serviced by the BCRSD.

(3) AN EVALUATION OF THE OVERALL COSTS AND ENVIRONMENTAL BENEFITS OF THE CONTROL TECHNOLOGIES:

Water Quality Based Effluent Limits (WQBELs) have been developed in order to protect natural habitats and human health in accordance with 10 CSR 20-7 and the Clean Water Act (CWA). The Department has developed a rating scale for streams throughout the State which considers the conditions of streams and their designated uses. These designations dictate the types of WQBELs assigned to a MSOP for wastewater facilities. Currently, the Department evaluates potential impairment of all streams by the toxic pollutant ammonia. The Department also evaluates impairments by bacterial pollutants using the indicator organism *E. coli*. Only streams with, or that are within 2 miles of a stream with, a Whole Body Contact (WBC) use designation or a Secondary Contact Recreation (SCR) use designation will be evaluated for *E. coli* final effluent limitations. These designations are given to streams that support human recreational activities, such as fishing and swimming. The following is a discussion of the environmental benefits to creating final effluent limitations for Ammonia as N and *E. coli*. Other conditions that may be added to specific permits may be discussed on a case by case basis as to their specific environmental benefits.

Ammonia:
Ammonia is toxic to aquatic life and can impair habitat for ammonia sensitive species. Introduction of this pollutant into streams can affect the surrounding habitat and the internal processes of the species themselves, which can both be detrimental to aquatic life. Levels of ammonia above WQBELs can affect the pH, temperature, and Dissolved Oxygen balances in the surrounding habitat. These changes may affect the ability of certain species sensitive to these parameters to thrive within that changed environment. Removal of ammonia can reduce this damage to the native species by enabling the stream habitat to support a more healthy and diverse population of aquatic life.

The following facilities currently have the secondary treatment technology necessary to meet Water Quality Standards for Ammonia as N. Some of these facilities have been given final effluent limitations in the new permit. However, activated sludge treatment has proven to be adequate in removal of Ammonia as N. Therefore, the Department has granted short schedules for the facilities that are required to have final effluent limitations. These limitations will ensure protection of water quality and encourage the permittee to make proper operational adjustments for more consistent performance with higher removal efficiencies.

BCRSD Facility	MSOP Number	BCRSD Facility	MSOP Number
BON GOR LAKE ESTATES	MO-0047619	OBERLIN VALLEY	MO-0117323
CLEARVIEW ACRES SUBD	MO-0085944	PRAIRIE MEADOWS WWTP	MO-0083542
EAGLE KNOLL SUBD	MO-0117935	ROCHEPORT WWTF	MO-0095222
EL REY HEIGHTS	MO-0091766	ROLLINGWOOD PLAT #1	MO-0038792
MEADOW VILLAGE	MO-0098442	SHARIDAN HILLS SUBD	MO-0085952
MIDWAY CROSSINGS	MO-0132705	SOUTH ROUTE K WWTF	MO-0087173

The following facilities do not currently have the necessary treatment technology to consistently meet final effluent limitations for Ammonia as N. In order to show the environmental benefit of implementing final effluent limitations in these permits, the following calculations have been completed to show Ammonia as N removal in units of pounds per day:

Pounds of Ammonia as N per day = (flow, MGD) x (concentration of ammonia limitation, mg/L) x (conversion factor, 8.34)

BCRSD Facility	MSOP Number	BCRSD Facility	MSOP Number
CEDAR GATE SUBD	MO-0096415	RAYFIELD SUBD	MO-0099261
COUNTY DOWNES	MO-0096938	RICHARDSON ACRES	MO-0115185
FALL CREEK SUBD	MO-0123072	SPRINGPARK SUBD	MO-0100463
HIGHFIELD ACRES	MO-0053376	SUNNYSLOPE WWTF	MO-0095354
HILLVIEW ACRES SUBD	MO-0088668	SUN VALLEY ESTATES	MO-0049913
LAKE CAPRI SUBD	MO-0114782	SUNRISE ESTATES NE	MO-0090816
LEE HEIGHTS	MO-0102113	SUNRISE ESTATES NW	MO-0090824
MIDWAY ARMS INC.	MO-0108421	TRAILS WEST SUBD	MO-0092002
PHENORA SOUTH SUBD	MO-0100811	TWIN LAKES SUBD	MO-0101885
POWELL COMM. LAGOON	MO-0087688	WAGON TRAIL HTS WWTF	MO-0094293
QUARTER MILE HILLS	MO-0126446	WESTWOOD MEADOWS	MO-0053171

Cedar Gate Subdivision WWTF

Current Performance

Design Flow = 0.011 MGD:

Summer Season:

Monthly Average	=	0.011 x 12.3 x 8.34	=	1.13 lbs/day

Winter Season:

Monthly Average	=	0.011 x 17.1 x 8.34	=	1.57 lbs/day

Necessary Performance

Design Flow = 0.011 MGD:

Summer Season:

Monthly Average	=	0.011 x 1.4 x 8.34	=	0.13 lbs/day

Winter Season:

Monthly Average	=	0.011 x 2.9 x 8.34	=	0.27 lbs/day

Environmental Benefit to Ammonia Removal

Design Flow = 0.011 MGD:

		Summer	Winter
Current average performance (lbs/day)	=	1.13	1.57
-Necessary average performance limitations (lbs/day)	=	- 0.13	- 0.27
Environmental Benefit (lbs/day)	=	1.00	1.30

The resulting values show that the ammonia pollution will be reduced by 1.00 lb/day in the summer and 1.30 lbs/day in the winter. This is an 88% ammonia reduction in summer and an 83% ammonia reduction in winter.

County Downes WWTF will have an environmental benefit of 2.74 lbs/day, 83%, in the summer and 8.21 lbs/day, 86%, in the winter.

Fall Creek Subdivision WWTF will have an environmental benefit of 0.07 lbs/day, 64%, in the summer and 0.15 lbs/day, 63%, in the winter.

Highfield Acres WWTF will have an environmental benefit of 2.42 lbs/day, 91%, in the summer and 2.81 lbs/day, 85%, in the winter for outfall #001. It will have an environmental benefit of 1.32 lbs/day, 85%, in the summer and 0.82 lbs/day, 63%, in the winter.

Hillview Acres Subdivision WWTF will have an environmental benefit of 1.65 lbs/day, 85%, in the summer and 1.62 lbs/day, 75%, in the winter.

Lake Capri Subdivision WWTF will have an environmental benefit of 0.13 lbs/day, 34%, in the summer and 0.5 lbs/day, 49%, in the winter.

Lee Heights WWTF's actual performance is unknown because the previous permit did not require monitoring for ammonia. However, the Department feels that based on the performances listed in this section, that this facility will have some environmental benefit with ammonia removal in both the summer and winter seasons.

Midway Arms Inc. WWTF will have an environmental benefit of 0.8 lbs/day, 93%, in the summer and 0.61 lbs/day, 85%, in the winter.

Phenora South Subdivision WWTF will have an environmental benefit of 0.29 lbs/day, 78% in the summer and 0.59 lbs/day, 77%, in the winter.

Powell Community WWTF will have an environmental benefit of 0.03 lbs/day, 16%, in the summer and 0.1 lbs/day, 24%, in the winter.

Quarter Mile Hills WWTF will have some environmental benefit with ammonia removal in both the summer and winter seasons. In accordance with the EPA's technical support document, final effluent limitations were determined using the default CV = 0.60 and the resulting multipliers. The number of samples results reported in the previous permit cycle did not meet the technical support documents ten (10) sample minimum requirements for conducting site-specific reasonable potential analysis. Therefore, the default final effluent limitations have been implemented in this permit. Currently, this facility is performing at a higher rate of ammonia removal than required by the new effluent limitations. Although the facility is currently in compliance with the new effluent limitations, the technology has not been proven to maintain such a high level of ammonia removal. For this reason, the Department feels that there will be an environmental benefit similar to the other facility benefits listed in this section.

Rayfield Subdivision WWTF will have an environmental benefit of 0.51 lbs/day, 82%, in the summer and 0.79 lbs/day, 78%, in the winter.

Richardson Acres WWTF will have an environmental benefit of 0.09 lbs/day, 47%, in the summer and 0.12 lbs/day, 36%, in the winter.

Springpark Subdivision WWTF will have an environmental benefit of 0.66 lbs/day, 94%, in the summer and 0.45 lbs/day, 83%, in the winter.

Sunnyslope WWTF will have an environmental benefit of 0.88 lbs/day, 94%, in the summer and 0.87 lbs/day, 87%, in the winter.

Sun Valley Estates WWTF will have an environmental benefit of 4.15 lbs/day, 92%, in the summer and 4.65 lbs/day, 86%, in the winter.

Sunrise Estates NE WWTF will have an environmental benefit of 1.27 lbs/day, 89%, in the summer and 1.54 lbs/day, 81%, in the winter.

Sunrise Estates NW WWTF will have an environmental benefit of 1.08 lbs/day, 91%, in the summer and 1.12 lbs/day, 83%, in the winter.

Trails West Subdivision WWTF will have an environmental benefit of 7.31 lbs/day, 92%, in the summer and 9.06 lbs/day 86%, in the winter.

Twin Lakes Subdivision WWTF will have an environmental benefit of 0.20 lbs/day, 47%, in the summer and 0.23 lbs/day, 34%, in the winter.

Wagon Trail Heights WWTF will have an environmental benefit of 0.28 lbs/day, 88%, in the summer and 0.39 lbs/day, 85%, in the winter.

Westwood Meadows WWTF will have an environmental benefit of 0.76 lbs/day, 83%, in the summer and 0.80 lbs/day, 70%, in the winter.

E. coli:
E. coli is an indicator of the presence of fecal contamination in water and possible disease-causing bacteria or viruses in water and wastewater. Exposure to these bacteria creates risks to human health. Certain strains of *E. coli*, other bacteria, viruses and parasites associated with fecal contamination can cause gastrointestinal illness. Levels of *E. coli* above the WQBELs can increase the risk to human health, resulting in more frequent cases of illness caused by untreated wastewater. Removal of *E. coli* is beneficial to human health because it can reduce the risk of exposure to bacteria or viruses that can cause diseases in humans.

At this time, the permittee has not indicated any alternative technologies than those of the conventional technologies currently most common in the State of Missouri that could be used that would be equally environmentally beneficial. Currently, the Department is not aware of any other alternative technologies that would be equally environmentally beneficial.

The following facilities had bacterial limitations in the previous permit cycle, have already installed disinfection systems, or do not fall within the two (2) mile regulatory distance requiring disinfection, and therefore are not subject to affordability for *E. coli* during this permit renewal process:

BCRSD Facility	MSOP Number	BCRSD Facility	MSOP Number
CEDAR GATE SUBD	MO-0096415	PRAIRIE MEADOWS WWTP	MO-0083542
COUNTY DOWNES	MO-0096938	RAYFIELD SUBD	MO-0099261
EAGLE KNOLL SUBD	MO-0117935	RICHARDSON ACRES	MO-0115185
EL REY HEIGHTS	MO-0091766	ROCHEPORT WWTF	MO-0095222
FALL CREEK SUBD	MO-0123072	ROLLINGWOOD PLAT #1	MO-0038792
HIGHFIELD ACRES	MO-0053376	SHARIDAN HILLS SUBD	MO-0085952
HILLVIEW ACRES SUBD	MO-0088668	SPRINGPARK SUBD	MO-0100463
LAKE CAPRI SUBD	MO-0114782	SUN VALLEY ESTATES	MO-0049913
MEADOW VILLAGE	MO-0098442	SUNRISE ESTATES NE	MO-0090816
MIDWAY ARMS INC.	MO-0108421	SUNRISE ESTATES NW	MO-0090824
MIDWAY CROSSINGS	MO-0132705	TWIN LAKES SUBD	MO-0101885
PHENORA SOUTH SUBD	MO-0100811	WAGON TRAIL HTS WWTF	MO-0094293
POWELL COMM. LAGOON	MO-0087688	WESTWOOD MEADOWS	MO-0053171

The following facilities will be required to meet new bacterial effluent limitations for this upcoming permit cycle:

BCRSD Facility	MSOP Number	BCRSD Facility	MSOP Number
BON GOR LAKE ESTATES	MO-0047619	QUARTER MILE HILLS	MO-0126446
CLEARVIEW ACRES SUBD	MO-0085944	SOUTH ROUTE K WWTF	MO-0087173
LEE HEIGHTS	MO-0102113	SUNNYSLOPE WWTF	MO-0095354
OBERLIN VALLEY	MO-0117323	TRAILS WEST SUBD	MO-0092002

(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;

Potentially Distressed Populations	
Unemployment for Boone County[12]	4.5%
Median Household Income for Boone County	$44,089
Percent Population Growth/Decline[13] (1990-2010)	+ 45.3%
Percent of Households in Poverty[14]	9.9%

Opportunity for cost savings or cost avoidance:
The BCRSD has applied for State Revolving Fund (SRF) financial support in order to help fund the CIP. They have also acquired funding through the ARRA program. Please see Part III, subsection (1) for more information on the funding granted to the BCRSD. Other loans and grants also exist for which the BCRSD may be eligible for. More information about the SRF and other loans and grants can be found on the Department's website at http://dnr.mo.gov/env/wpp/srf/wastewater-assistance.htm. The permittee may also contact the Financial Assistance Center (FAC) by clicking on the appropriate link on the website listed above.

Opportunity for changes to implementation/compliance schedule:
The Department will be assigning Schedules of Compliance (SOCs) with timelines relative to the types of facilities treating wastewater and with regards to the determination of financial burden on the BCRSD customers found in this analysis. The Department feels that any SOC developed during the initial permit writing process provides sufficient timing for the permittee to acquire necessary funds, properly submit proposal plans as completed by an engineer registered in the State of Missouri and complete construction of the upgrades to or replacement of the facility.

If the permittee feels that the allotted SOC for final effluent limitations for Ammonia as N does not provide enough time to make necessary preparations and upgrades, the permittee may submit justification to the Department detailing reasons for an extended schedule of compliance. Due to the statutory deadline of December 31, 2013, final effluent limitations for disinfection requirements are non-negotiable and must be effective upon that statutory deadline.

As of this finding of affordability, the Department can suggest no other cost reducing actions other than the suggestions listed above.

(5) AN ASSESSMENT OF OTHER COMMUNITY INVESTMENTS RELATION TO ENVIRONMENTAL IMPROVEMENTS:

The BCRSD expects other community investments in storm water management, collection system rehabilitation and I/I mitigation in partnership with the City of Columbia and the County of Boone. Although these projects may require financial investment on the part of the BCRSD and its users, the projects may be managed by the City of Columbia and the County of Boone.

The Department is not aware of any other major BCRSD projects in addition to the CIP and the items listed above. The Department is not aware of any other major projects happening in Boone County that would exceed the 2012 Budget for Boone County, ultimately affecting the community's financial capabilities.

[12] Unemployment data from Missouri Department of Economic Development (October 2012) - http://www.missourieconomy.org/pdfs/urel1210.pdf
[13] 2010 Census Population Data - http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t
1990 Census Population Data – http://www.census.gov/prod/cen1990/cp1/cp-1-27.pdf
[14] Poverty data – American Community Survey -http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t

(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 Part III, subsection (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	Above BBB or Baa	BBB or Baa	Below BBB or Baa	**N/A***
Overall net debt as a % of Fixed Assets (Substituted for Full Market Property)	Below 2%	2% - 5%	Above 5%	**1****
Unemployment Rate	>1% below Missouri average	± 1% of Missouri average	>1% above Missouri average	**3*****
Median household income	More than 25% above Missouri MHI	± 25% of Missouri MHI	More than 25% below Missouri average	**2******
Property tax revenues as a % of full market property value	Below 2%	2% - 4%	Above 4%	**N/A***
Property tax collection rate	Above 98%	94% - 98%	Below 94%	**N/A***

* The BCRSD does not have a bond rating, nor collects taxes.

** Debt = $6,942,595, Fixed Assets (Substituted for Full Market Property) = $17,797,820 as found in BCRSD FY 2012

*** State Unemployment as of October 2012 = 6.6%, Boone County Unemployment as of October 2012 = 4.5%. This is county unemployment, not specific to BCRSD users.

**** MHI Boone County = $44,089; MHI State = $44,306 as found on the U.S. Census Bureau Factfinder website.

Average Score for Financial Capability Matrix: **2.0**
Residential Indicator (from Criteria #2 above): **High**

Financial Capability Matrix

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

Estimated Financial Burden: **High Burden**

The combined indicators factored into this matrix have resulted in a high burden of financial capabilities for the community being served by the BCRSD. Residential, socio-economic and cost indicators have contributed to the determination found above.

(7) AN ASSESSMENT OF ANY OTHER RELEVANT LOCAL COMMUNITY ECONOMIC CONDITIONS:

This section describes other relevant factors that can be considered with regards to the communities overall ability to absorb possible debt burdens.

Boone County's population has increased 45.3% from 2000 to 2010. In terms of economic strength, Boone County is slightly above average when compared to other counties in the central Missouri region and throughout the State. As of July 2012, Boone County has a 5.6% unemployment rate and as of 2010 the per capita income is 1.4% below the State's average[15].

In terms of retail sales, Boone County captured the highest number of sales and customers in 2007 compared to other counties in central Missouri[16]. In terms of retail customers, Boone County attracts the highest number of customers in central Missouri and has one of the highest purchasing rates in the region. The buying power index of Boone County residents is well above average compared to the rest of the regional economy.

PART III – CONCLUSION AND FINDING

Summarized in this section are key factors that are detailed in the analysis above, which support the Department's final decision explained below.

The BCRSD has received almost $9,208,270 in State Revolving Fund (SRF) money to help fund the CIP project in order to improve the sewage collection and treatment systems in Boone County. Approximately $885,270 of ARRA grant money was awarded to the BCRSD for additional improvement projects to treatment systems in Boone County. Two projects are currently listed as fundable contingency projects in the Clean Water SRF Program Intended Use Plan for FY 2013 in the amount of $16,333.326. This financial assistance will be used to help reduce the cost of financing construction costs necessary to upgrade treatment system in order to meet Water Quality Standards (WQS) established in 10 CSR 20-7 and the Clean Water Act. The updated 2010 Rate Study discussed in Part II, subsection (2) of this analysis accounts for capital expenditures necessary to enhance certain facilities in an effort to comply with current and proposed regulations, and has analyzed potential user rates through 2016, in many years resulting in substantial increases to user rates. All of this information has been published on the BCRSD website and is available to be viewed by the community. Although the Department is unaware of any objections at this time to the proposed user rates, we understand that such rates are predicated on the BCRSD obtaining additional voter authorization from the community in order to finance, rather than cash pay, for required improvements.

Other elements of the assessment include important socio-economic factors about the population in Boone County. First, it must be noted that the unemployment rate in Boone County is 1.6% below the State of Missouri unemployment rate. Secondly, the MHI in Boone County is nearly the same as the State MHI with only a 1% difference. Finally, the population in Boone County has increased by 45.3% in the past 10 years.

As a result of reviewing the above criteria, the Department hereby finds that the action described above will result in a high burden with regard to the community's overall financial capability and a high financial impact for most individual customers/households. Although the citizens of Boone County, only a portion of which are served by the BCRSD, have an overall above average socio-economic situation when compared to the rest of the counties in the State of Missouri, the large number of facilities that may need capital improvements creates a larger amount of debt to distribute to the BCRSD customers. All 33 facilities listed on the first page of this finding may need improvement ranging from small construction to large scale replacements. Costs may vary but the whole range of possibilities must be considered by the Department, resulting in the final conclusion that permitting actions will cause a high level financial burden to the community and individual customers/households.

[15] http://www.missourieconomy.org/indicators/wages/pci10county.stm
[16] http://www.missourieconomy.org/pdfs/central_wia_retail_trade_analysis.pdf

JB

APR 10 2012

AP11185

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM, WATER POLLUTION BRANCH
FORM B – APPLICATION FOR CONSTRUCTION OR OPERATING PERMIT FOR FACILITIES WHICH RECEIVE PRIMARILY DOMESTIC WASTE (≤100,000 gallons per day) UNDER MISSOURI CLEAN WATER LAW

FOR AGENCY USE ONLY	
CHECK NUMBER: NO FEE REQUIRED	
DATE RECEIVED: 4/11/12	FEE SUBMITTED: Ø

NOTE ▶ PLEASE READ THE ACCOMPANYING INSTRUCTIONS BEFORE COMPLETING THIS FORM

1. This application is for:
- ☐ An operating permit and antidegradation review public notice.
- ☐ A construction permit following an appropriate operating permit and antidegradation review public notice.
- ☐ A construction permit and 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- 0117935 Expiration Date Apr 5, 2012
- ☐ 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 (Outfall of)

NAME		TELEPHONE WITH AREA CODE
BCRSD Eagle Knoll		573-441-0098
ADDRESS (PHYSICAL): 21445 Mt Pleasant Rd	CITY: Hartsburg	STATE: MO / ZIP CODE: 65039

2.1 LEGAL DESCRIPTION: ¼, SE ¼, NE ¼, Sec. 10, T 45N R 12 W County Boone

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

2.3 Name of receiving stream: Unnamed tributary to Slate Creek

3. OWNER

NAME	E-MAIL ADDRESS	TELEPHONE WITH AREA CODE
Boone County Regional Sewer Dist	dcooksey@bcrsd.com	5734410098
ADDRESS: 1314 N. 7th St	CITY: Columbia	STATE: MO / ZIP CODE: 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		TELEPHONE WITH AREA CODE
Same as above		
ADDRESS	CITY	STATE / ZIP CODE

5. OPERATOR

NAME	CERTIFICATE NUMBER	TELEPHONE WITH AREA CODE
Dwayne Cooksey	1299	573 441 0098

6. FACILITY CONTACT

NAME	TITLE	TELEPHONE WITH AREA CODE
Dwayne Cooksey	Operations Manager	573 441 0098

7.0 ADDITIONAL FACILITY INFORMATION

7.1 Description of facilities (Attach additional sheet if required). Attach a 1" = 2,000' scale U.S. Geological Survey topographic map showing location of all outfalls and downstream landowners. (See Item 9.)

7.2 Facility SIC code: 4952; Discharge SIC code: ____; Facility NAICS code: ____; Discharge NAICS code: ____.

7.3 Number of people presently connected or population equivalent (P.E.) 55 Design P.E. ____
Number of units presently connected: Homes 15 Trailers ____ Apartments ____ Other 1 church 1 clubhouse
Design flow for this outfall: 35,000 GPD Total design flow for the facility: 35,000 GPD Actual flow for this outfall: 4,300 GPD
Commercial Establishment: Daily number of employees working 2 Daily number of customers/guests 20

7.4 Length of pipe in the sewer collection system? 2800 feet/miles (Please denote which unit is appropriate.)

7.5 Does any bypassing occur in the collection system or at the treatment facility? ☐ Yes ☒ No (If yes, attach explanation.)

7.6 Does significant infiltration occur in the collection system? ☐ Yes ☒ No (If yes, attach explanation and proposed repair.)

7.7 Is industrial waste discharged to the facility identified in Item 2? ☐ Yes ☒ No (If yes, see instructions.)

7.8 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? 7

7.9 Is wastewater land applied? ☐ Yes ☒ No (If yes, attach Form I.)

7.10 Will chlorine be added to the effluent? ☐ Yes ☒ No — UV disinfection
a. If chlorine is added, what is the resulting residual? ____ µg/l (micrograms per liter)

7.11 Does this facility discharge to a losing stream or sinkhole? ☐ Yes ☒ No

7.12 Attach a flow chart showing all influents, treatment facilities and outfalls.

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. ____ LOW 9/12/08

8. SLUDGE HANDLING, USE AND DISPOSAL

8.1 Is the sludge a hazardous waste as defined by 10 CSR 25? ☐ Yes ☒ No

8.2 Sludge Production, including sludge received from others: 6.3 Design Dry Tons/Year _____ Actual Dry Tons/Year

8.3 Capacity of sludge holding structures: 13000 Gal
Sludge storage provided: ___ cubic feet; _____ days of storage; 2% average percent solids of sludge;
☐ No sludge storage is provided.

8.4 Type of Storage: ☐ Holding tank ☐ Building
☒ Basin ☐ Other (Please describe) _____
☐ Concrete Pad

8.5 Sludge Treatment:
☐ Anaerobic Digester ☐ Lagoon ☐ Composting
☐ Storage Tank ☐ Aerobic Digester ☒ Other (Attach description)
☐ Lime Stabilization ☐ Air or Heat Drying Hauled to another Facility

8.6 Sludge Use or Disposal:
☐ Land Application ☐ Surface Disposal (Sludge Disposal Lagoon, Sludge held for more than two years)
☐ Contract Hauler ☐ Incineration
☒ Hauled to Another Treatment Facility ☐ Sludge Retained in Wastewater treatment lagoon
☐ Other _____ Attach explanation sheet.
☐ Solid Waste Landfill

8.7 PERSON RESPONSIBLE FOR HAULING SLUDGE TO DISPOSAL FACILITY
☒ By Applicant ☐ By Others (complete below)

NAME			
ADDRESS	CITY	STATE	ZIP CODE
CONTACT PERSON	TELEPHONE WITH AREA CODE	PERMIT NO. MO-	

8.8 SLUDGE USE OR DISPOSAL FACILITY
☐ By Applicant ☐ By Others (Please complete below.)

NAME City of Columbia			
ADDRESS PO B N	CITY Columbia	STATE Mo	ZIP CODE 65202
CONTACT PERSON David Sorrel	TELEPHONE WITH AREA CODE 573-874-6286	PERMIT NO. MO- 0097837	

8.9 Does the sludge or biosolids disposal comply with federal sludge regulations under 40 CFR 503?
☐ Yes ☐ No (Please attach explanation)

9. DOWNSTREAM LANDOWNER (S). ATTACH ADDITIONAL SHEETS AS NECESSARY. SEE INSTRUCTIONS.

NAME Eagle Knoll LLC			
ADDRESS 829 Western Air Dr.	CITY Jefferson City	STATE Mo.	ZIP CODE 65109-

10. DRINKING WATER SUPPLY INFORMATION

10.1 WHAT IS THE SOURCE OF YOUR DRINKING WATER SUPPLY:
A. Public supply (municipal or water district water) Consolidated
If public, please give name of the public supply _____
B. Private well _____
C. Surface water (lake, pond or stream) _____

10.2 Does your drinking water source serve at least 25 people at least 60 days per year (not necessarily consecutive days)?
☒ Yes ☐ No

10.3 Does your supply serve housing which is occupied year round by the same people? This does not include housing which is occupied seasonally? ☒ Yes ☐ No

11. I certify that I am familiar with the information contained in the application, that to the best of my knowledge and belief such information is true, complete and accurate, and if granted this permit, I agree to abide by the Missouri Clean Water Law and all rules, regulations, orders and decisions, subject to any legitimate appeal available to applicant under the Missouri Clean Water Law.

NAME AND OFFICIAL TITLE (TYPE OR PRINT) Dwayne Collins / Operations Manager	TELEPHONE WITH AREA CODE 573-441-0098
SIGNATURE	DATE SIGNED Apr 9, 2012

MO 780-1512 (09-08)

BCRSD
Boone County Regional Sewer District
Clean water for your future

1314 North 7th Street
Columbia, MO 65201
p: 573-443-2774
f: 573-499-0489
www.bcrsd.com

April 9, 2012

Logan Cole, Environmental Specialist 1
Missouri Department of Natural resources
Water Protection program
NPDES Unit
POB 176
Jefferson City, MO. 65102

RE: Alternative Monitoring Schedule Renewal Eagle Knoll MO-0117935

Dear Mr. Cole,

The Boone County Regional Sewer District respectfully request that the alternative monitoring schedule for the Eagle Knoll wastewater treatment facilities be renewed for another permit cycle.

Thank you for your cooperation in this matter.

Sincerely,
BOONE COUNTY REGIONAL SEWER DISTRICT

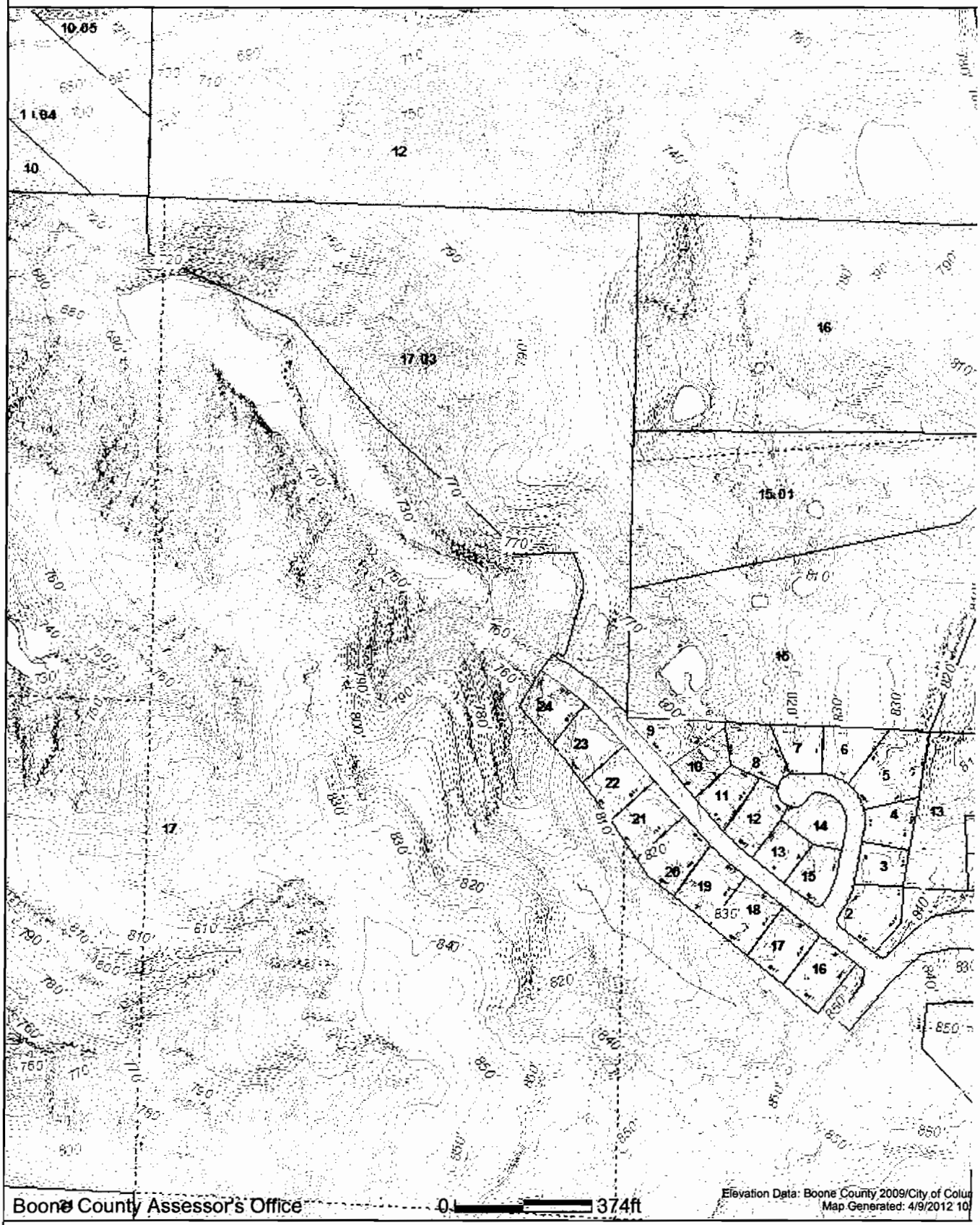
Dwayne Cooksey
Operations Manager

C; Tom Ratermann, General Manager
File

Eagle Knoll

Boone County Internet Parcel Map

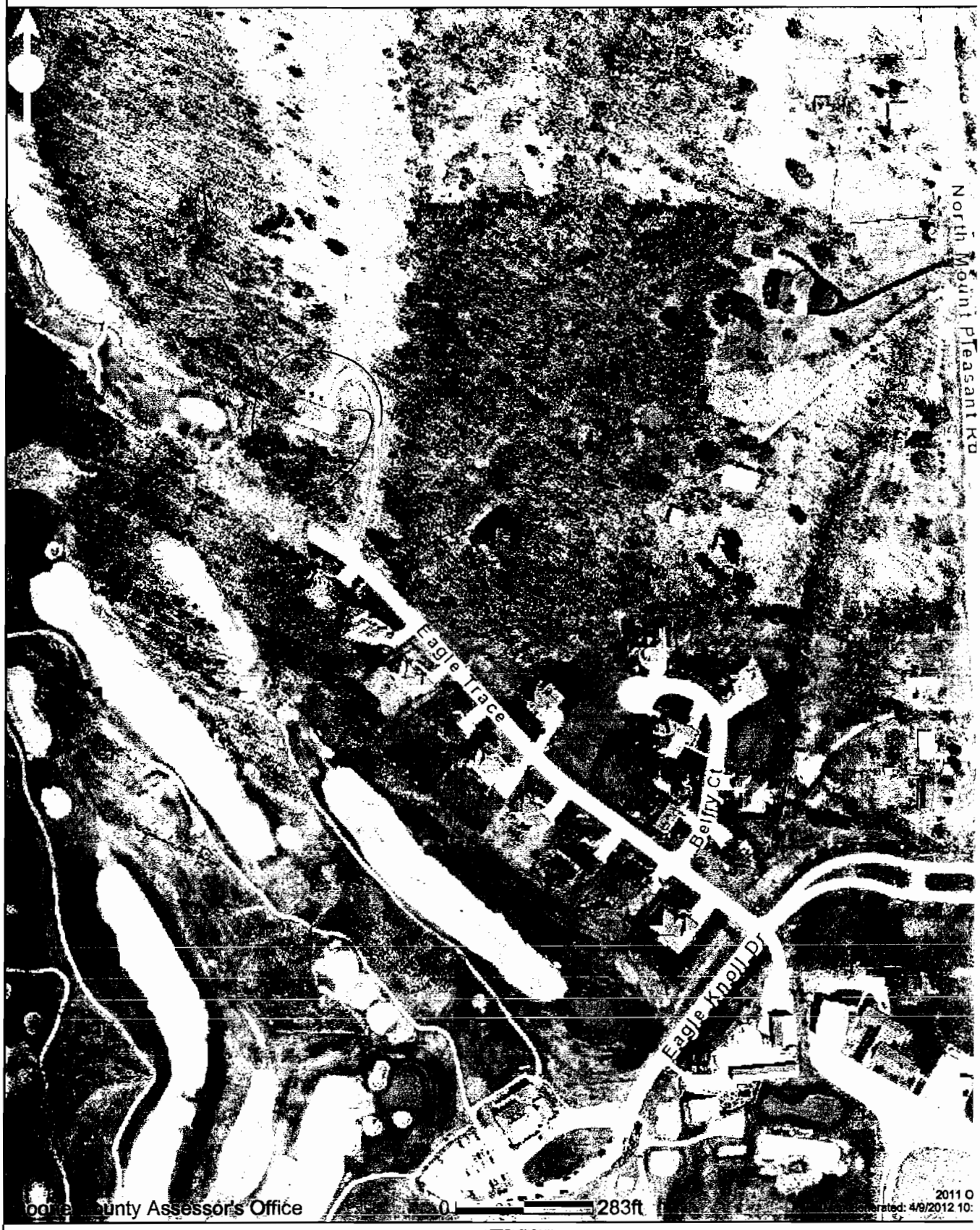
Prepared by the Boone County Assessor's Office, (573) 886-4262



ATTENTION!!

Boone County Internet Aerial Photo Map

Prepared by the Boone County Assessor's Office, (573) 886-4262



ATTENTION!!